

EDUCATING FOR ETHICS, CRITICAL THINKING AND RESPONSIBLE ACTION IN THE ANTHROPOCENE

CLIMATE, FOOD SYSTEMS, AND DEMOCRATIC CHALLENGES



CIP. Biblioteca Universitaria

Educating for Ethics, Critical Thinking and Responsible Action in the Anthropocene [Recurso electrónico]: Climate, Food Systems, and Democratic Challenges / [directors] A. Jelenkovic Moreno... [et al.]. – Datos. – [Leioa] : Universidad del País Vasco / Euskal Herriko Unibertsitatea, Argitalpen Zerbitzua = Servicio Editorial, [2025]. – 1 recurso en línea : PDF (180 p.)

Modo de acceso: World Wide Web.

Incluye referencias bibliográficas.

ISBN: 978-84-1319-669-5

1. Pensamiento crítico. 2. Ética del medio ambiente. 3. Educación cívica. 4. Enseñanza universitaria.
I. Jelenkovic Moreno, Aline, codir.

(0.034)378:504

(0.034)378:172

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Acknowledgements: This publication has been supported by the Research Group GIU24/007 EU-Frames, “Constructing Innovative Regulatory Frameworks in the EU”, led by L. Escajedo San-Epifanio and I. Filibi. Website: euframes.com



Additional support has been provided through the project **VegEquity, Plant Breeding and European Integration** (PID2021-123796OB-C21), financed by the Spanish Ministry of Science, Innovation and Universities.

The authors also acknowledge the support of **Urban Elika – Multidisciplinary Study Group on Food and Society**, University of the Basque Country.



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Euskal Herriko Unibertsitateko Argitalpen Zerbitzua

ISBN: 978-84-1319-669-5



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Thinking Critically, Acting Responsibly: Ethics Education for a World in Transition

Aline Jelenkovic Moreno, Maria Eugenia Ibáñez Pérez-Zamacona,
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(book editors)

Higher education in the 21st century cannot merely reproduce established knowledge or prepare students for a world that no longer exists. At a time of global interdependence, systemic uncertainty, and ecological emergency, universities are called upon to develop students who can understand complexity, engage critically with their times, and act responsibly. This book contributes to that ambition by cultivating a core competence—critical thinking in all its aspects—through diverse educational practices, methodologies, and disciplinary perspectives.

The mainstreaming of critical thinking is not a slogan. As Martha C. Nussbaum (2010) highlighted, the ability to think independently, develop judgment, and cultivate empathetic imagination is central to educating for democratic citizenship. Today, thinking critically also entails thinking environmentally: recognizing that prevailing lifestyles jeopardize the conditions that sustain life on the planet.

Since the early 2000s, the term Anthropocene has gained currency as a cultural, political, and analytical category¹. Proposed by Nobel laureate Paul Crutzen and biologist Eugene Stoermer, it denotes the epoch in which human activity has acquired geological scale, reshaping planetary systems. Even as debates on its formal geological status continue (Waters *et al.*, 2016; Zalasiewicz *et al.*, 2019), the term effectively structures interdisciplinary dialogue around the civilizational and ecological crises we face.

Approaching the Anthropocene in education requires opening learning spaces that embrace, rather than avoid, this complexity. The Sustainable Development Goals (SDGs) offer a useful framework, but their inclusion in curricula must go beyond surface-level inclusion. Critical reflection is needed on the tensions inherent in the SDGs, the structural barriers to their realization, and the differentiated responsibilities they imply.

One of the great risks of our time is the normalization of the climate crisis. Messages such as “every action counts” are true, yet they risk becoming paralyzing slogans if not accompanied by reflection on the scale, type, and urgency of actions needed. Educating students to discern which actions carry the most transformative potential is itself a critical ethical task.

¹ The term was previously used by Eugene F. Stoermer, as his academic circle has recognised. See P. J. Crutzen & E. F. Stoermer, *The ‘Anthropocene’* (2000), re-published in S. Benner *et al.* Paul J. Crutzen and the Anthropocene: A New Epoch in Earth’s History, Cham: Springer, 2021 (The Anthropocene: Politik, Economics, Society, Science, Vol. 1).

From this perspective, the contributions in this book explore not only how to teach ethics but how to teach from an ethical standpoint, where ethics is not a compartmentalized subject but a cross-disciplinary dimension that informs knowledge and university praxis. Ethics connects disciplines, shapes decisions, and fosters civic responsibility. As Adela Cortina (2003) observes, it is about cultivating persons who can “live together in dignity,” a notion today extended to living justly and sustainably on our planet.

The chapters present a range of teaching approaches and methodologies. Donald Bruce introduces the use of Democs Card Games to engage students with ethical dilemmas in genetic modification. Simon Meisch proposes using memes and literary classroom conversations to foster interdisciplinary ethical argumentation. From the field of constitutional law, Ainhoa Lasa examines the constitutionalization of the environmental mandate and its tensions with “capital ecology,” while Leire Escajedo San-Epifanio investigates cases such as strategic climate litigation and the Iberian wolf conservation conflict, where law, ecology, and ethics intersect.

Other contributions focus on the ethics of food. Amaia Inza-Bartolomé and Ixone Fernández de la Bastida critically examine the charitable food model through the lens of the human right to adequate food. Muhammad Adeel and Michael G.K Jones explores the ethical and socio-economic dimensions of global food systems, while Raymond Anthony investigates eco-anxiety and animal ethics using role-playing and ethics roundtables. María Eugenia Ibáñez, Leire Escajedo, Aline Jelenkovic, Alaitz Poveda, and Esther M. Rebato analyze how globalized diets, consumer rights, and standardized nutrition affect health and ethical citizenship, advocating for informed, responsible food choices.

Literature is also used as a vehicle for ethical reflection. Maite Aperribay presents teaching experiences with children’s and young adult literature to address sustainability and ethics, while Mikel Díez Sarasola explores political trilemmas in a new socio-ecological paradigm, providing tools for critical analysis of governance. Igor Filibi and Ixone Alonso focus on cooperative and in-person role-playing, demonstrating their potential to cultivate ethical judgment, empathy, and deliberative skills.

Finally, this book addresses civic engagement. Leire Escajedo San-Epifanio emphasizes that beyond legal avenues such as climate litigation, citizen action is a first step toward environmental justice and participatory democracy, underscoring the transformative potential of ethical education in shaping active, responsible citizens.

In sum, this volume offers pathways rather than prescriptive solutions, showcasing a patchwork of approaches, practices, and methodologies united by a concern for fostering informed, critical, and committed citizens in a time of multiple crises. As Edgar Morin (1999) reminded us, teaching to think is teaching to face uncertainty, complexity, and conflict—dimensions intrinsic to our human and planetary condition.

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Educating for Transformative Citizenship: The Potential of In-person and Cooperative Role Play at the University

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Abstract:

Given the challenges of the Anthropocene, the university must not only produce competent professionals, but also citizens able to think critically, act responsibly and be part of the transformation of a world in crisis. This chapter explores the pedagogical potential of in-person and cooperative role-playing games as powerful tools to cultivate fundamental deliberative, social and ethical skills in higher education.

First, the key differences between cooperative and competitive games are analysed, stressing how the latter foster interdependence, empathy and the collective construction of solutions. Second, the online gaming experience is contrasted with the wealth of the face-to-face dynamics to be found in in-person games, which are particularly beneficial to develop skill-sets such as effective communication, negotiating, shared leadership and group ethical decision-making.

In addition to their pedagogical benefits, other advantages of in-person games—their low cost, the transparency of their dynamics and their ease to be critically analysed by the students themselves—are highlighted. It is argued that the cooperative nature of those games—where the fate of the group depends on the commitment of each member—is a microcosm of democratic values that can help to form reflective citizens who are committed to the common good, which are essential values of democratic societies.

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I. INTRODUCTION: BEYOND THE TRADITIONAL CLASSROOM: THE EDUCATIONAL POTENTIAL OF COOPERATIVE AND IN-PERSON GAMES

We live in a time of multiple and interconnected crises: climate, environmental, social and democratic. In the Anthropocene—an era characterised by the profound impact of human activities on the Earth’s systems—, the university cannot therefore merely pass on disciplinary or technical knowledge. It has the ethical responsibility to produce people capable of understanding the complexity of the contemporary world, thinking critically, and acting collaboratively in order to transform it.

In this context, educational games, and in particular in-person and cooperative role-playing games, are proving to be highly valuable pedagogical tools. Their use is not new: games have long been a key resource for learning in contexts where putting the acquired knowledge into practice would entail significant risks, either to the safety of the trainees or to the reputational and economic resources of the organisations. What is recent is the rise of these methodologies in the university classroom, driven by the questioning of the traditional teaching model—focused on the figure of the teacher as the vehicle of knowledge—and the progress towards a student-centric model, where the emphasis is on actively involving students in their own learning process (Barber, 2007).

This pedagogical shift, which Altbach, Reisberg and Rumbley (2009) called an academic revolution, has taken place in a global context traversed by the hegemony of neo-liberal ideology and the imperatives of economic globalisation, which has conditioned its forms and priorities (Uncetabarrenechea, 2001; 2010). Furthermore, it has been influenced by the technological advances and the digitalisation of learning, which have opened up new opportunities through online platforms (Liu *et al.*, 2023), digital games (Vlachopoulos & Makri, 2017; Papastergiou, 2008), and emerging technologies such as augmented reality (Klopfer *et al.*, 2005).

However, this digitalisation also has significant constraints: from the technical and economic costs associated with the development of those resources (Pöyry-Lassila, Kuhmonen & Marjanen, 2017), to the negative effects of the intensive use of electronic devices and screens on the physical and mental wellbeing of the student body (Zhang *et al.*, 2023; Johnson, Adams & Cummins, 2012).

Faced with such tensions, this chapter focuses on a more accessible, flexible and profoundly formative type of educational practice: in-person role playing games and, more specifically, those based on cooperation among the participants. Those games have great potential in social sciences and humanities, not only due to their simplicity and low cost, but also because they allow relational, reflective and situated learning processes to be triggered (Ladousse, 1987; García Carbonell *et al.*, 2014).

By placing students in simulated situations —such as diplomatic negotiations, ethical dilemmas, social conflicts and legislative processes—, role playing games allow them to experience decision-making in complex contexts, put themselves in someone else’s shoes, and understand the motivations, tensions and constraints of human interactions (Ovidiu, 2022; Zhang & Yu, 2022; Shapiro & Leopold, 2012; O’Brien & Spears, 2011; Smith & Boyer, 1996; Simpson & Elias, 2011; Bernard & Yianniaka, 2010; Porter, 2008).

Furthermore, the type of interaction proposed in those games is key for their training potential beyond the thematic content. As Johnson & Johnson (1978) and Romero *et al.* (2012) showed, the game dynamics can be structured around cooperative, individualistic or competitive rationales, each with different implications for learning. Cooperative role-playing games, where all the participants share the group's fate, bolster democratic values such as joint responsibility, deliberation, active listening and consensual decision-making.

Despite all these advantages, in-person cooperative games are losing out to the rise of the digital educational video game industry, which tends to prioritise spectacularity, scalability and profitability over furthering social and ethical learning. This paper argues that recovering and valuing those simpler but powerful practices —such as cooperative and face-to-face role-playing games— are fundamental for a university education committed to producing critical citizens and to the democratic transformation of our societies.

The chapter is thus structured into two main focus areas: (1) A comparative analysis of the in-person games and the remote or digital games, with special focus on their respective advantages and constraints. (2) A reflection on the forms of interaction fostered in the games (competitive, individualistic, cooperative) and their impact on the type of skills developed.

II. PHYSICAL PRESENCE AND VIRTUALITY IN EDUCATIONAL GAMES: COMPARATIVE ANALYSIS OF THEIR FORMATIVE IMPACT IN UNIVERSITY EDUCATION

In the last two decades, the use of games for educational purposes took off exponentially, particularly through the development of serious games and electronic simulations designed to facilitate active learning in different contexts (Michael & Chen, 2006; Sawyer, 2007). This growth has been accompanied by a lively pedagogical debate about the opportunities and constraints of the different game formats in educational environments, particularly at university (Gee, 2003; Vlachopoulos & Makri, 2017).

This section offers a comparative analysis of two differentiated but interrelated core areas: (1) Physical presence versus virtuality in gaming environments. (2) Electronic versus manual or analogue dynamics ('paper and pencil' games). Both core areas are key to understand the pedagogical ramifications of the different forms of game, in terms both of quality of learning and the values fostered.

II.1. Details of the core areas of the comparison

II.1.1. *In-person games versus virtual games*

In-person games—those that require face-to-face interaction between participants in a shared physical space—offer a series of advantages that are difficult to replicate in virtual

environments. They allow communicative, social and emotional aspects to be addressed in real relational contexts, fostering skills such as active listening, empathy, non-verbal communication and real-time negotiating (Barab *et al.*, 2009; Ladousse, 1987). These skills, which are fundamental in social sciences and in citizen training, run the risk of being watered down in digital environments, where the interactions tend to be more limited, fragmented, or technologically mediated (Turkle, 2011).

In turn, virtual games—those that are played online or using digital simulators—offer important advantages in terms of scalability, remote access, personalised pace of learning and automatic recording of performance data (Vlachopoulos & Makri, 2017; Liu *et al.*, 2023). Those environments can be particularly useful to depict hazardous or complex scenarios, where the simulation allows a risk-free experience (de Freitas & Routledge, 2013).

However, research has also pointed to important constraints: the isolation of the students, less spontaneous interaction, the problems of accessing technology, and the different psychological effects arising from prolonged screen use (Zhang *et al.*, 2023; Johnson, Adams & Cummins, 2012). Furthermore, in cooperative contexts, the lack of physical presence may limit the building of mutual trust and genuine cooperation among the participants (Salas *et al.*, 2009).

II.1.2. *Electronic games versus analogue games*

The second aspect of the analysis refers to the way the game is processed and conducted: whether the rules, decisions and results are managed by a computer system (electronic games), or whether they are interpreted and controlled by the players themselves and human facilitators (analogue or pencil and paper games).

Electronic games, whether in-person or remotely, automate many of the operations of the game, which can be useful in complex scenarios or with a large number of participants. However, this automation makes the decision-making process less transparent, which limits the opportunities to discuss the rules, critically review the game assumptions or adapt the experience according to the group (Pöyry-Lassila *et al.*, 2017).

Conversely, analogue games foster greater agency of the students: rules can be negotiated, adapted or reinterpreted as the game is being played, which contributes to greater understanding of the simulated processes. Furthermore, such games are more accessible in economic and technical terms, and facilitate group work, collective deliberation and metacognitive reflection during and after the activity (García Carbonell *et al.*, 2014).

In short, even though digital games have attracted great academic and industrial attention in recent years, their dominance needs to be problematized, along with critically exploring the educational strengths of in-person and analogue games, particularly in the field of teaching democratic values, deliberation and cooperation.

II.2. Advantages of physical presence

One of the main advantages detected, in addition to the ability to rally and involve participants—an advantage shared by the in-person games—, refers to the realism of the game—thanks to the important developments in graphics and sound in recent years—which facilitates the immersion of the participant in the virtual world on screen.

Apparently, the in-person homespun ‘pencil and paper’ games have been widely surpassed by the technological advantages of electronic games, particularly if we take into account that today’s university students are already *digital natives* (Prensky, 2001).

Thus, the realism and fidelity of the scenarios would be one of the main comparative advantages of electronic games with respect to their revered paper predecessors. However, this common view in many academic contributions comes up against several problems (Feinstein & Cannon, 2002:426). On the one hand, it is not at all easy to measure fidelity in a learning environment. On the one hand, the different studies that have sought to analyse the relationship between fidelity and its effects on learning, most of which are military, have shown that a greater degree of realism does not lead to better learning. Furthermore, some authors have convincingly shown that more modest degrees of fidelity to reality are at least as equally valid to accompany the learning process (Alessi, 1988; Dwyer, 1974; Gagne, 1954; Miller, 1974), and some even claim that too much realism can overstimulate the students and distract them from their main learning goal (Martin & Waag, 1978). Therefore, the student’s perception that the model is *realistic* is much more important than the model’s fidelity to reality. (Kibbee, 1961). Those findings, summarised by Feinstein & Cannon (2002), bring us to a discussion setting that is different to the current prevailing one in the literature.

As a preliminary approach, we propose a comparative analysis between in-person games and digitalised games in the context of university teaching-learning. We therefore identify five key aspects that allow their respective formative input to be assessed. These aspects do not seek to exhaust the discussion, but they do provide a sound base to reflect on the pedagogical potentials of each format and on the criteria underpinning their critical integration in the classroom. We consider each one below with special focus on the specific advantages that in-person games offer in the development of complex skills that are inherent to the field of human and social sciences.

II.2.1. *The educational value of direct human contact: face-to-face communication and interpersonal skills*

First, even though spectacular technological advances have been made and can recreate very realistic landscapes and cities in the virtual scenarios, the simulation of human behaviour is very far from being true to the original (Gobron *et al.*, 2011). Non-verbal communication, which includes facial expressions, way of looking, and arm and leg movements, is essential for understanding what other people think and feel (Davis, 1973; Knapp, Hall & Horgan, 2014), particularly in intercultural contexts (Ting-Toomey & Chung, 2012). Thus, for example, there is no point in learning to negotiate in virtual environments where those decisive aspects do not tally with the real ones; therefore,

interaction with real human beings is crucial (Filibi & Alonso, 2012). Furthermore, the need to interact with real people to successfully work on other skills such as team work or social skills should be singled out.

On the other hand, it has been proven that people working together to solve a problem use a different dialogue structure when they can see and hear each other than when they can only hear one another. The language used is completely altered by the need to replace the wealth of non-verbal information with words. Furthermore, a second study within the same article showed that, even when the communication involved a high-quality video, the result was not as beneficial as in the case of face-to-face communication in person (Doherty-Sneddon *et al.*, 1997). Kim (2014) reached similar results after comparing face-to-face communication and that synchronised via computer, suggesting that the latter should only be used selectively according to the stated educational goal

In another study, Frohlich & Oppenheimer (1998) showed that in the cases when cooperation is more problematic, electronic communication is less useful than when communicating face-to-face. Accordingly, Suthers (2001) found that current tools have serious shortcomings compared to the face-to-face communication processes, despite the opportunities opened up by the use of electronic media for learning. In particular, face-to-face communication was found to be fundamental to create a climate of confidence, as the process required more time even in experiments in which a video was used to generate confidence to levels comparable to the face-to-face relationship (Bos *et al.*, 2001).

However, some later studies present a more even balance (Lock, 2015), and even claim to have obtained similar results in both types of situations (Francescato *et al.*, 2006). Despite the existence of those studies, which usually often explicitly promote the online teaching systems, the students themselves affirmed in other studies that it was a great disadvantage not to be able to read the nuances of body language in electronic messages (Ellis, 2001:172). Some of those studies argued that the platforms are neutral as regards the content (Thomas & Seely Brown, 2011:50-1)—which does not mean that they are neutral in all their aspects; they also usually suggest that technology is radically transforming the learning context and that the 21st century—compared to the former and stable infrastructure of the 20th century—is marked by change, innovation and constant adaptation. Beyond this rhetoric, and despite the industry’s defenders of serious games pointing out that the available technology offers great opportunities for deep and sustained learning (Michael & Chen, 2006), barely any systematic research endorsing that claim is found in the literature, with a few exceptions such as the recent book focused on social science applications (Ritterfeld, Cody & Vorderer, 2009). Therefore, the more serious studies suggest—and in a far more prudent manner—that it is still more about promises than realities (Lock, 2015:139).

Despite the spectacular advances in technology—such as generative Artificial Intelligence and the new language models—, we consider that it is very difficult for an electronic system to be capable of providing all the information (verbal and non-verbal) of a face-to-face interaction between people sharing the same physical space. At the time of writing, there is no comparable alternative to personal contact to express—and to be able to learn—the complexity of human relations. Therefore, the virtual media, whose advantages cannot be overlooked, should focus on those aspects which contribute complementary or added value to in-person personal relations, such as working on critical thought (Newman, Webb & Cochrane, 1995).

II.2.2. *Relational complexity and interactive wealth of in-person games*

Second, electronic games tend to be structured individualistically, with the game experience focused on a single user in front of the screen. Even though this trend has begun to change with the development of multi-player platforms and online collaborative environments, it continues to prevail in the majority of the current digital educational proposals (Vlachopoulos & Makri, 2017). This approach is a major constraint on the formative potential of the game if compared to the possibilities offered by in-person games, particularly as regards the relational complexity and interactive wealth that emerge in the physical coexistence between the participants.

As intrinsically social beings (Tomasello, 2014), much of human learning occurs through collective interactions, not only by exchanging information, but also by negotiating meaning, mutual observation and joint construction of meaning. In-person games allow those aspects to flourish naturally, thanks to a myriad of codes that are simultaneously triggered—gestural, verbal, emotional contextual—and to the possibility of interpreting, modulating and co-building the group dynamics in real time. This multidimensionality of social interaction—typical of the face-to-face game—is difficult to replicate in the digital environment, where communication is usually fragmented or technologically mediated, which reduces the wealth of nuances available for collaborative learning and the development of complex social skills.

Furthermore, in-person games are shown to be better able to generate emerging dynamics and unforeseen scenarios, and the outcome of the free interaction between participants. This quality, which is absent or very limited in digital games guided by closed algorithms, turns the classroom into a collective space to experiment, where students do not only follow rules, but also reinterpret, negotiate and transform them. Accordingly, the in-person game not only conveys technical skills or content, but also provides a situated, pluralistic and open training experience, which is essential to develop contextualised, ethical and critical thought.

II.2.3. *Reflective mastery of the game system compared to the opacity of the digital systems*

Third, considering the architecture of the game system—in other words, the set of rules that structure the possible actions and the ensuing consequences—is fundamental. In digital games, this layer is usually hidden under visual interfaces and lines of code: it is a closed system, governed by algorithms that automatically react to the player's decisions, but whose internal rationales are rarely visible or understandable to the user (Aldrich & DiPietro, 2010: 39-40). This opacity may lead to unforeseen effects or inconsistencies outside the educational control, particularly if the goal is for the student not only to understand the content of the game, but also its organisational structure.

Conversely, in-person games—particularly 'pencil and paper' ones or role play designed for the classroom—have an open and transparent system, where the rules are available to be scrutinised by the participants, whether by means of manuals, character sheets or explicit agreements between players and facilitators. This openness not only allows great student appropriation, but also fosters deeper understanding of the rationale of the game, its internal

coherence and its possible adjustments. As Gee (2007) pointed out, learning to ‘read’ and master the system of a game is in itself a metacognitive skill that can be transferred to real contexts. Thus, the transparency of the system in in-person games helps students to become an active force of their own learning process, capable of understanding, changing and, sometimes, reinventing the game rules.

II.2.4. *Possibility of understanding, critically assessing and contributing to the redesigning of the game*

Fourth, the real educational potential of a game is achieved when the participants not only understand the rules, but are also capable of critically assessing them and proposing improvements or alternatives. This analysis process provides students with in-depth understanding not only of the mechanics of the game, but also the reality models that it seeks to represent. Thus, the game is no longer merely a tool to understand content and becomes a vehicle of deep reflection on the principles, values and dynamics underlying the rule system.

When the students are capable of identifying short-comings in the game system, proposing new learning goals or of even designing a new version of the game, a metacognitive level is triggered that drives critical thought. This ability not only facilitates better understanding of the subject matter in question, but also fosters problem-solving skills, creativity and informed decision-making (Salen & Zimmerman, 2003; Gee, 2007).

II.2.5. *Lower cost versus efficiency in the in-person games*

Fifth, the much lower cost of the ‘pencil and paper’ games should be stressed, both for reasons of simple efficiency and to place us in a context of cuts in the education system.

In 1979, Brewer & Shubik argued that even though large-scale computer simulations were more expensive and had been shown to have little practical value, they were, nonetheless, the ones most used by the US armed forces (around 90% of the cases). The central argument to question their validity lay in the fact that the purely computerised simulations ‘focused attention on the quantifiable aspects of a problem to the exclusion of significant non-quantifiable aspects’, which meant the problems were distorted and overly simplified. Therefore, they proposed the more regular use of simulation with human beings in face-to-face simulations, even though they warned that the success of those simulations depended to a great extent on the quality of the scenarios and of the players (Brewer & Shubik, 1979:141-2, 322).

In a review of three books that include the one cited of Brewer & Shubik, Robert Mandel highlighted the interest of the face-to-face simulations due to their lower cost. Furthermore, he showed that their main advantages rather lay in exploring social interaction than in clarifying their results, in clearly showing the situation of uncertainty in which the decision-making occurred (Mandel, 1980:369).

II.3. Summary of the advantages overall and some constraints of in-person games

Completely human simulation, taken to be that carried out in-person and face-to-face, offers several significant advantages, particularly in the educational field. First, it allows full communication and social interaction, addressing both the verbal and non-verbal aspects, which is crucial for understanding and developing interpersonal skills. Unlike the computerised simulations, that cannot replicate such aspects of human communication, in-person games facilitate a more complete immersion in learning situations (Filibi & Alonso, 2014). Second, face-to-face simulations and games are an excellent tool to work soft skills, such as leadership, negotiating, decision-making, stress management, and transferable skills such as critical thought or team work. This approach not only fosters individual learning, but also drives a dynamic interaction that enriches the students' experiences. Moreover, the social component of those games facilitates greater motivation, making the learning experience more encompassing and meaningful, and, therefore, it reduces the real playing time needed to achieve the desired results.

As regards economic efficiency, in-person games are much more accessible, particularly in a context where educational resources are limited. These games, as they do not require electronic devices or complex platforms, are considerably lower in cost compared to simulations that depend on advanced technology, except for the cases where bringing the participants together in person involves high logistic costs, in which case virtual games can offer a feasible alternative, despite their limitations.

However, despite their clear advantages, 'pencil and paper' games also have certain constraints. First, the quality and realism of the scenarios are subject to the narrative ability of the designers³, which can result in limitations in terms of depicting dynamic or complex situations. Second, the choice of the participants is fundamental, as the key roles in the game can significantly influence the development and the educational outcomes. Third, the number of participants must be carefully considered to avoid the complexity of the game exceeding the ability to manage the group. Furthermore, in-person games usually require players to have a high level of linguistic skills and good cultural knowledge, which can be an obstacle in more diverse settings. Finally, the evaluation of the qualitative aspect that such games address, such as developing emotional and social skills, can be more complex and less quantifiable than in digital simulations.

III. ADVANTAGES AND CHALLENGES OF COOPERATIVE COMPARED TO COMPETITIVE GAMES IN LEARNING

During the learning process, students can interact in three different ways. They can compete to see who is better; they can work individually without paying attention to what the others are doing; or they can work cooperatively with a personal interest while the others work alongside them (Johnson & Johnson, 1978). In the early 1990s, those same authors showed that the competitive interaction was the dominant one, and that the climate

³ In this regard, the narrative construction of the scenario brings up the figure—often overlooked in academic literature, although central in many commercial games—of the game master (Tychsen *et al.*, 2005).

became more competitive the higher up the school years up until university. Furthermore, it was rare to find work groups in which student celebrated the learning of their peers and shared the progress (Johnson & Johnson, 1994). Even though strong consensus has existed since the 1980s regarding the advantages of cooperative learning with respect to the other two types of interaction (Johnson & Johnson, 2009:365), it has still not yet become established in the praxis of our universities, due to the great historical inertia of the ways of learning.

III.1. Advantages

From a global perspective, the learning of the groups that work cooperatively⁴ is undeniably higher than that of the groups who work in a competitive climate and those who work individually (see for all: Johnson, Johnson & Stanne, 2000). However, the conditions required for the cooperative endeavour to have better results than the competitive and individualist means need to be carefully considered.⁵ The trailblazers of this methodology, the influential Johnson & Johnson (1994,2005), identify five main characteristics of cooperative learning: a) positive interdependence; b) personal interaction, face-to-face c) group and individual responsibility; d) learning; and e) the systematic and frequent assessment of the functioning of the group.

III.1.1. *Positive interdependence*

The first characteristic implies that all the members of the group accept the fact that personal success is only possible if the group achieves it as a whole. This requires great trust that the other participants will play their part correctly and will achieve the expected results.

III.1.2. *Working together in the pursuit of group and personal goals*

The second characteristic stems from the first: all members will help to achieve personal and group goals. Given that the group as a whole is diverse, this means that the members have different strengths and also weaknesses. One part of the group's work is to make the group function; personal interaction is therefore very important and should be face-to-face wherever possible.

III.1.3. *Collective and individual responsibility*

Third, this type of functioning entails a dual responsibility: individual and collective. Each member of the group is responsible for their individual tasks and has to be accountable

⁴ Different terms have been coined for this cooperative learning situation, including team learning, cooperative learning, collaborative learning and learning communities (Dillenbourg *et al.*, 1996; Dooly, 2008).

⁵ It should also be noted that competition can also be constructive under certain circumstances (Johnson & Johnson, 1978; Sherif, 1978).

for them, but each one also has to make a commitment and contribute to the success of the collective work.

III.1.4. *Need to develop interpersonal skills (negotiating, conflict resolution) for the success of the team*

The fourth characteristic is that none of the above is possible without certain social skills being correctly developed. The climate generated in the group will be a cornerstone of the group working well.

III.1.5. *The systematic review of how the group is working*

Finally, the constant and systematic review of how the group is working is essential, both to learn what functions and what does not, to ensure accountability of the members of the group, and to prevent anybody from taking advantage of the others' work. In short, the aim is to ensure the efficacy and fairness of the group, as it is not possible for the group to function correctly when some members systematically fail to carry out their part of the work. The emotional climate and with the necessary trust to maximise the advantages of this type of learning cannot be maintained if there is not a fair distribution of tasks and mechanisms to ensure that the work is carried out correctly.

III.2. **Obstacles to implementing cooperation games: the social context aimed at individualism**

These main characteristics of cooperative work clearly show that the physical presence of the team members and their physical contact—face-to-face—significantly contributes to the group functioning correctly. Accordingly, in-person cooperative games emerge as a formula with a huge potential for learning. However, despite the obvious advantages of this approach, there are several significant obstacles that hinder its effective implementation in professional and educational settings. The lesser the close contact, for example, the more difficult it will be to create and maintain the necessary good climate.

Perhaps most importantly, the value of individualism has been exaggerated in our societies beyond all reasonable limits (regarding the importance of the cultural context in the design of learning systems, see: Land & Hannafin, 1996). The role of celebrities in modern marketing also helps to detract from the value of teams. It is surprising that even in collective activities, such as team sports, some of the stars are exalted in isolation from the team that allows them to shine (Johnson & Johnson, 1999) and even the individual prizes detract from the collective ones (Ballon d'Or, etc., in the case of football; MVP of each basketball match, etc.). This trend to stress individualism—even within contexts that should be collective—reinforces the difficulty to develop a cooperative approach both in learning and in other areas of social life.

Encouraging competition and even rivalry among workers is usual in the corporate world as a means to improve results. However, this practice that is so widespread has proven

to be counterproductive in environments where knowledge must be shared, as it does not improve the result and diminishes motivation (Escajedo San-Epifanio & Filibi, 2023). Furthermore, it has been shown that workers in competitively structured environments perceive that they will only meet their targets if the others do not achieve theirs; that ends up reducing the complexity of the contact networks within the company, which limits the flow of information, knowledge and cooperation for problem solving. This being so, a second consequence is that the workers are less willing to share links with colleagues. The same has been shown to happen in schools that encourage greater competition among their students, where their social networks are smaller and with a lower contact density (Siciliano, 2013).

Another revealing example of the prevalence of individualism is the analysis of game theory, which is widely used in economics and social sciences. In 1994, the Nobel Prize in Economic Sciences was awarded to John C. Harsanyi, John F. Nash and Reinhard Selten for their contributions to the analysis of equilibria in the theory of non-cooperative games. However, as Sergio Monsalve pointed out (2003: 147), the theory of cooperative games was systematically ignored, despite the valuable contributions of Nash in this field, including the formulating of the Nash Programme. This omission reflects a reductionist view that fosters competitive over cooperative dynamics, even when both may be essential for understanding and improving human interactions in different spheres

III.3. The role of cooperative games in fostering democracy and peace

Education must not only pass on a range of knowledge that allows students to make a decent living and be useful to their society, but it must form them as citizens at the same time (Uncetabarrenechea, 2010: 126).

Therefore, a democratic society needs respectful students and with a sense of justice, which means that teacher must use the appropriate educational approach to foster such values in students (Ferguson-Patrick, 2012). However, a great difference can be seen between the democratic values of our societies and daily experiences in the classrooms (Banks, 2008:132).

It should be noted that one of the aspects to be changed should be the prevailing authority structure in the classrooms, suggesting a greater distribution of power between teachers and students (Weimer, 2002). Accordingly, role games enable the type of horizontal communication that results in more active and committed students (García-Carbonell *et al.*, 2001:485).

In a broader sense, cooperative learning is an educational strategy that takes into account both the academic and social results of the students. This type of learning develops positive relations and contributes to more democratic and harmonious conflict management (Ferguson-Patrick, 2012). It goes without saying that if a democratic culture is created in the classrooms, that will have a positive impact on the students' performance as citizens. This culture is shaped by means of the active commitment of the students and their recognition as equals; consequently, students will have a more open attitude towards the others, taking different points of view into consideration and being more inclined to respond constructively to diversity and difference, along with developing great civic and social

commitment. Furthermore, students who work cooperatively tend to settle their conflicts by means of negotiating and listening more carefully to others and showing greater respect for others' feelings (Queensland Studies Authority, 2006). Numerous studies have confirmed those aspects, such as in the case of inter-cultural and inter-racial relations (Banks, 2008).

Other studies suggest that cooperative games play a key role in educating for peaceful social relations (Bay-Hinitz, Peterson & Quilitch, 1994; Johnson, Johnson & Tjosvold, 2012; Brynen & Milante, 2012; Boyer, 2011). Thus, when individual interests clash with community ones, the participants are able to control their egos and enjoy the positive emotional experience triggered by cooperative challenges. Therefore, the very fact of participating in a cooperative game entails experiencing peaceful emotional literacy development, as the very game implies learning to decipher the emotional traits of others and of oneself (Jaqueira *et al.*, 2014:26).

IV. CONCLUSIONS

This paper does not question that digital or online games have strengths and a certain educational potential within the university setting. However, we argue that such positive aspects, endorsed by the huge resources of technology corporations and the economic interests driving them, must not lead to the abandoning of traditional in-person games, those with the classic 'pencil and paper' format. Those games offer fundamental advantages that are worth being considered and which can often not be replicated by their virtual counterparts.

First, given that they are conducted in a face-to-face setting with real people, in-person games enable genuine social interaction that more faithfully reflects the complexity of human relations. This includes verbal and non-verbal communication alike, something digital games by their very nature do not manage to achieve in the same way. Second, their ability to develop key social skills, such as effective communication, negotiating, leadership and decision-making, is essential in the all-round education of the students. Furthermore, the cost associated with such games is significantly lower compared to digital simulations, which makes them a viable option for educational environments with limited resources.

On the other hand, even though individualist and competitive games have undeniable educational potential in certain contexts, this paper highlights the importance of cooperative games in the classroom. Such games do not only facilitate the development of essential social skills, but also allow values to be fostered that are crucial to produce engaged, democratic and critical citizens. Cooperating teaches students to work together, respect differences and face collective challenges, which is fundamental for their training as socially committed and responsible individuals.

In conclusion, this paper advocates a balanced approach, which values both the advantages of traditional in-person games and the educational potential of the new technologies. The key is to integrate both approaches in such a way as to enrich the learning process, without losing sight of the fundamental aspects of human interaction, collaboration and the development of social skills that traditional games manage to foster more effectively.

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Interactive learning about Ethical Issues in Genetic Modification using a Democs card game

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Abstract:

This chapter describes the use of Democs card games as an interactive way of teaching students about the ethical and social issues arising from genetic technologies. The Democs game concept is a semi-structured small group discussion which uses cards as the medium. It was first devised in 2001 as novel method to enable public discussion on emerging technologies, with no prior background knowledge, and has been used in many such contexts. But it has also proved very effective as a pedagogical tool in which groups of 6-8 students engage together with the subject using different sets of cards which generate group discussion. Story cards introduce the subject through case studies of people involved. Information Cards provide necessary factual and contextual information. Issue Cards present a range of ethical issues and viewpoints. Each player selects from hands of cards and these are discussed with the group. The group is asked to come up with opinion statements as a consensus, and each student is invited to vote individually on policy options and applications of the technology, and to write their reasons. The game is effective as a participative learning tool. Learning in a group and the emphasis on searching for consensus among differing views are especially important features. The focus on real life situations and ethical dilemmas through the cards makes it accessible to different disciplinary learning situations, for example for science students learning about ethics, or ethics and social science students engaging with cutting edge technologies. A game is described on genetic modification and genome editing in plants and animals, which has been used to teach MSc students on sustainable development courses at Edinburgh University from different disciplines and countries over 20 years. Several games are played in parallel and the outcomes discussed in plenary. Some of the voting results summarised as illustration.

I. INTRODUCTION

How to teach ethics about the unprecedented changes humans can make to the building blocks of the natural world through genetic technologies? Much will depend on who is the audience. To illustrate the diversity of teaching contexts, consider three examples. It might be to middle-aged members of the public who have signed up for an adult education class at a local college, without much prior understanding either of genetics or ethics, but taking the opportunity to widen their own knowledge now their children have left for college. It could be bioscience graduate students doing a compulsory course on ethics who are versed in biosciences but not in ethics. Conversely, philosophy or theology students doing a module on applied bioethics may be well used to moral reasoning but lack much scientific background.

Each of these will have methods suited to their students' needs, but it may be challenging to find tools that would work well in all three situations. This chapter describes one method which has been shown to do so over many years, namely a Democs card game. Democs is not a game you play to win. It is a semi-structured small group discussion using the medium of cards, which players read, select and discuss, and through the group discussion they are able to form their own opinions and viewpoints. It was originally designed to enable members of the general public to explore ethical and social issues arising from new technologies without assuming any prior knowledge (the cards are the 'expert'). But it has proved equally useful as a pedagogical tool to teach ethics to students. In this chapter we will explain the Democs game concept, how it is created and how it works. We will illustrate it by describing a game on genetic modification and genome editing in plants, food and animals, which we have successfully used over twenty years with students from a variety of backgrounds attending Masters degree modules on sustainable development issues at the University of Edinburgh.

II. THE DEMOCS GAME CONCEPT

Democs stands for *DEliberative Meetings Of Citizens*, first devised as novel tool to help public discussion and participation on emerging technologies and other issues. It was developed in 2001-2 by a multi-disciplinary team led by Perry Walker, then of the New Economics Foundation, on the controversial subject of human embryonic stem cells, funded by the UK Wellcome Trust. Many other games have since been created, of which the present author has co-written nine.^{1,2} Its scope was widened and expanded through the European Commission DECIDE and FUND, where it became also known as Decide. Democs games have now been created for a wide range of issues from cloning to climate change, and in many different languages. These games are available free on-line on the PlayDecide website.³

¹ Bruce, D., (2010) Playing Democs Game to Explore Synthetic Biology, Edinethics Ltd [online] Available at https://www.edinethics.co.uk/democs/synbio-democs/synbio_democs_report.pdf (accessed 2 December 2024) and at <https://wellcomecollection.org/works/w57rajuf> (accessed 4 December 2024).

² Various Democs games can be downloaded from the author's Edinethics website at <https://www.edinethics.co.uk/democs/democs.html> (accessed 4 December 2024).

³ The Play Decide card game website: www.playdecide.eu (accessed 4 December 2024).

Unlike formal public engagement activities which sample socially representative populations, Democs was aimed at grassroots groups of people in the contexts where they normally get together. It can be played by any group of people (usually over about 16 years) anywhere, with minimal cost. They have been played in homes, schools, churches, pubs, restaurants, public halls, science festivals and science centres. Although data can also be obtained from the outputs and analysed, the primary purpose of the game is to get people engaged in constructive and informed discussion of the subject, thus becoming better equipped citizens in their participation in society. Someone needs to act as 'dealer' who has read the instructions and so can guide the group through the different stages, and keep the time, but is not expected to know no more than anyone else about the issues under discussion.

Although it was created for public engagement, the Democs concept has proved to be adaptable to many other contexts. For example, Democs games have been used in Government consultations, in EC research projects, for awareness raising about rare diseases, and diverse groups including homeless people and Travellers. One of the most effective wider uses has been in teaching ethics of scientific and technological issues to students at university and secondary education (16+ ages), and to help young scientific researchers engage with the wider ethical and social issues of their work. We now describe how the game works in a teaching context.

III. HOW A DEMOCS GAME WORKS IN A TEACHING CONTEXT

In a teaching context, the room is arranged café style with 6-8 students sitting round each table. The lecturer will have read the instructions beforehand to understand how the game works, and will begin by giving a brief overview of the different stages of the game and what happens in each. For best results 1½-2 hours should be allowed, depending on the time available to the class. In a typical class it is likely that several games would be played at once, so the lecturer should be on hand to make sure each group to move on to the next stage of the game at an appropriate time, and to help with any questions that arise. But it is very much up to each group of students what they make of it and how they work the game through.

If necessary, before the game starts, the lecturer can read out a card which sets out basic ground rules for group discussion:

- We are all equal: one person one voice/vote.
- Your view matters, even if you are the only one, otherwise that view will never be heard.
- Speak your truth, but let everyone have a fair chance to speak too.
- Listening is as important as speaking.
- Seek to understand rather than persuade others to your view.
- Notice when you feel surprised or confused: this may be a point of learning.
- Look for common ground – the best way forward.
- There are 'yellow cards' if you get lost or feel someone is dominating the discussion (but there are no red cards!).

There are five stages of the game, with different types of cards. The first stage uses Story Cards. We have found the most effective way of introducing a technology unfamiliar to people is through the medium of people telling a story. Story Cards are mini-case studies each focused around an imaginary person who is involved with, or is affected by, the technology. They are based on real life situations, or ones that could reasonably be envisaged to happen in future. Typically, this could include a research scientist, someone in industry who uses the technology, a practitioner like a farmer or doctor, a patient or consumer, an environmentalist critical of the technology or some aspect of it, a policy maker, a regulator, someone giving a developing country perspective, and so on. The aim is to introduce the technology through these people. Each story usually ends with an ethical dilemma that the person is facing, which thus also gives an introduction to the sort of ethical and social questions which the technology raises.

One story card is dealt to each player, and the players read their card out loud to the group. If there are less than eight in a group, say six, two players should also read out the seventh and eighth stories, so everyone gets to hear all eight stories. They are not meant to be read as a role play. If a person really objects to reading the story they have been dealt, they can ask to swap cards with another player. Because these are meant to introduce the issues, only a very short discussion of the stories should happen at this stage, but the Story Cards may well figure later in the main discussion and cluster card process.

In the second stage, Information Cards are dealt out to the players. These are smaller cards of about 30-35 words each giving pieces of factual information about the subject and its context. They are aimed at being fair and objective and to provide players with information on the basic science involved, its potential applications, how far these have been used, and any relevant regulatory or policy information. Their purpose is to give someone with no prior knowledge enough understanding to engage with the subject and in the next stage to discuss the ethical and social issues.

Depending on the subject, there are usually about 36 Information Cards, so each player receives a hand of about 6 cards (the exact number in anyone's hand does not matter). Players are asked to read their cards to themselves and select two that interest them. At their turn, each player reads out their two selected cards, lays them face up in the middle of the table and tells the group why they selected them. Players are asked to keep their unused cards to one side, but available in case a question arises during the discussion to which one of these cards might relate. Players are asked not to search on line during the game, as this detracts from the flow. People can select cards for any reason – interesting, surprising, challenging, agreeing or disagreeing with them, etc. This stage usually already generates a certain amount of discussion, but the lecturer needs to keep an eye on the clock, in order to leave most of the time for the third stage, the Issue Cards.

In stage three, a similar number of Issue Cards are dealt out to players, and the same process is followed. Players again choose two cards from their hand, read them out at their turn, say why they chose them, and lay their chosen cards on the table. Issue Cards are designed to cover a range of questions, perceptions, issues and opinions to explore the ethical and social implications of the technology. Whereas Information Cards are aimed to be objective and factual, Issue Cards present differing and sometimes directly opposed views. Some cards may present two views; in some cases one card expresses a single view, and another card gives an opposing view; some cards pose questions. The aim is to cover a fair

range of opinions and attitudes known or likely to exist regarding the technology. This also has the effect of presenting the student with views not their own, or ones which they may not have encountered before.

As discussion proceeds, the group will probably discuss several different issues, players gradually forming their own views, agreeing or diverging. It may lead to lively debate amongst the players, but we have found that using the medium of cards can be a more constructive way to explore differing views than if two people simply expressed their conflicting personal opinions orally. The cards can act as an external interlocutor or 'third party' with which students can express differing responses less confrontationally. This is important when it comes to the fourth stage, in which the group is asked to find points of consensus.

In Stage 4 the group creates Cluster Cards. Towards the end of the allotted time, the dealer or lecturer encourages the group to crystallise its ideas, and turn them into statements or opinions of the group, which are written down on Cluster Cards. These may be statements of opinion, or questions, or dilemmas which the group have noted. Each Cluster Card is given a title, the statement or question, and the numbers of the various cards which have contributed to the statement, which can include relevant Story Cards. This process may also be done by exploring the pile of selected cards on the centre of the table and grouping them into subjects, which then form the basis of statements.

The aim of the Cluster Card statements is to find a consensus where possible, something all the group would agree with. This is an important learning point for students who are perhaps more inclined to be idealistic or who hold very strong views on a subject, to reflect on real life decision making in a diverse group of citizens. Coming to a conclusion on what should be done in a real social context, perhaps on some local issue, often involves a degree of compromise, and may end with a more nuanced or moderated policy being adopted, with which people can 'live with'. If there is an issue on which a consensus cannot be reached on an issue, however, each of the irreconcilable views can become the subject of its own Cluster Card. This is entirely up to the group, and also how many issues on which it wishes to write Cluster Cards, typically 3-4.

The final fifth stage of a Democs game offers the chance for each player to vote individually on a series of options. In the case of the genetically modified crops game these are 4 different broad policies for the technology. Each player has their own sheet to mark whether they agree, disagree or could live with the policy. Following the emergence of genome editing in animals, it was decided to add a second set of votes on the degree of acceptability of different potential applications, again giving players the opportunity to give their own words of explanation. In both types of voting sheets, the player is encouraged to say why they voted on each option, in their own words. While not absolutely essential, doing so is often a helpful learning point for the students in clarifying their moral reasoning. In some games, players have been given the opportunity to write an alternative policy position, if they are not satisfied with the ones offered.

It is important to bring the games to a close in order to leave enough time for feedback and discussion in plenary. If several games have been played, one member of each group is asked to tell the whole class what their group concluded about the issues, perhaps reading out one of the cluster cards, and summarise what they learned from playing the game. Each game is what that particular group of people makes of it. It is often interesting to see what

different aspects the various groups picked up and also what commonalities there were. It may also be useful to sum the total numbers voting for each different policies and see what were the majority and minority preference policies. These are all valuable discussion points for the lecturer to explore with their students.

In some situations, the groups may be asked to fill in a feedback form, covering the date and location, gender and age cohorts, and questions on how much players knew about the subject before and how much they learned through playing the game. This may not be necessary or appropriate in a purely teaching context, but sometimes a game may also be used to collect data for analysis in a research project. In such a case a consent form would also be filled in. Since no names are recorded on any voting sheets or cluster cards, these output data remain anonymous.

IV. HOW A DEMOCS GAME IS CREATED

Devising the content of a Democs game is a complex task, requiring several months and many iterations, with cross-checking and peer review. The writing process involves preparing the ground work in both scientific and ethical aspects. This will entail drawing upon the knowledge and experience of the subject on the part of the writers, but also accessing information from a wide variety of reliable textual sources and from experts knowledgeable on different facets of the issues, being careful to take into account different or opposing views. On the scientific side, the first need is to establish what factual material needs to be included in order to inform the players enough to understand the basics. This applies not only to the science, but the context into which the technology is applied, the regulatory framework and any relevant international aspects. Depending on the field some basic information is usually needed on the context which might be in agriculture, food production, medicine, energy supply, and so on.

Similarly, on the ethical side, the principal issues and the differing viewpoints need to be identified. For example, the underlying assumptions of both those promoting the technology and those expressing opposition need to be represented, as well as the various arguments presented in favour or against pro. Awareness of religious or other world views, viewpoints of people affected by the technology, national or political factors, representations in the media, popular myths or tropes all need to be considered.

Having established the landscape, a framework needs to be designed within which to draw up a list of cards of no more than 35 words each, which will convey the information and issues which the game will need to cover. It is helpful to group these into related categories. For example, in the genetic modification (GM) game, Information Cards need to cover the background of plant breeding and agriculture, what genetic modification is, what GM crops are used and where, what testing and regulations apply, how genome editing differs from GM, and the animal applications being developed. Likewise, the Issue Cards were grouped by basic ethical issues, different societal attitudes and perceptions, what factors drive GM and what criticisms are made, risks to health or the environment, global aspects, and special ethical aspects of animal genome editing.

The exercise is a compromise of several factors. Each piece of information, concept, question or dilemma has to be compressed into something like 30-35 words per card, and

preferably less. It is no easy task to condense scientific and ethical issues in simple enough language for lay people to understand. Cards must avoid unfamiliar acronyms, jargon and complex technical or abstract terms, with which not only science abounds, but also the ethical and social science disciplines.

The range of cards written need to reflect the right range of factual information so that people who know nothing of the issue can grasp the essential facts sufficiently, and a fair coverage of the ethical and societal issues and perspectives. On the latter, the aim is for a balance of questions, arguments, counter-arguments and points to ponder. A proposition may be summarised well in one card, but its criticisms may require three cards. Delicate decisions may have to be taken about minority views, how to portray disputed evidence, or how much hearing to give a heterodox view (e.g. climate change ‘denial’) without creating the impression that it necessarily carries equal weight with a majority view.

Once a basic structure of what Information and Issue Cards will be required has been agreed, attention is also given to identifying suitable people and stories for eight Story Cards, which represent some of the key information and issues, so that at the start of the game the players gain an overall feel for the subject and its questions. This calls for imagination and is one of the most enjoyable parts of writing a Democs game. This is also the appropriate stage to decide the set of policy positions or applications of the technology on which to vote. A considerable amount of judgement is involved as to the most representative positions, not merely for, against or undecided. For example, in the GM game, two more nuanced positions were offered. One was ‘not yet’, not to proceed until more was understood about the risks of genetic modification in food, and a second to find if applications not related to food were more acceptable.

The Democs approach is a compromise between providing enough information for people to discuss meaningfully without prior knowledge, and minimising the degree of framing by the content of the cards. This puts a considerable onus on the writers of a particular game, who will generally be expert in the science and/or the ethics of the subject under discussion to be fair, well-informed and clear in the cards they write. Thus it is important to have a sound peer review process to achieve the necessary rigour and balance with as little personal bias as possible. This is not unique to the Democs concept. In a public engagement context, the same applies to all stimulus material written to assist focus group, citizens’ juries, etc. In a pedagogical context it is true of all material that goes into producing a balanced teaching curriculum.

A key part of the peer review process is to produce a pilot version of the Democs game, which is then tried out on selected small groups, including scientists, lay people and ethical experts. Feedback is sought on the scientific accuracy of Information Cards and especially how easy they can be understood by lay people. Any cards which are inaccurate or not clear need to be rewritten. Likewise, comments are asked for on whether the set of Issue Cards display a bias towards any view or have missed important issues. One especially useful feedback from a pilot game on human enhancement technologies was that policy votes were of limited value on this subject, and that it would be more relevant to vote on the acceptability or otherwise of particular applications. This was done in the finalised game, and proved very successful.

In responding to feedback, it is important to take into account that in areas of hot controversy like genetic modification in food, strong advocates for or against the technology may see any presentation of the opposing view as ‘biased’ towards that view. Democs games are aimed not at advocacy but rather to develop a shared discourse and understanding, especially amongst people who may disagree.

A finalised set of cards is then produced and design work and printing done, usually producing the game in a boxed set, but also put on line for downloading. An instruction manual is an essential part of the game kit, written for the person acting as ‘dealer’ or the lecturer to take the group through the game. If games are intended for public engagement and research, a consent form and feedback form are also written. Most Democs games have been produced so far with aid of project funding which covered the lengthy card creation phase as well as design and printing. The PlayDecide website, however, offers templates for anyone to create a new game and to upload it on to its portal.³

V. DISCUSSION

Democs games have found a considerable role in teaching ethics to science students in a participative way. One of the features of these games, in having sets of both Information and Issue Cards, is that it encompasses both scientific and ethical issues and their inherently different styles of discourse. Thus, a philosophy or theology student can learn about the science of a subject, and a scientist can learn how to look at their work from a humanities perspective. An ethics lecture or series within a degree course for scientists, veterinary or medical students can seem a somewhat foreign input from an external mode of discourse. It may introduce strange terminology and concepts which do not relate to their scientific studies. The inherently participative and applied style of the Democs game very effectively overcomes that barrier.

In addition, by starting immediately with applied ethical cases in the Story Cards, the student is drawn in quickly to the context in which the subject arises, the people involved, and the ethical dilemmas they are facing. This grounds ethical discourse in real life examples. Thus, when a fuller information is given through the Information and Issue Cards, there is already a context into which these are situated. The relevance of different statements in the cards is more likely to come across than if the same information had only been given in a lecture. The game also gives more time than a lecture for a student to reflect as they go through the different stages.

The cards are aimed at people who are not scientifically expert and may know little about the subject. For students in an adult education context, both the Information and Issue Cards will be equally important, assuming no prior knowledge. If the game is played with scientists who are already deeply engaged with the subject under discussion, they may find the Information Card part of the game superficial. In one Democs game on nanobiotechnology a cut down ‘expert’ version was used, by going straight from the Story Cards to Issue Cards.⁴ But in most games played with scientists, they have found it useful

⁴ Bruce, Donald (2008), Engaging Citizens on Nanobiotechnology Using the Democs Game, EC NanoBio-RAISE Programme report, https://www.edinethics.co.uk/democs/nanobio-raise/nanobio-raise_democs_report-03.doc (accessed 4 December 2024).

to go through the information card stage. Students of philosophy or social sciences might critique Democs games because they do not set out to give ethical or social theory, but for scientists and the general public playing the game, theory is usually of limited interest, and humanities students would be taught it anyway.

One of the challenges of teaching ethics to scientists is crossing different modes of reasoning from instrumental to value-based argumentation. From their scientific training, a scientist may expect ethics to be making categorical black and white judgements, and also to be primarily about laying down what is *not* considered acceptable, because that is more often the context in which they have heard the term ‘ethics’ used. Scientists also find it easier to understand ethics in consequential terms, a weighing of advantages and disadvantages, perhaps relating it to the economic expression ‘cost-benefit analysis’. Notions that some things might be considered acceptable or unacceptable in themselves, in principle, may be harder to grasp. The interdisciplinary discussion that happens in a Democs game can facilitate this transition of modes of discourse from scientific to ethical. This may also bring about a realisation that the scientist too has ‘in principle’ ethical views of their own, for example that they consider it quite acceptable to add to a plant a genetic construct taken from an unrelated organism.

Another feature of Democs is that it is a group exploration of ethical issues, with information coming from each of the players. Everyone is involved and contributing, which enables those students who are more shy to take a full part in the discussion. It also means that each person gets to hear viewpoints other than their own, which can be challenging but productive if the game is played in a spirit of learning together, as already discussed above.

The game consists of about 80 cards, which have been created to cover a full range of information and issues on the subject under discussion. The designers of the game have a full picture of the logic and interrelations of the information contained in the cards, but it would be impractical to bring all cards into play in a relatively short time span of the game. This problem is addressed by allowing players to choose from the cards those that are most interesting. This means that no player will see or hear more than about 40-50 of these cards with their own hands and other players’ choices. Although one player will handle only a selection of the cards, giving fragments of the picture, all the other cards will have been read by other members of the group. It is part of the group dynamic of the Democs game that only by sharing as a group can the wider picture be appreciated, and thus that each person contributes to a greater whole. While the group examines only a subset of the full information set contained in the cards, it will be that group’s own selection from the whole.

The outputs from any group playing the game, whether students or publics, cannot be considered representative in a wider context. This is because by its nature Democs seeks to engage people in the natural circumstances where they might gather together. It might be argued that the groups engaging with the game are more true to life, compared with a carefully socially balanced group of strangers who might never meet together in real life. But to be representative many games would need to be played among enough varied sectors of the community, locations, age-groups, knowledge of the subject, etc. Thus any empirical data generated by the outputs of any Democs game must be therefore understood and interpreted with great care, and the limitations recognized. The most valuable are the qualitative data provided in the cluster card statements and the reasons which individuals cited for their voting preferences. These could be worked up further in a teaching context,

or as a basis by students to do further exploration of the issue, having had the game as a ‘taster’. The opinions framed in a two hour game should be the beginning of reflection and learning on the subject rather than the end point.

VI. DEMOCS GAME ON THE GENETIC MODIFICATION OF CROPS

A Democs card game was created for the UK Government’s 2003 “GM Nation?” national public consultation on genetic modification in crops and food, as a tool for use in Tier 2 and 3 engagement exercises.⁵ For this context, the content of the cards had to be based on the official Government ‘toolkit’ booklet of stimulus material, but were adapted to fit the size of cards and made more nuanced than simple ‘for’ and ‘against’ statements. Feedback was received from 35 games, played with 220 participants, though more games than this were probably played.

This game was then played in 2005 with students on a University of Edinburgh MSc course module on sustainable development, which took the form of whole morning seminars on different topics, one of which was on genetic modification of crops and food. The class lasted 4 hours, sitting at tables cafe-style, beginning with a 45-minute lecture on GM crops, a short period of clarification questions. Then after a coffee break the Democs game was played in groups at the tables for 90 minutes. The introductory lecture covered how the basic GM concept contrasted with selective breeding; what crops, traits and locations are used, what future applications were planned, the claims and criticisms made. A very brief overview of the ethical and social issues was given from eight different value perspectives, but without exploring these further because the students would do so for themselves in the Democs game. At the end, each group fed back a summary of its findings in plenary with general discussion of the exercise.

This has proved a successful format and has been continued every year for 20 years since then, playing about 100 games with some 600 students. Feedback over these twenty years shows that this seminar with the Democs game has been amongst the most popular and informative of the whole course. Over that period, the basic structure of the game has continued, but it has been necessary to make modifications to the content, to reflect subsequent developments in the technology, and the context. About half the cards have remained unchanged, some cards have been replaced, some altered, and some new ones added. Most notably the game was extended to include genome editing and especially its application in farm animals, with the addition of a second voting sheet to cover those.

The module on sustainability was one used in several different MSc courses, and thus the backgrounds of the students were quite diverse, some scientific, some environmental, and some from quite different fields. The students were mostly under 30 years old, and of very mixed nationalities. The class has usually been 30 to 40 students, typically comprising some from Scotland and the rest of the UK, many from western and eastern continental Europe, a few from North and South America, Asia (especially), Africa (fewer) and Australasia.

⁵ DTI (2003). GM Nation? The Findings of the Public Debate (Report number: DTI/Pub 6914/5k/09/03/NP). London: UK Government Department of Trade and Industry.

The Democs card game has a special role amongst the tools used in public engagement on biotechnologies, not only in its style of grassroots interaction with diverse publics in their own local situations, but also in that once the game is created, it can go on being used indefinitely. It has therefore been possible to assess its results longitudinally over a passage of time. This has provided a unique set of comparative data with graduate students of mixed science and social science backgrounds and countries, but situated in a similar pedagogical context. In 2015, the data obtained over the ten years to 2014, from 54 games were played with 325 players, were analysed and reported.⁶

VII. ANALYSIS OF POLICY VOTING

This period was before adding cards and voting on genome editing in animals, so the four policy positions for voting were as follows:

Policy P1. GM crops should now be grown commercially in the UK as long as sufficient safeguards are provided and maintained.

Policy P2. GM crops should not be grown commercially in the UK until further evidence is obtained about possible side effects on human health and the environment.

Policy P3. GM crops should not be grown for normal food, but might be grown for non-food applications such as medical products or renewable energy.

Policy P4. GM crops should never be grown commercially in the UK under any foreseeable circumstances.

The voting on these options gave a very complex and nuanced picture. The highest votes over 10 years were to disagree with Policy 4, that GM crops should never be grown in the UK (53%) and to agree with Policy 2, that GM food crops should not be grown until further evidence is obtained on side effects (50%).

It is interesting to see number of players who ‘could live with’, rather than directly agreeing with some of policy options. Thus 36% ‘could live with’ Policy 2, meaning that 86% agreed with or could live with not growing GM crops without this further evidence. Only 14% thought that GM food crops could be grown already, but 41% could live with this, making 55% in all. Non-food products showed more support (25%) but also more against (21%); 45% could live with them. The option of voting to ‘live with’ a policy has been a feature of Democs games from the beginning. It represents a conscious attempt to encourage players not only to think about what is their individual position, but also to work towards positions that found consensus with the group as a whole, as it could be in wider society.

The most striking finding was the variability of the voting from year to year. But each year was very different from the next. No pattern could be seen with these voting positions with time. This is interesting in relation to whether there was evidence that GM had retained

⁶ Bruce, D. M. (2015), Changing attitudes to GM Crops? Reviewing 10 years of playing a Democs card game on GM Crops with MSc Students, pp. 283-288 in Know your food: Food ethics and innovation, EurSafe 2015, Dumitras, D.E., Jitea, I.M and Aerts, S, Wageningen Academic Publishers, doi: 10.3921/978-90-8686-813-1.

a negative stigma in public perception which it appeared to have at the height of the GM controversy. In 2005 many students would have known about genetic modification as a very live issue of public controversy issue in the period from 1998 to 2003, but by 2014, students would know it mainly by report of events that happened in the past. By the present time (2024) some students would not have been born when GM was a hot topic.

The percent opposed to ever growing GM crops has remained consistently low over the ten years, only in one year (2008, 23%) did it exceed 15%. This suggests that fundamental opposition to GM food has been consistently low in these groups of students over ten years. The fact that 55% could agree or live with growing GM food crops now, suggests again that basic opposition to GM was not predominant, but that a precautionary view was the most common.

This GM Democs game now includes cards discussing genome editing, especially in livestock, with several current examples. This has opened students not only to the far-reaching potential issues of genome editing, but also to questions of animal welfare and disease prevention, our use of and responsibility towards animals, their production systems, etc. A new Democs game, asking what should we breed cattle for in future, was the focus of a public engagement exercise in the EC BovReg scientific project on cattle genomic selection,⁷ but will also now be used in an educational context among veterinary and ethics students, extending questions from molecular genetics to modern selective breeding.

VIII. CONCLUSIONS

The Democs card game originally devised for public engagement has also proved notably successful as a pedagogical tool for interactive teaching of students on ethical and social issues arising from modern technologies. Its structure involving sets of Information and Issue Cards makes it suitable either for teaching ethics to science and technology students, or in engaging philosophy, social science or theology students with the implications of a complex technical subject with which they would not be familiar, or in a context of adult education, where the students would be more like the general public for whom the games were originally conceived.

By beginning with case studies based on the technology, the focus is brought immediately to considering ethics in a real-world context, and around people involved or affected by it. This grounds of the issues within a variety of contexts is important to help students appreciate the complexity of the subject. In inviting each student to select from hands of Information and Issue Cards, gives them a direct participation and also enables them to focus on issues that they find particularly interesting. The use of cards, rather than a presentation by an ‘expert’ person, also puts the subject matter in a more objective status, where students can argue about what is written rather than confronting a person holding that view. The game is based in a group dynamic whereby the full sets of information about

⁷ Bruce, D. and Bruce, A. (2024). What should we breed cattle for? Results of Public Engagement with a Democs card game, pp.279-284 in M.F. Giersberg, B. Bovenkerk and F.L.B. Meijboom, Back to the future - Sustainable innovations for ethical food production and consumption - EurSafe 2024. DOI 10.3920/978-90-0471-550-9_44, Brill, Wageningen Academic 2024.

the subject only come as all members of the group share the cards together. This interactive group character of the Democs concept is of great value in the students' learning by doing ethics alongside other people who are also on the same learning curve. Hearing different perspectives and insights from other players round the table can be a very effective point of learning, far more than if the student read about the subject on their own. The creation of consensus statements by each group can be seen as an example of participative democracy in a social group with differing views, and likewise the sharing of outcomes between different groups in the same session.

The Democs card game has a special role in that it can go on being used indefinitely, and the genetic modification game has proved highly effective in a teaching context over twenty years. Analysis of some of the voting outputs from this game over a ten-year period is a rare example of longitudinal data from groups of fairly similar people, albeit the most striking result is that lack of any emerging pattern over time on this issue. It is indicative rather of the effectiveness of the Democs card game method in enabling students to address a complex and controversial issue in a nuanced and informed way.

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Memes and the Literary Classroom Conversation— On Dealing with Heterogeneity in Interdisciplinary Ethics Classes

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Abstract:

This paper explores didactic approaches for teaching applied ethics in heterogeneous and interdisciplinary contexts, such as food and sustainability ethics courses. Such settings often bring together students with diverse disciplinary backgrounds and varying familiarity with humanistic learning methods. To address these challenges, the paper presents and reflects on two complementary approaches implemented in teacher training courses at the University of Tübingen: the use of memes and the literary classroom conversation (LCC). Both methods aim to create low-threshold, activating, and student-centered learning environments.

Memes are used as creative tools for engaging with mandatory readings, encouraging students to distill core arguments into visual formats that combine humor, critique, and reflection. This fosters textual comprehension, peer learning, and product-oriented engagement, while also generating teaching materials for subsequent class discussions. The LCC, originally developed in German literary didactics, is adapted here for ethics education to structure interpretive dialogue based on students' initial reading experiences. It enables learners to explore moral questions through dialogical processes of self-reflection, textual interaction, and shared discussion, thus promoting ethical reflection and communicative competence.

The paper analyses how both methods respond to the challenges of interdisciplinary teaching by accommodating diversity, encouraging first-hand engagement with unfamiliar texts, and producing tangible student contributions that enhance later learning phases. While neither method replaces systematic instruction in ethical theory, both effectively prepare learners for deeper ethical inquiry by fostering participation, interpretive openness, and reflective understanding.

¹ I would like to gratefully acknowledge that many of the insights I am presenting in this paper build on many conversations I have had in recent years with Stefan Hofer-Krucker Valderrama. In addition, I thank Magda Kabiri for her critical review of the manuscript.

INTRODUCTION

In this paper, I will address a challenge experienced by many lecturers in food ethics, i.e. how to create a low-threshold entry into ethical reflection when the knowledge of humanistic ways of learning cannot be expected from students—or to put it differently, how to create an activating and student-centred learning environment in interdisciplinary ethics teaching. Such a challenge is not specific to food ethics and shared by many lecturers in other fields of application-oriented ethics. Reasons, why learners cannot be expected to be familiar with such modes of learning, are manifold. One might be that food ethical classes are but one element in study programmes otherwise dominated by academic traditions for which reading philosophical texts, writing argumentative reflection papers, and debating moral issues play a minor role. Another reason might be that students simply have not yet acquired the competencies needed—and again, there are many legitimate reasons for this, such as a learner’s study progress or social background. A related challenge emerges when students of different academic backgrounds meet in ethics courses, and with them, a diversity of skills and prior knowledge. These are some of the situations food ethics lecturers need to deal with when planning their courses.

By using two courses at the University of Tübingen (Germany), I will elaborate on how some of the challenges mentioned above can be addressed. I will mainly draw on experiences made in the course “Bienen und die ökologischen Krisen” (“Bees and the ecological crises”), and to a lesser degree on those of the course “Auftrag zur Friedensliebe—Herausforderungen für Universitäten und Schulen” (“Mission to the love of peace—Challenges for universities and schools”). More specifically, I will explain, and reflect on, two didactical approaches, i.e. first, the use of *memes* to help students reflect on a text (cf. Meisch, Hofer-Krucker-Valderrama and Lang 2022), and second, *the literary classroom conversation* (LCC) as a method to start a structured debate on students’ first reading experiences (cf. Heizmann, Meyer and Steinbrenner 2020; Hofer-Krucker Valderrama and Weber 2020; Meisch and Hofer-Krucker Valderrama 2022, 2023; Steinbrenner and Wiprächtiger-Geppert, 2010). Both approaches are no didactical silver bullet; nonetheless, in recent years, they have proven to be effective as well as popular among students.

In this paper, I will shortly introduce the teaching context of both courses. Subsequently, I will outline both methods and by doing so, explain how they can be used for larger groups and online teaching.

1. TEACHING CONTEXT

Both courses (“Bees and the ecological crises”, “Mission to the love of peace—Challenges for universities and schools”) are part of the Master of Education (M.Ed.) study programme “Teacher Education Training for the German Gymnasium in Baden-Württemberg”² at the University of Tübingen. The International Centre for Ethics in the Sciences and Humanities (IZEW) is a partner in this programme and responsible for organising the elective area “Ethical Competences in the Teaching Profession”³ within a specialisation module allowing students

² Cf. University of Tuebingen: Teacher Education Training for German Gymnasium (secondary school): Bachelor of Education and Master of Education, online: <https://uni-tuebingen.de/en/62427>

³ Cf. University of Tübingen: Ethical Competences in the Teaching Profession, online: <https://uni-tuebingen.de/en/81649>

to follow their strengths, priorities, and interests. This elective area aims to support prospective teachers in reflecting on the ethos and ethical challenges of the teaching profession as well as in detecting, and dealing with, ethical questions that might arise in their subject areas. The latter is achieved by using exemplary topics with relevance for many school subjects, such as bees or peace.

So, both courses discussed in this paper are addressed to prospective teachers, and explicitly open to students of all disciplines participating in teacher education. This makes for a multidisciplinary composition of learners. Hence, lecturers cannot assume that students have a shared understanding of teaching elements, e.g. they will differ in their assessment of what a good essay, presentation, or summary is—and in their ability to produce them. So, didactic methods must be chosen carefully and should not be tailored to a specific group of learners to avoid other groups feeling uneasy or left out. This is even more true when it comes to teaching application-oriented ethics as—except for the prospective philosophy teachers—most students are unfamiliar with the subject of ethics. So, activating and student-oriented teaching didactics needs to have all course participants in mind.

What has been presented here as a contingent result of the teacher education in Tübingen remains nevertheless relevant for lecturers of courses with a diverse set of students, or students not (fully) familiar with humanistic ways of learning. And to cut a long story short, this often involves teaching food ethics.

1.1. Course “**Bienen und die ökologischen Krisen**” (“**Bees and the ecological crises**”)

The course “Bees and the ecological crises” is a teaching collaboration with Marco Elischer, the education officer of “proBiene—Freies Institut für ökologische Bienenhaltung”⁴. This environmental NGO stands up for insect and species protection, GM-free agriculture, organic beekeeping, and education for sustainable development. Elischer is responsible for the organisation and implementation of teaching units, especially with kindergartens and schools. In addition to his professional expertise, he is of interest to the students as a discussion partner for teaching practice in schools and as a potential future cooperation partner.

The course has three interrelated aims. It supports students in (i.) ethical reflection, (ii.) interdisciplinary thinking and (iii.) planning cross-curricular teaching—and it does so by using the case of bees which have become the showcase species in recent debates about biodiversity loss. Didactically, the course tries both to activate students’ tacit knowledge about bees and introduce them to the broad set of symbolic meanings ascribed to bees. More specifically, it addresses agricultural issues such as land use change and the biodiversity crises, the use of neonicotinoids and the decline of insects, or the situation and relevance of wild bees compared to honeybees. Students learn about environmental and insect ethics, gendered perspectives on human-bee-relationships, and the many humanistic discourses that use bees to reflect on good human societies (as is the case, e.g. in divinity or political theory) or on the risks of (information and military) technologies.

Being aimed at prospective teachers, the course has their future professional field in focus, for instance by making them familiar with educational programmes such as education

⁴ Cf. proBiene—Freies Institut für ökologische Bienenhaltung, online: <https://probiene.de>

for sustainable development (ESD). This focus is also mirrored in the presentations they must give in class and which they are asked to prepare in a specific way. They are to develop teaching material (e.g. worksheets, learning games...) that could be used to teach the topic of their presentation to their future pupils. Presentations need to

- explain the teaching context for which the material was prepared (such as the subject or pupils' age);
- introduce the teaching material, and how it would be used in class, to the other course participants;
- incorporate a performative element (such as group work or filling out a worksheet) that the presentation group will do with the other course participants and thus allowing them to learn the presentation topic;
- elaborate how their material can be used in cross-curricular teaching at a school.

At Tübingen University, M.Ed. students usually complete their school practice semester in the first winter semester of their master's degree. So, most participants in the course have at least some teaching experiences, and their presentations introduce course participants to a variety of different approaches and methods. For instance, a group of sports students developed an outdoor game that gave their fellow students a good idea of the complexities of bee communications—and provided a joyful sportive element to a university course (cf. picture 1). With this approach, the course explicitly encourages *peer learning*.

In line with the basic didactic idea, also the didactical choices of the lecturers have a dual function, i.e. to create an appropriate context to allow for a learning experience, and to show how the methods chosen can be used in school. Against this background, two methods will be explained below, the use of *memes* to reflect on mandatory reading, and the *literary classroom conversation* to open debate on ethical issues.



PICTURE 1

Learning game developed by sports students to understand bee communication

1.2. Course “Auftrag zur Friedensliebe—Herausforderungen für Universitäten und Schulen” (“Mission to the love of peace—Challenges for universities and schools”)

The course “Mission to the love of peace—Challenges for universities and schools” is a teaching collaboration with Dr. Julia Hagen, head of the “Servicestelle Friedensbildung” (“Service Centre for Peace Education”) at the “Landeszentrale für Politische Bildung Baden-Württemberg”⁵ (“Centre for Political Education of the State of Baden-Württemberg”). The “Service Point Peace Education”⁶ is an advisory, information, and contact point for all schools and governmental, semi-governmental, and non-governmental partners in the field of peace education in Baden-Württemberg. It has set itself the goal of strengthening peace education across all subjects. To this end, the service point offers networking and contact opportunities, events and training opportunities, advice on and provision of teaching materials, and basic information on the topic of peacebuilding. Next to her academic expertise, Hagen has a broad knowledge of implementing peace education in schools and is thus an interesting potential cooperation partner for prospective teachers.

The rather peculiar title of the course refers to the state constitution of the Baden-Württemberg that states in Article 12(1) that the youth is to be educated, amongst other things, to love peace (“Die Jugend ist [...] zur Friedensliebe [...] zu erziehen.”)⁷. So, the course reflects with students on what this constitutional task might imply for their future teaching activities. They get the opportunity to reflect on different concepts of peace, engage with questions of peace ethics, familiarise themselves with peace education approaches, and think about the transfer to their teaching. As with the course on bees, the didactical choices of the lecturers are also meant to provide them with new ideas for their prospective field of work. Within this context, a variation of the *literary classroom conversation* is used and presented below.

2. TEACHING ACTIVITIES

Subsequently, I will introduce and discuss two didactical methods, i.e. the use of *memes* and the *literary classroom conversation*. I will emphasize four aspects: (1) approaches to addressing the challenges of heterogeneous learning groups often faced by food ethics lecturers; (2) methods for engaging students with unfamiliar text formats; (3) incentives for students to articulate their initial thoughts on a text; and (4) ways to create student products that can be reused later in the course. In each case, it will be elaborated on what needs to be considered regarding group size and online formats.

⁵ Cf. Landeszentrale für politische Bildung, online: <https://www.lpb-bw.de/>

⁶ Cf. Servicestelle Friedensbildung, online: <https://www.lpb-bw.de/servicestelle-friedensbildung>

⁷ Cf. Verfassung des Landes Baden-Württemberg vom 11. November 1953, Artikel 12, online: <https://www.landesrecht-bw.de/jportal/?quelle=jlink&docid=jlr-VerfBWpArt12&psml=bsbawueprod.psml&max=true>

2.1. Memes

According to the online dictionary Merriam Webster, a meme is “an amusing or interesting item (such as a captioned picture or video) or genre of items that is spread widely online, especially through social media”⁸. Essentially, they are elements that creatively combine an image and a text, mostly with an ironic or satirical intention. As a cultural phenomenon, it is now known to most students.

These elements can also be useful for teaching—in many capacities. In the contexts presented here, they serve two purposes, i.e. to allow students to (i.) reflect on the mandatory reading and (ii.) create products that can be used later in class. It should be mentioned that memes can also be an easy and fun way to check that everyone engages in mandatory reading.

As means to reflect on the mandatory reading, you are asked to produce memes that in your opinion reproduce the text’s key argument.

Upload the pictures on the respective padlet – by Friday of the preceding week, 1 pm. From then on, please view, rate, and comment on the pictures of your classmates.

To produce a meme, you can use any meme generator, e.g., [Meme Generator](#) or [Free Meme Generator](#).

TEXTBOX 1

Assignment using memes

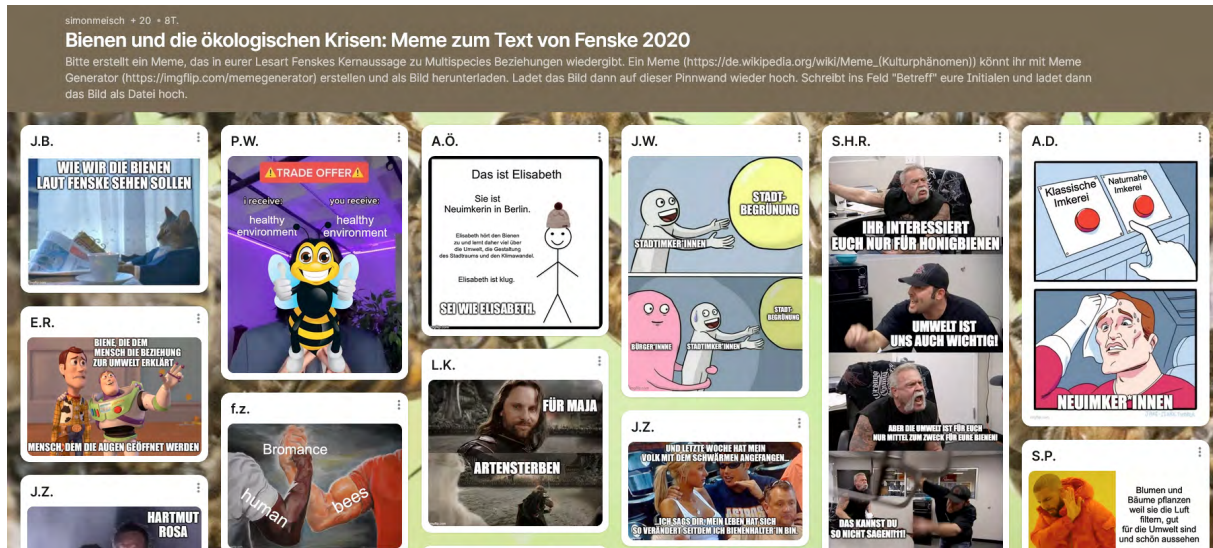
In textbox 1, you can find one possible option to formulate the work task. It has proven useful to provide students with the link to a collaborative web platform (such as Padlet⁹) where they can upload and share the memes. To be able to attribute the memes, students are asked to initial their memes. Since such platforms are public, it is advisable not to use real names. On the Padlet, they get the text of the assignment again together with links to web-based free meme generators such as Meme Generator¹⁰ or Free Meme Generator¹¹ (see picture 1). To support engagement with the memes, lecturers can activate the comment or assessment function on Padlet and invite students to assess, or comment on, other participants’ memes.

⁸ Cf. Merriam Webster: Meme, online: <https://www.merriam-webster.com/dictionary/meme>

⁹ Cf. Padlet, online: padlet.com

¹⁰ Cf. Meme Generator, online: <https://imgflip.com/memegenerator>

¹¹ Cf. Free Meme Generator, online: <https://www.freememegenerator.org/>



PICTURE 2
Screenshot of a Padlet

The use of memes may seem like a gimmick. However, one should not underestimate their didactical value.

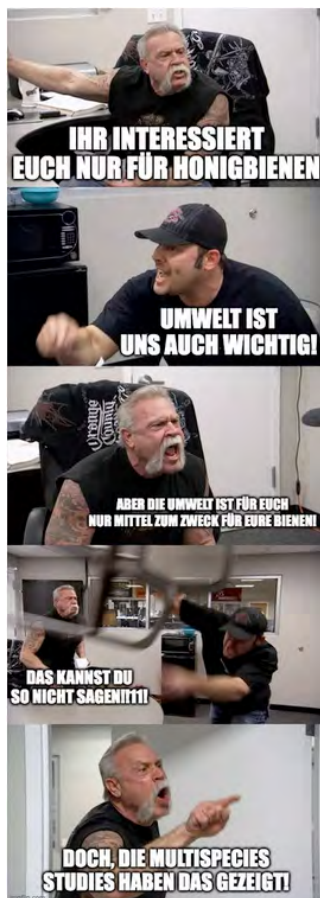
On the one hand, they stimulate students' engagement with mandatory reading and do not particularly privilege students of a specific academic discipline. In feedback, participants state that—despite some initial reservations—they had great fun creating memes and often mention them as a highlight of the course. In addition, they also report that the task of creating such memes made them concentrate differently on the reading. Lecturers can see how throughout a course the quality of memes increases.



PICTURES 3 & 4

Memes commenting on the trend to see honeybees as the symbol for biodiversity loss at the expense of other insects that are more endangered

On the other hand, by designing memes, students create products that can be used later in the class to start a conversation or illustrate a topic (see pictures 3-6). Usually, students highlight with their memes different aspects of the mandatory reading and thus provide lecturers with plenty of useful material. For instance, in this text, there are two pairs of memes dealing with ethical aspects within the bee literature. Two memes (pictures 3 & 4) critically engage with the general trend to regard honeybees as the symbols for biodiversity loss while other insects such as wild bees are much more threatened but do not get the same attention.¹² Pictures 5 & 6 take up aspects of the animal ethical arguments discussed in the texts.¹³ Lecturers can put the meme on a Powerpoint slide, invite students to describe what they observe, comment on a meme's message, and discuss the (different) interpretations.



PICTURES 5 & 6

Memes taking up animal ethical debates of the mandatory reading

- ¹² In picture 3, an adult (Menschen, humans) plays with one child (Bienen, bees) while the other (alle anderen Tiere, all other animals) appears to drown. In picture 4, a child in the forefront (Bienenschützer, bee protectors) gives the observer a knowing look while in the back a house is burning down (andere wichtige Insekten, other important insects).
- ¹³ In picture 5, an old and a middle-aged man are shouting at each other. The old man claims, "You are interested only in honeybees," and then it goes on: "We are also interested in the environment."—"But for you, the environment is only a means to an end for your bees."—"You can't say that!!!!"—"Yes, the Multispecies Studies have shown that!". Picture 6 shows an office scene with the boss asking: "What can we do to establish a better human-bee relationship in Berlin?" and the employees reply: "Listen to the bees more closely", "Harvest no honey." "But these are just animals." The last one is thrown out of the window.

This method can be used in groups of any size. If lecturers decide to use the memes later in class—something I encourage for many reasons—, they need to make sure they have the time to look at them carefully.

Using memes as described above makes them valuable tools for online teaching (cf. Meisch, Krucker-Valderrama and Lang 2022, Hofer-Krucker-Valderrama, Kauffmann and Meisch 2021). Visualisations significantly support learning processes. More often than not, video conferences are conversation-heavy. Thus, they should ideally be accompanied by appropriate visual elements such as memes. They allow focus exchange within a class. In addition, methods are important in that learners not only exchange content but also produce something that can subsequently be used as a learning resource. Learners want to demonstrate their skills. Hence, it makes a lot of sense to engage them in teaching and learning contexts with their products. Such an approach is inspired by the dialogical learning model (cf. Ruf and Gallin 1998) and product-oriented teaching (cf. Hofer-Krucker Valderrama and Kauffmann 2021).

2.2. Literary classroom conversation (LCC)

The *literary classroom conversations* (LCC) is a didactical method meant to support learners' *literary-aesthetic communication competence* (cf. Hofer-Krucker Valderrama and Weber, 2020). It was developed by German literary didactics scholars affiliated with the Heidelberg University of Education (cf. Heizmann, Meyer, and Steinbrenner 2020, Steinbrenner and Wiprächtiger-Geppert, 2010). Below, I will elaborate on how beyond its original context but still in line with it, the LCC is a useful tool for discussing ethical texts in interdisciplinary ethics courses such as food ethics.

First of all, an LCC is a productive method to engage students of ethics classes with literary texts. Often, such texts address ethical issues, and as it were, invite readers to contemplate these topics (cf. von Matt, 1995, 36-39). Ethics lecturers can use literary texts as teaching material, e.g. because it expresses an ethical concern in more condensed ways and can thus start a discussion. In this way, the LCC allows for different potential pathways to bring up food ethical issues in class. One scenario could be to raise food (animal, agricultural...) ethical topics in literature courses (cf. Meisch and Hofer-Krucker Valderrama 2022).

In this paper, however, my focus is on how an LCC can be used in ethics classes. Didactically, the method aims to initiate conversations about a text based on students' concrete reading experiences, which often connect to their everyday lives (cf. Hobson-West and Miller 2021). In this way, an LCC can serve as an entry point to the ethical issues students grapple with and can therefore be understood as a form of narrative ethics. Narrative ethics, as Haker (2010, 3; own translation) notes, "is not descriptive ethics because it is a component of the value-oriented debate about the good life, and it is not prescriptive ethics [...] because it does not itself become a discourse of justification." Yet, "it provides the hermeneutic framework for the normative question of the moral ought."

From a didactic perspective, then, the LCC has the potential to realize these aims of narrative ethics—contributing both to the "value-oriented debate about the good life" and to the understanding of the "hermeneutic framework for the normative question of the moral ought." At the same time, like narrative ethics itself, an LCC cannot and does not seek to "become a discourse of justification."

Despite its advantages—such as opening discussion, engaging students with texts, and encouraging them to speak up—the method should be complemented by others that familiarize students with ethical theories and concepts and further develop their ethical competences (cf. Fehling 2009). As ethics courses progress, however, lecturers and students can build on the groundwork laid by the LCC.

Learning objectives

A major focus of LCC is placed on understanding conceived as a threefold “dynamic, dialogical process: as a conversation with oneself, as a conversation with the text and as a conversation with a real counterpart” (cf. Steinbrenner and Wiprächtiger-Geppert 2006: 12, own translation). With this, the method also explicitly envisages non-understanding as a possible result of such processes and does not strive for ultimately valid interpretations, but rather “lives from the openness of the approach to a literary object” (Hofer-Krucker Valderrama 2020: 133, own translation).

So, firstly, LCCs allow for a “conversation with oneself” by providing a space in which a student can encounter a text whose reading triggers associations and evokes experiences and background knowledge. In this form of reception, students experience their specific place between a text and their life worlds as well as the interplay between both in the process of understanding. Yet, at the same time, they can also experience the failure of such processes when texts prove at first to be difficult to access or incomprehensible. In this respect, LCC promotes the competence to deal with irritations and non-understanding and to learn to endure them (cf. Steinbrenner and Wiprächtiger-Geppert 2006, 2010).

Secondly, in LCCs, students can also experience a “conversation with a text”. They can develop their linguistic skills while engaging with the text—be it in formulating their thoughts on their reading, reformulating their thoughts with the words of the text, or expanding their vocabulary with that of the text. This also creates space for articulating, and reflecting on, the linguistic constitution of the text itself (cf. Steinbrenner and Wiprächtiger-Geppert 2006, 2010).

Thirdly, the LCC allows for a “conversation with a real counterpart” about a text. Students can experience different ways of reading and can communicate about different approaches to the text. They also train their conversational skills by listening carefully to their counterparts, responding to what is said, developing or contradicting it, and accepting other readings temporarily or permanently. Finally, the LCC allows them to learn, and participate in, a valued cultural practice, i.e. speaking about literary (or philosophical) texts (cf. Steinbrenner and Wiprächtiger-Geppert 2006, 2010).

So, in an LCC, participants can experience themselves as members of an “interpretative community” (Fish, 1980). As such, they work together over the meaning of the text and develop a shared understanding of the text or several, even contradictory understandings. They also experience what Hans-Georg Gadamer (1980) meant by “benevolent listening” (Miller 2020, own translation) and the willingness to learn through interaction with a text and other participants.

As a didactic method, LCC contrasts with ways of teaching where most inputs come from the lecturer, only a few learners participate, and the focus stays on subject-specific topics (e.g. history of literature, literary techniques, or author biography). By contrast, the LCC is based on learners’ life experiences and their first direct experience of reading. This illustrates

why LCC is both a technique and requires a certain attitude on the part of the lecturers. They assume a serious interest in learners' experiences, basically trust them to engage with literary texts, and enable a conversation at eye level. Learners experience lecturers as seekers in the encounter with a text (cf. Meisch and Hofer-Krucker Valderrama 2022).

Structure

The LCC follows the four-step basic structure of (1) text encounter, (2) first round of exchange, (3) open conversation, and (4) final round (cf. also table 1). Before the start of the LCC, the lecturer sets up a circle of chairs and explains the operation of the LCC (cf. Steinbrenner and Wiprächtiger-Geppert, 2010). For the *text encounter*, the lecturer reads out the yet unknown text and students only listen at first (see picture 7). Then, the text is distributed and can be read. Students are asked to mark any passage that appeals to them.



PICTURE 7
Text encounter (acoustic)

They must have enough time to read (see picture 8). Finally, the text is read out again. In the *first round of exchange*, all participants cite a passage and explain why it appeals to them. Since LCC is about close reading, it is important that students refer to a specific text passage and do not make general statements (see picture 9). In the *open conversation* round, participants exchange ideas about the text (see picture 10). The lecturer discusses with the students at eye level and moderates cautiously. In the *final round*, participants explain where they stand with the text after the conversation. For the method, it is relevant that students can speak freely and talk about their subjective impressions, text comprehension, or non-understanding; they should

not feel they have to (re)produce any specific academic knowledge. Hence, it is legitimate when students voice that there are parts of the text they do not understand; in fact, it is one learning experience that interpretations (of text as well as reality) are open-ended processes.



PICTURE 8
Text encounter (reading)



PICTURE 9
First round of exchange



PICTURE 10
Open Conversation

The texts for an LCC

For LCCs, texts work well that are ambiguous or puzzling, that are characterised by their special artistic design, and that are thus worth talking about. In this way, they are most likely to bring learners into conversation with each other. Hence, poetry is particularly well-suited for LCCs. Short texts, in general, have the advantage that they can be read aloud once or several times, so that the learners get an acoustic impression in addition to their own reading experience.

In the course “Bees and ecological crises”, students discussed the poem “Self-portrait with a Swarm of Bees”¹⁴ by the German poet Jan Wagner (2015). While being one of the most well-known contemporary German poems, it is also the most prominent contemporary bee poem. In the LCC, students at first disliked the poem because they did not understand it—and said so. However, in the course of the LCC, they touched on and discussed all relevant aspects. So, during the final round, most of them remained sceptical of the text but happily conceded that as a group they created a shared understanding of it.

As the focus of this paper lies on didactical methods, it is not necessary to give further information on the poem. Other lecturers will choose their texts. So, it suffices to mention that Wagner’s poem raises interesting aspects of human-animal relations that were relevant to the course context.

¹⁴ A translation of the poem can be found online here: https://www.poetryinternational.com/en/poets-poems/poems/poem/103-28403_SELF-PORTRAIT-WITH-A-SWARM-OF-BEES/

Group size and an accompanying hybrid alternative

LCCs work well with 5-6 participants. They are difficult to conduct when learning groups are too large. In this case, it is recommended to combine the LCC with a *Fish Bowl 4.0*, i.e. the group is divided into an inner and outer circle (cf. Hofer-Krucker Valderrama and Kauffmann 2019: 91 ff.). The LCC takes place in the inner circle; the outer circle listens carefully and is allowed to contribute via a digital interface, such as Padlet (cf. Meisch and Hofer-Krucker Valderrama 2023, cf. also picture 7).

Experience shows that contributions are more substantial when the outer circle is supported by a work task (cf. textbox 2). In both courses discussed here, students are asked to post at least one input on a Padlet. This can be a question addressed to someone in the discussion group, an objection, an additional aspect that was not mentioned before, a question about the text that was left open, or a hypothesis. Learners are also asked to initial their input, allowing them to be referred to later in the discussion.

After a while, the lecturer facilitating the conversation opens the inner circle and the Padlet contributions are shared. One participant (or in the case of team teaching, the second lecturer) gives a summary of the contributions. The discussants of the inner circle take up these impulses and continue the conversation. The right time to open the inner circle depends on various factors (e.g., the time available for the LCC or the discussion dynamics). However, the members of the inner circle should have been given enough time to deal with the text before outside impulses are introduced.

Please follow the Literary Classroom Conversation in the inner circle carefully.

At some point during the conversation, write at least one short, detailed input and post it on Padlet: <Add address here>

You can post different inputs and title the post as follows:

1. a question addressed directly to someone in the discussion group;
2. an objection;
3. an additional aspect that has not been mentioned before and that is important to you;
4. a question about the text that has remained open.
5. a hypothesis on the topic.

Add your initials. Many thanks!

TEXTBOX 2**Work task for the outer circle of an LCC**

Combining LCC with *Fish Bowl 4.0* thus enables everyone to contribute and share their thoughts orally or in writing. At the same time, participants produce written contributions that, in line with the product-orienting learning, can be used for subsequent work during the course.

With the additions to the LCC mentioned above, its structure looks as described in table 1.

1 Introduction: • Create a pleasant conversational atmosphere, e.g., by forming a circle of chairs • Explain the context and structure of the following conversation
2 First text encounter: • Create a first (and acoustic) encounter with the text by reading it out once or multiple times
3 First round: • Invite everybody (learners and lecturer) to express their first impression of the text by commenting on a specific passage they personally find remarkable
4 Open conversation: • Invite everybody (learners and lecturer) to share further thoughts on the text • Allow time for reflection • If necessary, provide inputs or help to guide the discussion • If there are people in an outer circle, find ways to introduce their thoughts to the discussion
5 Closing round: • Give everybody (learners and lecturer) the opportunity to share where they currently stand with the text
6 Windup: • End conversation without haste • Make closing remark

TABLE 1

Structure of an LCC

(Translated and modified, Steinbrenner and Wiprächtiger-Geppert, 2010, 11)

The online version of an LCC

LCCs can also be conducted in an online format (cf. Meisch and Hofer-Krucker Valderrama 2023). To do this, the learning group is divided into a virtual inner and outer circle. The members of the last group receive their work assignment and are asked to turn off their computer cameras. This puts the focus on the inner circle. The conference programme (such as Zoom) is set so that in the overview of participants the discussants appear on top; this way, they can see each other even with a split screen.

Otherwise, the digital LCC follows the basic four-step structure. The poem is read out and then sent to everyone via the chat function and shared on the screen. While the members of the inner circle exchange their reading impressions, those of the outer circle comment via Padlet. After a while, the lecturer facilitating the conversation opens the inner circle and the Padlet contributions are shared on the screen; one participant or a second lecturer gives an overview of the contributions. The discussants of the inner circle take up the impulses and continue the conversation.

LCCs with ethics texts

Above, I explained how the LCC is an appropriate method to discuss literary texts in interdisciplinary ethics classes. Below, I will outline how it can be used to introduce

and collectively reflect on ethics texts. LCCs generally fit well with all teaching formats in which learners are part of an “interpretative community” (Fish, 1980), i.e. deal with texts that require interpretation. Often interdisciplinary ethics courses are modules in course programmes whose students cannot reasonably be expected to have experience in dealing with philosophical texts. Hence, many struggles with the texts. Here, an LLC can organise a first and low-threshold encounter with a philosophical work.

This is what happened in the course “Mission to the love of peace”. Students read the text “Ahimsa in Education” by Mahatma Gandhi (2019: 90-93) who explains the term “ahimsa” that is central to his philosophy and elaborates on what it implies for teaching. According to Tridip Suhrud (2019: xxii), “[a]himsa’ is usually translated as nonviolence or non-killing, but Gandhi was aware that these were inadequate translations of the term. He believed that the Christian idea of love best captured the various meanings that he attributed to the term ‘ahimsa’”. So, for the course, this short text of about one and a half pages has two advantages: It speaks about love and peace and both with a view to education. However, it does so from a perspective strongly influenced by Jainism or Hinduism both of which are unfamiliar to most, if not all students. From there, the challenge of, and need for, interpretation emerges. Meanwhile, readers can discern that Gandhi reflects on what it means to exercise “ahimsa” concerning humans but also to non-human creatures (such as wild animals, companion animals, or vegetable plants) and what moral implications this has for food and eating. Many of his arguments, students recognise from debates on sustainable consumption.



PICTURE 11
LCC on the text of M. Gandhi

For this variation of the LCC, students get the text beforehand together with the work task of marking any passage that particularly strikes them. A short text can be handed out before the LCC. If it is a longer text, it is advisable to give students enough time to read the text carefully. So, for instance, the Gandhi text can be read with the sufficient reading time immediately before the LCC; for a chapter, say of Kant's "Metaphysics of Morals", more time is required. In either case, only the sentences or passages will be read out that students chose—always assuming all course participants have read the full text.

3. CONCLUSION AND FURTHER STEPS

This presentation of two didactical approaches started from the premise that teaching food ethics most often takes place in multidisciplinary contexts—unless it is part of an ethics study programme. So, lecturers cannot assume that learners are familiar with the typical humanistic competencies that are part and parcel of ethics teaching and learning. Even if food ethics teaching were a course within an ethics study programme, lecturers encounter various types of learners with different needs. To appeal to students that are not (yet) familiar with humanistic forms of learning, I suggested two didactical approaches, i.e. the use of memes and the LCC, and explained how I use them in the context of my courses to engage students with questions of food, agricultural and sustainability ethics. However, both approaches also work in any other context of application-oriented ethics.

In presenting them, I particularly emphasised four aspects of both methods. They respond to the challenges posed by heterogeneous learning groups, are methods to engage students with unfamiliar text formats, incentivise students to express their first thoughts on a text, and create student products that can be used later in the course. In each case, I explained how group size matters and how it can be used for online teaching.

Concludingly, I want to stress that both methods cannot replace teaching and learning phases focussing on ethical theories and concepts or supporting learners' ethical competencies. However, they can introduce students to the cultural practice of engaging with and speaking about, specific text genres and developing their own reflected moral standpoint (cf. also Hobson-West and Miller, 2021).

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The Paradoxes of the Environmental Rule of Law and the Constitutionalisation of the Ecological Mandate Under the Dogma of Capital Ecology

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Abstract:

In recent decades, debates in constitutional dogmatics have focused on the need either to improve and extend the guarantees of certain constitutional rights that have become increasingly important in society, or to recognise new rights and new subjects of Law. In one case or another, either by moving from the condition of a principle to a right functional to humanist logic, or by acquiring the condition of a subject of rights, the extension of constitutional or legal protection of the environment or nature has become a recurring theme. However, I believe that this debate on legal technique has overshadowed the real underlying problem in the analysis of the issue. I am referring to the inadequacy of the current constitutional paradigm that articulates State-society relations, market constitutionalism, to provide greater legal protection for the environment, much less to grant constitutional subjectivity to nature. Starting from this premise, the aim of the present reflection is to focus on the contradictions present in such debates in order to generate a critical thinking that delves into the constitutional causes of such contradictions. The causal analysis is aimed at the students of the Constitutional Law III course of the Bachelor's Degree in Law (where constitutional rights are dealt with), and the postgraduate students of the Master's Degree in Environmental Law (where the implications of the different branches of law on the environmental issue are analysed), which are taught at the University of the Basque Country. For the implementation of an analysis of this type, a series of practical activities have been designed in which the thread of argument is the function of Law in proposals that advocate a weak (accessory law) or strong (subjective law) recognition of the rights of natural beings. Prior to this, students receive a series of theoretical explanations to clarify the arsenal of legal-normative concepts present in the object of analysis. In this sense, clarifying the meaning and scope of terms such as the market state, the environmental rule of law, the ecology of capital, the greening of Law or constitutional ecology and the functionality of rights versus the autonomy of rights becomes a central question in order to subsequently reflect, through case studies and debates, on the different legal-normative problems present. Among others: whether it is possible to recognise the protection of nature as a constitutionalised fundamental value while avoiding its permanent tension with the contents and forms of current political-economic-Law relations.

Keywords:

Political form of Market, legal form of Market, nature as an object (ecosystem services) of market law, Nature as a subject of Law, Nature as a subject with rights.

¹ This work is part of the activities carried out within the framework of the research project: "Plant Breeding and European Integration: Governance, Market Access and Sustainability - VegEquity" (PID2021-123796OB-C21), Main researcher: Leire Escajedo San Epifanio.

I. WHY TALK ABOUT THE ECOLOGY OF CAPITAL AND NOT ANTHROPOGENIC FRACTURE?

In recent decades, it has been observed how the relation between humans and nature has evolved to the point that forms of production and consumption are generating an “anthropogenic fracture”² in the planet’s biogeochemical cycles³. This fracture has caused the critical limits in the Earth system that define a habitable climate for humanity to be exceeded or on the verge of being exceeded. This fracture process, which is conceived as a new epoch in Earth’s history in which human action causes changes in the Earth’s dynamics comparable to those caused by natural forces, has been labelled the “Anthropocene” (Crutzen, 2002).

However, the intention of this contribution is to offer an alternative approach to the origin of this fracture. Specifically, despite the human responsibility noted above, I believe that the real causes of these changes in environmental conditions are linked to the expansion of the power of the capital market as a global system of profit accumulation oriented towards its own endless internal growth. A phenomenon called the “ecology of capital”. In fact, as early as 1997, a paper entitled “The value of world’s ecosystem services and natural capital” was published in *Nature* (Costanza *et al.*, 253-260). The article explicitly stated: “The services of ecological systems and the stocks of natural capital that produce them are fundamental to the functioning of the Earth’s life support system. They contribute to human well-being, both directly and indirectly, and thus represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes⁴ based on published studies and some original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be between \$16 trillion and \$54 trillion per year. Due to the nature of the uncertainties, this should be considered a minimum estimate. The world’s total Gross National Product is around \$18 trillion per year”.

Five years later, the echoes of monetising (putting a price on) biodiversity were echoing at the CorporateEcoForum, an organisation made up of Fortune Global 500 companies (the world’s top 500 companies measured by revenue, according to their website⁵), which embraced the mantra of monetising environmental sustainability as a matter of business strategy. In 2012, together with the Nature Conservancy, one of the “Big Green” or “Green Giants”, so called because they practice “green washing” or eco-whitening of capital ecology, they published the report, “The New Business Imperative: Valuing Natural Capital”⁶, insisting on the need to monetise the “\$72 trillion of ‘free’

² According to the *Diccionario Panhispánico del Español Jurídico*, belonging to or relating to that which comes from human beings that, in particular, has effects on nature.

³ The cyclical movements of biological elements vital to life such as nitrogen, carbon, phosphorus, oxygen and sulphur.

⁴ Also called bioclimatic landscapes or biotic areas. A biome is a particular part of the planet that shares the same climate, flora and fauna. In other words, a biome is the set of ecosystems characteristic of a biogeographic area that is defined on the basis of its vegetation and the animal species that predominate.

⁵ <https://corporateecoforum.com/about/>. Members of the Corporate would include US technology giants, known as the GAFAM grouping, or e-commerce giants, such as Amazon.

⁶ Available at: <http://www.truevaluemetrics.org/DBpdfs/Initiatives/NewBusinessImperative/The-New-Business-Imperative-Valuing-Natural-Capital-2012.pdf>

goods and services” associated with global natural capital and ecosystem services to achieve a more sustainable growth. The report emphasised the enormous opportunities for debt “leverage”⁷ represented by “emerging natural capital markets, such as water-quality trading, wetland banking and threatened species banking, and natural carbon sequestration”. Consequently, it is imperative to “put a price on the value of nature” or “a monetary value on what nature does for business”. The future of the capitalist economy lies in ensuring that the market pays “for ecosystem services that were previously free”, which could generate new economic value for those companies able to convert ownership of natural capital into financial assets⁸.

Applying the laws of commodity value means monetising nature, subjecting it to the dynamics of accumulation in an unsustainable relation because it implies replacing natural reproduction and evolution systems with mercantilist criteria oriented towards the goal of profitable expansion. Fundamentally, because for the “ecology of capital” the degradation of biological diversity continues to have a solution within the global economic system driven by transnational capital in the context of a linear development model (accumulation by accumulation) based on the cycle of extraction-production-consumption that concentrates large profits and the socialisation of environmental costs or inverse redistribution.

At this point, it is important to specify the role of (constitutional) law in this whole systemic framework of the financialisation of nature, now configured in terms of ecosystem services. In this respect, if the new geological epoch is characterised by the current role of the human economy as the main geological force at the level of the Earth system, if the crisis is historically related to the capitalist mode of social organisation (currently financialised capitalism), any approach from the perspective of law must analyse the possible link between this form and the current emergency. The analysis of society and the current relations of production thus comes into play, and the constitutional function of juridifying the conditions of social production and reproduction materialises. Thus, the conception of the constitutional function of formally expressing the conditions of social production and reproduction implies that the organisation of power and its relations with society cannot be conceived of as an autonomous logic of the constitution (de Cabo, 1993:270).

On the basis of these considerations, the ecology of capital is legally mediated (guaranteed through law) by the new constitutional paradigm of market constitutionalism. The market is configured as the new social potential articulator of state-society relations, with the capacity to organise the new regime and expand the imperative of accumulation for accumulation’s sake. The state begins to assume new functions oriented towards the deregulation of economic and financial processes that will culminate in the unconditional hegemony of market self-government in the 1990s (the so-called “neoliberal reason-world or market society”) (Maestro Buelga: 2007).

⁷ Leverage is borrowing to invest. That is, using debt to invest more capital than you have thanks to that borrowed money.

⁸ In particular: “Over the past decade, the world has seen an acceleration of market-oriented experiments hinging on the idea of paying for once-free ecosystem services. Governments as well as private firms and NGOs are working to pioneer innovative market mechanisms that offer new incentives for economic actors to maintain and restore natural systems. These are payments for ecosystem services”, page 19 of the Report.

The two axes around which the role of the state is now defined are: i) the unconditional centrality of the market which implies: on the one hand, the subordination of politics to the demands of accumulation; and, on the other hand, the affirmation of rules against conditioning intervention on the market; and, ii) financial globalisation as the liberalisation of market constraints to correct the inequalities generated by the market.

In this constitutional paradigm of the market, the nature, as has been pointed out, is configured as an asset that is inserted into the dynamics of global speculative finance backed by global power and its legal form of market law. The deregulation (suppression) of legal limits to capital acts in the global space concretising the globalising strategy as a space contrary to the constitutional sense, the absence of constraints on private financial and economic agents (absence of limits to powers). However, this space needs others (the supranational and state spheres) to consolidate the strategy of the centrality of the market through the juridification of its coordinates (centrality and autonomy of the market) and the expulsion of socio-economic conditioning factors to the market. This global space is, in turn, shaped as a space outside the control and regulation of power, given that its function is to subordinate, conditioning, the state and European spaces, which are the ones that must incorporate the mechanisms of discipline of the global form of the market into Union Law and domestic Law.

This Law also juridifies, through supranational and national legislative processes, the limits to market conditioning intervention, and guarantees the autonomy of the financialised and monetarised economy through the system of self-imposed links to politics. Moreover, in this constitutional market paradigm, socio-economic inequalities and structural ecosystemic risks are assumed to be irrelevant. For only in this way can it be understood that, in European Union law (in particular in the Treaties, the current Lisbon Treaty), the free movement of capital is an economic freedom or fundamental right of European market constitutionalism, while nature and its ecosystems appear as forms of ownership or valorisation of natural capital.

Precisely, in order to reverse the conceptualisation of nature as an object (“resource” or “ecosystem service”), for several decades many voices have been calling for legal-constitutional recognition of the rights of nature as the only way to guarantee its intrinsic value, by recognising terrestrial and marine ecosystems as autonomous subjects with rights (Borrás Pentinat, 2020). However, problems have arisen in determining how the legal legitimisation of nature is configured, especially if it is to be anchored in current legal systems of rights.

In parallel, other voices advocate a more practical solution, or, as I call it, “nature’s third way”, which is characterised by adopting an intermediate position where what is relevant is not so much to protect nature in a specific sense (as a subject), that is, recognising its autonomy/independence from human beings, but to recognise its “accessory”, “functional” scope for human rights. This third path has manifested itself above all in the spheres of international and national legality and that of jurisdiction through the recognition of a utilitarian protection of nature, in the sense of guaranteeing it in terms of its usefulness for people or “for present and future generations” (de Armenteras Cabot, 2021).

The following section will be devoted to the analysis of these two paths and their divergences.

2. THE PROPOSALS FOR A TRANSITION FROM NATURE AS AN OBJECT TO NATURE AS A SUBJECT OF LAW AND RIGHTS

2.1. The Environmental Rule of Law: a conceptual approach

The term environmental rule of law began to be coined implicitly since 1972, following the Stockholm Declaration⁹, when a proliferation of regulations and institutions were adopted and implemented by States to try to reduce or reverse the environmental degradation that was being experienced on a global scale. However, this environmental, institutional and regulatory progress has not generated a certain degree of homogeneity at the global level between countries in terms of the effectiveness of the application and guarantee of compliance with the rules. In fact, there is a considerable gap between countries in the Global North and the Global South with regard to the requirements of environmental laws and their implementation and enforcement.

This phenomenon can be called “environmental legal dumping”, and consists of designing environmental legislation that is less respectful of the natural environment in terms of conservation and reparation of the biodiversity of natural ecosystems, but more attractive to attract private investors to invest in the countries. It is precisely these gaps in the implementation of environmental law, together with the extreme urgency of adopting efficient and effective environmental rules in the face of the fatal consequences of global environmental problems, that have generated the need to focus explicitly on the “environmental rule of law”.

First of all, it should be pointed out that there is no intergovernmental definition of the environmental rule of law. However, if we were to locate the specific origin of the term, it would be international and indebted to Decision 27/9: Advancing Justice, Governance and Law for Environmental Sustainability, adopted in 2013 by the Governing Council of the United Nations Environment Programme (UNEP)¹⁰. This decision was the first internationally negotiated document to establish the term “environmental rule of law”. It invited governments and relevant organisations to strengthen international, regional and sub-regional cooperation to combat non-compliance with environmental laws. Furthermore, in the Decision, Member States recognised the growing importance of the rule of law in the environmental field to reduce violations of environmental law and to achieve sustainable development in general. In this perspective it was recognised that: “violations of environmental law can undermine sustainable development and the achievement of agreed environmental goals and objectives at all levels, and that the rule of law and good governance play an essential role in reducing such violations”.

⁹ The Stockholm Declaration was the first political document (we say political because it has no legal effect as such - creating rights and obligations) that placed environmental issues on the international political agenda, establishing a global framework for dialogue between industrialised and developed countries around a commitment of 26 principles (the principles are mandates to public authorities, but without legal binding, i.e. they do not legally bind them to their compliance; they would rather be a source of inspiration in the adoption of public policies for the preservation of the environment). Retrieved from: <https://documents.un.org/doc/undoc/gen/nl7/300/05/pdf/nl730005.pdf>

¹⁰ Retrieved from: <https://documents.un.org/doc/undoc/gen/k13/509/45/pdf/k1350945.pdf>, pp. 34-37.

In order to specify the contents of the Environmental rule of Law, in 2015, UNEP, in its report, “Environmental Rule of Law: Critical to Sustainable Development”¹¹, identified seven basic elements of the Rule of Environmental Law.

1. Fair, clear and implementable environmental laws. The environmental rule of law is premised on laws that are fair and non-discriminatory in their development, application and impact; easily understandable and unambiguous; and capable of being implemented to effectively achieve their objectives in the particular institutional, cultural and economic context of each country.
2. Public participation in decision-making, an access to justice and information in environmental matters. Public participation in environmental decision-making contributes to the development of fair and enforceable laws and improves public support and compliance. Access to justice helps protect access to information and participation and strengthens enforcement by ensuring that the public has access to mechanisms to protect their rights and resolve disputes. Access to environmental information enables the public to identify violations and determine how to participate.
3. Accountability and integrity of institutions and decision-makers. Environmental institutions must demonstrate accountability, transparency and integrity to ensure public support and compliance and to provide effective environmental protection.
4. Clear and coordinated mandates and roles between and within institutions. Environmental governance involves multiple regulatory systems (statutory, customary, religious, etc.), levels (local, national and international) and sectors (forests, agriculture, waste management, water, etc.), resulting in institutional overlaps and gaps. Clear mandates and cross-sectoral coordination are essential for effective implementation.
5. Accessible, fair, fair, impartial, timely and responsive dispute resolution mechanisms. Dispute resolution and enforcement mechanisms that are fair, impartial, timely and responsive increase environmental compliance, support for environmental initiatives and public confidence in the judicial process.
6. Recognition of the mutually reinforcing relationship between human rights and the environment. The environmental rule of law has a mutually reinforcing relationship with constitutional and human rights¹². A healthy environment is necessary to

¹¹ Retrieved from: <https://wedocs.unep.org/bitstream/handle/20.500.11822/10664/issue-brief-erol.pdf?sequence=1&isAllowed=1>

¹² Broadly speaking, the main differences between constitutional rights and human rights would be that the former are those contemplated in the constitutions of states, while the latter are recognised in Treaties, Conventions and Declarations adopted by supranational, regional or international institutions. In Spain, Article 10.2 of the Constitution requires constitutional norms on fundamental rights and liberties to be interpreted “in accordance with the Universal Declaration of Human Rights and the international treaties and agreements thereon ratified by Spain”.

Although it should be noted that human rights, especially social and cultural rights, are only an interpretative criterion for Spanish constitutional justice when resolving conflicts between constitutional rights. In other words, human rights are not yet recognised as autonomous in their own right, in the sense of being a source that generates new rights not contemplated by the fundamental text of 1978.

realise the rights to life, property and health, as well as other cultural, economic and political rights. Constitutional, human and other rights—including substantive and procedural rights— provide tools to reinforce and enforce environmental protections.

7. Specific criteria for the interpretation of environmental legislation. Clear and detailed guidance on environmental laws enables enforcement agencies to adopt consistent regulations and enforcement practices and facilitates compliance by regulated communities and the public.

These 7 “essential contents”¹³ of the environmental rule of law can, in turn, be divided into formal and material contents. The material contents would be those that refer to the connections between the environmental rule of law and the fundamental rights and principles that concretise its definition, the content/substance/matter of environmental law. These material contents would be those included in elements 1, 6, and 7. Formal contents are those relating to the links between the environmental rule of law and the formal (legal) or informal (governance, inter-institutional cooperation) processes or procedures contemplated by the regulations of the States so that the material contents can be implemented and made effective. Elements 2, 3, 4 and 5 would be part of these formal contents.

Subsequently, the Fifth Montevideo Programme for the Development and Periodic Review of Environmental Law was adopted in UN Environment Assembly Resolution 4/20 of 2019¹⁴. Its main objectives are:

- Support the development of appropriate and effective legal frameworks and environmental legislation at all levels to address environmental issues;
- Strengthen the effective implementation of environmental legislation at the national level;
- Support enhanced capacity-building to increase the effectiveness of environmental law for all stakeholders at all levels;
- Support national governments, at their request, in developing and implementing the environmental law rule of law; and
- Promote the role of environmental law in the context of effective environmental governance.

Precisely in order to comply with both the Decision and the objectives of the Programme (to help countries promote and strengthen the rule of law in environmental matters), UNEP’s legal division has been preparing, since 2019, the so-called Environmental

¹³ At this point, I make a translation of the constitutional guarantee of “essential content” of rights that has been interpreted by constitutional justice as that part of the rights, in our case, the environmental rule of law, which, if not respected by the legislator, would make the rights unrecognisable. It therefore implies that these 7 principles are the substance of the environmental rule of law, the minimum that must be respected by State legislators in order for the environmental rule of law to be recognised as such in the laws and regulations adopted by States.

¹⁴ Retrieved from: <https://wedocs.unep.org/handle/20.500.11822/33030>

Rule of Law reports, which consist of a global assessment of the environmental rule of law. Two reports have been published to date: the first in 2019¹⁵ ; the second in 2023¹⁶ . In this reflection we will mainly focus on the second report, as it is the most recent one.

According to the definition of the environmental rule of law used in the reports, this consists largely of the principles of the rule of law as applied in the environmental context. The rule of law describes a system of governance in which all people, including individuals and public and private institutions, are accountable to laws that are public, equally enforced, independently adopted and consistent with human rights. Thus, the rule of environmental law would describe a time when laws are understood, respected and effectively enforced, enabling people and the planet to enjoy the benefits of environmental protection.

In any case, as the reports make clear, environmental rule of law is distinct from environmental governance. Environmental governance comprises a broader range of principles and approaches related to how decisions are made and implemented in relation to the environment. Whereas the rule of environmental law focuses particularly on implementation, compliance and enforcement. Through the concept of the environmental rule of law, issues such as public participation, transparency and adherence to human rights mechanisms are necessary to ensure fair and effective implementation and enforcement of environmental laws.

2.2. The limitations of the legal guarantee of nature from the environmental rule of law approach

As recognised in UNEP's 2023 report (pages 92-93), existing constitutional and legal norms in States vary widely. In 2023, more than 160 countries (an increase by more than 10 countries when compared to the 2019 report) provided for the right to a healthy environment at the regional, national or sub-national level. Of these, more than 100 have recognised the right to a healthy environment explicitly or implicitly in their national constitutions. Most of these constitutions recognise a substantive right to a "good",

¹⁵ According to this report, at the time, 150 countries in the world had recognised either environmental protection or the right to a healthy environment in their constitutions. Moreover, at the legislative level, 176 countries had framework laws in the field of the environment (page viii of the report). Report available at: file:///C:/Users/bcplaloa/Downloads/Environmental_rule_of_law-1.pdf

* In relation to the concept of framework laws, it should be pointed out that this type of law is characteristic of States with a decentralised structure or composite States. In other words, States where power is distributed territorially, as would be the case of the Kingdom of Spain. From this perspective, and in accordance with Article 150.1 of the Spanish Constitution, "The Cortes Generales, in matters of State competence, shall confer upon all or any of the Autonomous Communities the power to enact legislation for themselves within the framework of the principles, bases and guidelines established by State law. Without prejudice to the competence of the Courts, each basic law shall contain the method of control by the Cortes Generales over the Autonomous Communities' legislation". This means that the State-apparatus or State-institution, in this case, the Cortes Generales, by means of an ordinary law (which would be that envisaged for matters not reserved to organic law - Article 81 of the Spanish Constitution), establish bases or guidelines of obligatory compliance for the Autonomous Community or Autonomous Communities to which the exercise of State competence is attributed (we say exercise because the ownership, the possession of the competence, continues to correspond to the central State).

¹⁶ Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/43943/Environmental_rule_of_law_progress.pdf?sequence=3

“healthy”, “clean” or “unpolluted” environment¹⁷; many also provide for procedural rights to information, participation and/or access to justice in environment-related cases. In parallel, the constitutions of more than 40 countries establish environmental obligations for the state and citizens in the form of policies or objectives, even if they do not expressly provide for the right to a healthy environment.

It could also add that this consolidated Environmental Law at a global level, with the exception of the Constitutions of Ecuador (2008) and Bolivia (2009)¹⁸, is structured around systems of rights or legislative praxis in which nature only has value in terms of its benefits for humans. Thus, these constitutions (with the exception of the two mentioned above) have in common that the right or obligation to an adequate environment is articulated from the perspective of natural or physical persons. That is to say, it is not an autonomous right configured, redundantly, around the right of Nature to have rights.

The ancillary character of this environmental legal corpus has, in turn, an ambivalent reading: on the one hand, a negative reading, because the approach to environmental damage is seen, as I have just pointed out, as secondary to the protection of human rights and interests, implying an approach to nature as an object, given the assessment of the violation from the perspective of the greater or lesser harm to the human rights of the individual (mainly the right to health) that the environmental damage generates. On the other hand, it is also susceptible to a more positive reading. Basically, because if we consider that environmental law has been characterised by guaranteeing since its origins, already in 2550 B.C. with the Treaty of Mesalim (Sand P. H., 2019), the human exploitation of the earth’s natural resources with greater or lesser limitations, the extension of the limits to human action for the exploitation of nature on the basis of the link of its greater impact on the infringement of human rights represents an intermediate advance that, without expressly recognising environmental autonomy, at least allows the more limited contours of considering nature as mere property to be made more flexible, exploring new ways of humanity’s dependence on nature.

However, it is important to reiterate that, for this approach, nature is not a holder of rights, i.e., the legal subjectivity of nature is not possible because it can only be predicated of the quality of being human (legal capacity and capacity to act) or of the capacity to assume duties and responsibilities, as in the case of the legal personality attributable to companies or corporations. Therefore, only a certain introduction of the “humanising logics” of rights in environmental principles is possible.

¹⁷ This would be, a priori, the case of the Spanish Constitution of 1978, Article 45 of which states: “1. Everyone has the right to enjoy an environment suitable for personal development, as well as the duty to preserve it. 2. The public authorities shall safeguard rational use of all natural resources with a view to protecting and improving the quality of life and preserving and restoring the environment, by relying on essential collective solidarity. 3. Criminal or, where applicable, administrative sanctions, as well as the obligation to make good the damage, shall be imposed, under the terms established by the law, against those who violate the provisions contained in the previous clause”. I intentionally put the word “a priori”, because Article 45, although it is formally a constitutional right, as it forms part of the dogmatic provision of the Constitution, Title I; materially, in terms of its legal effectiveness, it is a guiding principle or a programmatic rule. This means that it requires legislative development in order to be exercisable as a right before the courts in the event of violation. In other words, it has mediate legal effectiveness because it requires legislative mediation (legal development) to generate rights and obligations.

¹⁸ We speak of exception because in these countries are the fundamental texts themselves that recognise Nature (the use of capital letters is intentional) as a subject of Law and with rights.

2.3. Constitutional ecology and problems of constitutional legal form and substance

When we speak of constitutional ecology we are referring to those approaches by virtue of which a new system of rights (specific rights of nature, similar to human rights) should be articulated in which these are defined on the basis of their relational and interdependent links and not on the basis of the foundation of human individualities of the ownership of rights (Nedelsky, 1993). For this, the first step would be the recognition of legal personality to nature, creating a new and identifiable legal entity (the legal person) that includes all the necessary rights (capacity, contract and property) to recognise the non-human entity its own personality, endowing it with the right to appear before the courts (Stone, 1972).

However, it is said that this recognition poses a double problem of substance and form. Regarding the legal form, the definition of legal personality varies according to legal systems, especially when it comes to legally defining when nature has *locus standi*¹⁹ and on what legal basis (Cano Pecharroman, 2018). With regard to the substance, the difficulties in recognising substantive (procedural) rights to nature would derive from the traditional definition of capacities to grant legal personality (legal subjectivity-capacity to contract duties), a definition that has humanity as a referential aspect. Even the recognition of legal personality for companies would be based on a certain analogy with humanity and the inherent active and passive legal personality²⁰.

Before continuing with the arguments in favour of recognising nature as a living being as opposed to the current configuration as an object, I would like to make one clarification. I do not agree with this argument on the substantive problem of legal personality. Companies and capital are a form of property, and yet they enjoy legal personality and constitutional rights. The intertwining of the passive and active inherencies, the capacity to act and be bound, the capacity to assume responsibilities, which are predicated of both forms of property on the basis that they are legal fictions ultimately held by a human subject or several associated human subjects, would be linked to the environmental conditions of the social reproduction of capital in its different phases and not to a conception of humanity on the basis of *logos* or reason. These conditions are in turn reproduced in the fundamental texts, juridifying the social and natural guarantees for the continued reproduction of the subjects of financial capitalism, as discussed in the introduction, and their juridical mediation through the functions assigned to the market state form.

Taking up the proposals to recognise legal personality to nature, the emphasis is placed on judicial activism for the “accessory” guarantee of the rights of nature as a whole or to a specific part. Specifically, reference is made to those judicial decisions that have in common the recognition of legal personality to a natural “object” based on the environmental degradation caused by its overexploitation (Tănăsescu, 2022: 122-128). Moreover, this recognition of judicial protection, motivated by economic, cultural or environmental factors, has been complementary to legislative frameworks that moved from models of state ownership of natural resources to markets for natural capital and ecosystem services. It

¹⁹ This is understood as the right or legal capacity to bring/interpose a legal action (remedy) before a court or to appear before a court.

²⁰ Legal personality in the field of law is, broadly speaking, the procedural capacity of active and passive standing to sue and be sued. Thus, the capacity to exercise redress of rights if they are violated (active standing) and the capacity to incur obligations for possible violations of rights (passive standing).

would therefore be an interesting way to overcome the current obstacles to the recognition of the rights of natural subjects.

For example, in the case of the Member States of the European Union, until 2022, non-human natural entities have never been recognised as subjects of rights. That year, Law 19/2022 of 30 September was enacted in Spain to recognise the legal personality of the Mar Menor lagoon and its basin. It is true that, prior to that date, there had been judicial decisions in some Member States of the Union that left the door open to an incipient recognition of legal rights to nature (Escajedo-San Epifanio, 2024: 235 et seq). Specifically, the 2019 Urgenda judgment of the Dutch Supreme Court (*Urgenda Foundation v. The Netherlands* [2015] HAZA C/09/00456689 (24 June 2015)²¹), the first climate litigation case in an EU member state; and the decisions of the Belgian court of first instance in the *VZW Klimaatzaak* case²², and of the German Constitutional Court in the *Neubauer* case²³, both in 2021.

Although they have in common that in all three cases the judicial bodies based the responsibility of states to reduce greenhouse gas emissions on their commitments to the human rights of present and future generations, there are also important differences between the lines of argument followed, on the one hand, by the Dutch ordinary courts and the German constitutional courts, and, on the other hand, by the Belgian judge. In particular, on the question of whether courts can set specific emission reduction targets. Fundamentally, because in relation to the two possible answers, affirmative or negative, there is a confrontation between two lines of argumentation.

On the one hand, the line of argument that a government's lack of sound climate change policies would be contrary to its obligations under existing international, European and national legal mechanisms. States have entered into legal obligations to mitigate climate change and must comply with them. This traditional state duty approach was followed by the Belgian Court. On the other hand, the line of argument that the effective combating of

²¹ The decision stems from a lawsuit filed in 2013 by a citizens' platform, Urgenda Foundation, which participates in the development of plans and measures to promote an ecological transition that generates social sustainability. In 2012, the foundation sent a letter to the Prime Minister of the Netherlands regarding the State's inaction in complying with international commitments to reduce greenhouse gas emissions, requesting a commitment from the State to reduce emissions by 40% by 2020. More information at: <https://elaw.org/nl/urgenda.15>

²² Like the Urgenda case in the Netherlands, the *Klimaatzaak*, also known as the "climate case", was made by an organisation of citizens concerned about the inaction of Belgian institutions in the face of the effects of greenhouse gas emissions and 58,000 co-plaintiff citizens. The arguments used were that Belgian law requires the Belgian government's approach to reducing greenhouse gas emissions to be more ambitious. The lawsuit was directed against the State, the Walloon Region, the Flemish Region and the Brussels-Capital Region. In terms of what was requested, the plaintiffs asked for reductions of 40% below 1990 levels by 2020 and 87.5% below 1990 levels by 2050. More information at: <https://onlineacademiccommunity.uvic.ca/climatechangelitigation/2021/08/03/vzw-klimaatzaak-v-kingdom-of-belgium-et-al/>

²³ Named after the surname of one of the initiators of the lawsuit, climate activist Luisa Neubauer, who, together with nine other colleagues, sued the German federal state for failure to adopt national legislation in line with the responsibilities assumed by the state, including the signing of the Paris Agreement, in the fight against climate change. In addition, it was argued that certain fundamental rights under the German Constitution (the right to a future consistent with human dignity (Article 1), the right to freedom of action and of the person (Article 2), and the right to a minimum standard of living in its ecological dimension (Article 20(1) in conjunction with Article 1(1)) had been violated. More specifically, it was argued that, in the absence of a detailed plan to reduce greenhouse gas emissions in some of the provisions of the Federal Climate Change Act 2019, the responsibility for combating climate change was being transferred to future generations. More information at: <https://climatecasechart.com/non-us-case/neubauer-et-al-v-germany/>

climate action is not only necessary because the authorities have committed themselves to it, but also because it is a matter of fundamental rights of present generations (Dutch court) and future generations (German constitutional court).

The different effects that flow from one or the other pronouncements are significant. Under the rights approach, courts can control states in a situation where their actions—or lack thereof—in the face of a climate emergency could threaten such essential rights as the right to life. Under the duty of states approach, there is a risk that, in the name of the discretion of national executives or parliaments to meet climate change reduction targets, this discretion may materialise into a sphere of immunity of power from potential breaches of human rights protection.

This being the case, we could ask ourselves whether the international, supranational and national legal commitments assumed by states would be sufficient to justify the protection of nature's ecosystems before a national constitutional court, a supranational court, the Court of Justice of the European Union, or a regional court, the European Court of Human Rights. Certainly, the maxim that rights are worth the value of their guarantees could be used to argue that the protection of nature is only worthwhile if it can be judicially enforced. And for this, perhaps it would not be necessary for the rights of seas and oceans, forests, mountains, etc. to be expressly recognised at the highest legal level, i.e. in a Constitution, the Lisbon Treaty or the European Convention on Human Rights.

However, I believe that this approach is very pragmatic, reducing the whole to a part. Rights, while being an essential constitutional component to achieve real and effective legal legitimisation of nature, are inserted in the frameworks of system decisions that legitimise not only the dogmatic part, but the fundamental text as a whole. To isolate a component of constitutional law, rights, in order to situate it in a single legal place, the courts, whether ordinary or constitutional, implies a reduction of the constitutional form to the rationalised limitation of the exercise of politics; ignoring the fact that law is also constitutional politics and, therefore, it is not possible to simplify it by the form of legitimisation of power or by the form of the contents that are subtracted from power. In other words, situating the rights of nature in a paradigm of interaction between rights-humanity-politics colonised by the market state means decontextualising the contents of the hierarchy and domination relations of the rights approach and leading any kind of proposal to a voluntary exercise, and therefore always contingent of public powers (be they the executive, the legislative, the judicial or the constitutional court).

It would therefore be appropriate to confront the rights of nature with constitutional politics. Basically, because the constitutionalisation of the rights of nature offers at least an opportunity to re-politicise the environmental debate without approaching it from a unilateral perspective, be it political-legal or legal-judicial. In this way, it would be possible to avoid the complications of the judicial spheres and the new hermeneutic methodologies of the ecocentric approach or the ecologisation of the law, which lack the mandatory immediate legal linkage.

The first problem, the judicial one, is the frequent use by national judges of the argument of the separation of powers in climate litigation, which would act as an insurmountable limit to the acceptance of environmental claims. This argument highlights a “fear” already expressed by the theoretician of pure legal reason, Hans Kelsen (1928, 2001), who theorised,

among other key legal figures for constitutional law, the so-called concentrated control of constitutionality, i.e. a single body with competence to control the compliance of laws with the constitution, given its normative nature or supreme legal norm from which the validity of the rest of the legal norms of a legal system derives. Reference is made here to the fear of the constitutional court becoming a positive legislator, subtracting/usurping the role of the legislative power. The function of the constitutional courts should be to ensure the guarantee of the principle of constitutionality, or negative judgement of validity or negative legislators, analysing the adaptation of laws to the Constitution, without being able to reserve for themselves the power to determine the content of a norm with the rank of law in this analysis.

The second problem that has been raised in relation to the approach based on the greening of law is that the use of new pro-environmental argumentative methods for reparation and compensation for environmental damage fails to overcome the ambiguities of the language of principles. Principles, unlike rules, leave more room for manoeuvre to the legislator. This does not mean that the legislator has absolute discretion or can act arbitrarily in the development of the principles. On the contrary, what it means is that the legislator, as a representative of the value of political pluralism, can, depending on ideological criteria, develop a principle with a greater or lesser degree of guarantees.

In addition to these limitations of domestic constitutional rights, reference must be made to the normative obstacles inherent in the legal order of the market state. Indeed, without linking this constitutional ecology proposal to a radical transformation of the dominant relations of the order of production and social reproduction of (financial) capital, the proposal becomes a sweet chimera that denaturalises the real root of the conflict. So far, capital has managed to contain the environmental contradiction within itself, turning a potential threat into a stimulus for its growth, or at least for its survival. Depoliticised environmentalism has entrusted companies and consumers with environmental sustainability, has managed to depoliticise the conflict over environmental resources, which is by nature common and therefore political, by shifting responsibility to the individual level and relegating the solution to the market. For all these reasons a transformation of the Union's legal system in the form of an integral and absolute reform would be necessary, and for this, in turn, a radical transformation of the socio-economic, political and cultural environmental conditions of the market state.

3. FROM THEORY TO PRAXIS OR FOOD FOR THOUGHT

Having analysed the proposals for a legal-normative reversal of the financialisation of nature, their differences and limitations within the framework of market constitutionalism, it is time to move from theory to practice. However, the aim is not the mere translation of the theoretical contents learned into their practical implementation. On the contrary, what is intended is that the students, once the professor questions the alternative approaches to the monetisation of nature, explore the legal consequences as an active subjects and participants of and in learning. To stimulate such an exploration, three types of practical activities have been designed. In these activities critical thinking is exercised not through the answers obtained but through the potential of the essential questions asked. A thinking in which fundamental questions become second nature (del Río, 2009: 169), or, in the words of Landau (1987: 15-30), "teaching questions and not just answers or facts". In such a way

that it is possible to infer that fundamental questions are considered as such because of their capacity to create/generate new questions, understanding such a capacity to be the act of critical reasoning.

3.1. First practical exercise: towards a constitutional environmental ethic?

In section 2.3, we have analysed the positive (enhanced protection) and negative (contingent nature of judicial decisions) effects of judicial activism for the legal guarantee of nature and its ecosystems. We have also seen how judicial decisions adopt environmental protection for different generations, present and future, as their legal basis. Their functional character for the protection of individual civil rights that enjoy the maximum guarantee at the constitutional, supranational and regional levels, has allowed new paths to be explored that partially transcend the programmatic nature of environmental protection to enter the path of a constitutional relativism that connects with justice and values. The environment thus seems to tend to take shape as a fundamental value resulting from a basic or minimum ethical consensus that must be alive and constantly deepened in a society that, because it is pluralist and democratic, always remains open (Haberle 1996, 162-165).

In line with these theoretical premises, I propose the following reflection exercise. On 9 April 2024, the European Court of Human Rights (ECtHR), in the *Klimaseniorinnen v. Switzerland* judgment, for the first time linked state inaction in the face of climate change to the violation of the civil rights of the European Convention on Human Rights (ECHR). In particular, to Articles 2 (right to life) and 8 (right to private and family life), respectively. So far, we have analysed the pronouncements of state courts which, as such, have a limited spatial scope of application. In contrast, although the ECtHR's decisions are only binding on the State party concerned, its judgments have, from a material legal perspective, a broader significance in the field of constitutional hermeneutics and may serve as a legal basis for applications brought by nationals of other signatory States to the Convention and its Protocols. Hence, this judgment raises a series of questions that deserve special analytical and reflective attention. Specifically:

Question 1

What interpretative differences (evolutionary or involutionary) can be highlighted in the interpretation of Article 8 ECHR in this particular case compared to other ECtHR rulings on the positive obligations of States to ensure a healthy environment? (Keywords: positive obligations, right to “effective protection by public authorities against the negative impacts of climate change on the life, health, well-being and quality of life of their citizens”).

—To answer this question, read:

- Pages 200 (para. 538) to 211 (para. 574), inclusive, of the *Klimaseniorinnen v. Switzerland* judgment. Available at: [https://hudoc.echr.coe.int/eng/#{%22languageisocode%22:\[%22ENG%22\],%22appno%22:\[%2253600/20%22\],%22documentcollectionid%22:\[%22GRANDCHAMBER%22\],%22itemid%22:\[%22001-233206%22\]}](https://hudoc.echr.coe.int/eng/#{%22languageisocode%22:[%22ENG%22],%22appno%22:[%2253600/20%22],%22documentcollectionid%22:[%22GRANDCHAMBER%22],%22itemid%22:[%22001-233206%22]})

- Omar Bouazza Ariño: Medio ambiente e intimidad en la jurisprudencia del Tribunal Europeo de Derechos Humanos, *Revista Ambianta* 113 (2015): 1-16. Available at: https://www.revistaambienta.es/content/dam/revistaambienta/files-1/Revista-Ambianta/AMBIENTA/113/PDF_AM_Ambianta_2015_113_92_107.pdf
- Rosa María Fernández Egea: La protección del medioambiente por el Tribunal Europeo de Derechos Humanos: últimos avances jurisprudenciales, *RJUAM* 31 (2015): 163-204. Available at: <https://revistas.uam.es/revistajuridica/article/view/6467/8012>

Question 2

In the ECtHR judgment, a separate opinion highlights some of the tensions described in the theory between environmental judicial activism and political pluralism. What would they be? Identify and develop them.

—To answer this question, read pages 233 to 258, inclusive, of the judgment.

Question 3

The civil rights affected by the insufficient action of the public authorities in the face of climate change are variables of development of the dignity of the person, understood as a prohibition of instrumentalisation according to the Kantian maxim. In turn, these rights have as a fundamental ethical value positivised at the regional level the right to a dignified existence, which is violated by the consequences of climate change. In accordance with this argumentative correspondence, would it be possible to affirm that, with this judgment, the ECtHR has opened the way to incorporate a constitutionalised regional environmental ethic, in the sense of a fundamental axial criterion for the guarantee of the dignity of the person? Or, on the contrary, does the Strasbourg Court still not recognise the fundamental environmental uniqueness?

—To answer to this question, in addition to the theory, the following texts are recommended:

- Jaime Doreste Hernández: Sentencia de la Gran Sala del Tribunal Europeo de Derechos Humanos de 9 de abril de 2024, *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland* (Application 53600/20), *Actualidad Jurídica Ambiental*, 30 Julio 2024. Available at: <https://www.actualidadjuridicaambiental.com/jurisprudencia-al-dia-tribunal-europeo-de-derechos-humanos-suiza-cambio-climatico-inactividad-climatica/>
- Rosa María Fernández Egea: El Tribunal Europeo de Derechos Humanos afirma que la inacción climática contraviene la Convención Europea de Derechos Humanos: una decisión histórica, valiente y necesaria, *Aquiescence*, Abril 2024. Available at: <https://aquiescencia.net/2024/04/12/el-tribunal-europeo-de-derechos-humanos-afirma-que-la-inaccion-climatica-contraviene-la-convencion-europea-de-derechos-humanos-una-decision-historica-valiente-y-necesaria/>

3.2. Second practical exercise: nature as a constitutional subject

When we speak of a constitutionalisation of the rights of nature, we are referring to incorporating the debate into the sphere of politics, understood as that with the capacity to interfere, directing, in the socio-economic processes. From this perspective, it is interesting to analyse the proposal to articulate a European Union Charter of Fundamental Rights of Nature (Carducci *et al.*, 2020), as this thesis is situated in the perennial tension between the contents and forms of political-nature-Law relations.

The proposal takes as a normative reference the 2008 Constitution of Ecuador (Chávez Vallejo, 2023: 81-91), as it is the most ambitious fundamental text in constitutionalising the primacy of the guarantee of nature, as a constitutional subject, over economic interests. The subordination of economic freedoms to the rights of nature is based on a natural contract between Nature and Humanity that does not exist in the Constitutions of Western Europe and in the legal order of the European Union. The reception of this ecological mandate in the EU Charter of Fundamental Rights of Nature would operate (Carducci *et al.*, 2020, 12) through three elements:

1. The introduction of substantive rights of nature, e.g. the right to life.
2. The identification of new standards and methods of law enforcement.
3. The obligation to take account of the rights of nature in all EU policies, and not only in the decisions of the courts.

In turn, these elements would be substantiated by **the following five main rules**:

1. Rule of non-regression. This rule has as its fundamental contents: a) no subsequent act may reduce the protection of Nature established by a previous act; b) all forms of environmental protection (both procedural and substantial), when implemented, may not be repealed by subsequent laws; c) damage to environmental interests must always be kept to a minimum; d) the highest level of environmental protection must always be guaranteed (Carducci *et al.*, 2020: 72).
2. Rule of resilience: 1) The provision of the resilience standard allows for full legal protection of biodiversity because ecological resilience decreases if the species diversity of an ecosystem also decreases. 2) This would help to overcome the current “segmented” approach to biodiversity protection in limited protected areas. The resilience standard would impose greater protection of biodiversity even outside parks and reserves, extending it to all areas affected by human action. This approach is envisaged in Principle 4 of the “World Declaration on the Rule of Law on the Environment” entitled, “Ecological Sustainability and Resilience”. As stated in this principle, “legal and other measures shall be taken to protect and restore the integrity of ecosystems and to maintain and enhance the resilience of socio-ecological systems”. 3) Finally, resilience must integrate the contents of environmental assessment and be applied in all biodiversity contexts (Carducci *et al.*, 2020: 75).

3. Rule of *in dubio pro natura et clima*. This criterion was first introduced at the constitutional level by art. 395 (4) of the Constitution of Ecuador²⁴. This criterion is used for:

- interpret any legal norm, not only environmental law;
- resolve “conflicts of norms” in favour of the rights of nature;
- resolve conflicts between rights and interests in favour of the rights of nature;
- closing and eliminating legal loopholes that may favour the exploitation of nature.

The basis of this criterion lies in the rights of nature: only by protecting the rights of nature can the biospheric conditions of life also be protected and the survival of human beings be guaranteed. In fact, the protection of human rights and the mere balancing of interests are no longer sufficient to guarantee survival (Carducci *et al.*, 2020: 84-85).

4. Rule of sustainable democratic methods: recognising the rights of nature means overcoming the “genetic” failure of environmental law caused by the lack of inclusion of nature among stakeholders. Humans are identified and legitimised to act as “counter-interested” subjects, rather than “co-interested” in safeguarding Nature, in a perspective of balancing all interests that operates according to a uniquely human “Win-Win” logic. For this reason, the question of the rights of nature is also closely related to the issue of the “democratic method”. The main question is no longer “what” but “how” to decide in the age of ecosystem complexity. The exclusive negotiation of human interests can no longer be endorsed, and the rights of nature must be introduced into deliberative processes and policies (Carducci *et al.*, 2020: 82-84).
5. The rule of the five responsibilities towards nature with reversal of the burden of proof, which would be the rule of liability for environmental damage. This liability is specific, preventive, objective, integral and absolute. It is a specific liability because nature has a right to restoration, independently of the right to compensation of individuals or legal entities. It is a preventive liability because protection must always precede damage. It is a strict and integral liability because, if nature has the right to restoration independently of any other damage, compensation for damage is never “substitutive” but always “complementary” to other sanctions. Finally, it is an absolute liability because: (a) In case of environmental damage, the State will act immediately and subsidiarily to ensure the health and restoration of ecosystems; (b) “any natural or legal person, human community or group is allowed to resort to judicial and administrative bodies without detriment to their direct interests to obtain from them effective environmental protection, including the possibility of requesting precautionary measures; (c) the burden of proof regarding the absence of potential or actual danger will be on the operator of the activity or on the defendant” (Carducci *et al.*, 2020: 84-85).

²⁴ “In case of doubt as to the scope of legal provisions on environmental matters, they shall be applied in the sense most favourable to the protection of nature.

Both the structural principles of the mandate and the rules for its materialisation seek to respond to the systemic problems of environmental law that basically answer to the absence of a holistic and dynamic approach that takes into account the intersectional complexities, uncertainties and controversies of both terrestrial and marine ecosystems, as well as the fragmentation of environmental legislation and its spatial limitation, circumscribed to the territory of the states.

In view of its structure, the proposal for a European Union Charter of Fundamental Rights of Nature appears to be a turning point in the configuration of nature and its ecosystems as subjects of law by recognising at the highest legal level, among other subjective rights, access to justice or the guarantee of intersectionality, the connections between biodiversity loss and climate change in the seas and oceans, forests, etc... in the approach to constitutional and legislative ecological policies based on the cumulative technique of causes and effects.

However, as I pointed out in section 1, any constitutional analysis of the environmental issue cannot be separated from the constitutional paradigm in which it materialises. The constitutional paradigm in turn structures the State-power-law connections, unifying them at the highest legal-normative level, that is, the Constitution. The current paradigm of market constitutionalism, juridified in EU law and implemented by national legislations, determines an ecology of capital or depoliticised ecologism that complicates the viability of the Charter's proposal.

In the light of these premises, answer the following questions:

Question 1

According to the Charter proposal, what would be the normative obstacles in the European Union's legal system to comprehensive nature protection at supranational level?

—To answer this question, read the pages 23-24 and 111-112 of the proposal: Michele Carducci, Silvia Bagni, Vincenzo Lorubbio, Elisabetta Musarò, Massimiliano Montini, Alessandra Barreca, Costanza Di Francesco Maesa (UniSiena), Mumta Ito, Lindsey Spinks, Paul Powlesland: *Towards an EU Charter of the Fundamental Rights of Nature*. Study. Brussels: European Economic and Social Committee, 2020, 189pp. Available at: <https://www.eesc.europa.eu/sites/default/files/files/qe-03-20-586-en-n.pdf>

Question 2

In addition to the contradictions noted by the proposal between the provisions of the Lisbon Treaty itself and the provisions of the Charter of Fundamental Rights of the European Union on environmental protection, what other divergences would there be between the proposal for a Charter of Fundamental Rights of Nature and recent political strategies on green governance in the Union (European Green Deal and the EU Biodiversity Strategy for 2030)?

—To answer this question, read the following documents:

- The European Green Deal. Brussels, 11.12.2019. COM(2019) 640 final. Available at: https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF
- EU Biodiversity Strategy for 2030. Brussels, 20.5.2020. COM(2020) 380 final. Available at: https://eur-lex.europa.eu/resource.html?uri=cellar:a3c806a6-9ab3-11ea-9d2d-01aa75ed71a1.0001.02/DOC_1&format=PDF
- Susana Borrás-Pentinat: Desafíos jurídicos en el reconocimiento de los derechos de la Naturaleza en Europa: desaprendiendo la capitalización de la vida, *Revista de Estudios Políticos*, 204 (2024). Available at: <https://www.cepc.gob.es/sites/default/files/2024-06/40471rep20407borras-pentinat.pdf>
- John Bellamy Foster, Brett Clark: The capitalinian: the first geological age of the anthropocene, *Monthly Review*, 73, 4 (2021). Available at: <https://monthlyreview.org/2021/09/01/the-capitalinian/>
- John Bellamy Foster, Dan Swain and Monika Woźniak: Marxian ecology, dialectics, and the hierarchy of needs, *Monthly Review* 74, 11 (2020). Available at: <https://monthlyreview.org/2023/04/01/marxian-ecology-dialectics-and-the-hierarchy-of-needs/>

3.3. Third practical exercise: the legal personality of natural beings

As noted (Section 2.3), in 2022 for the first time a European Union Member State, Spain, granted legal personality to a particular ecosystem, the Mar Menor lagoon and its basin, through Law 19/2022. The pioneering Spanish law is inspired by other comparative experiences where laws and agreements with legal force have recognised legal personality to non-human entities (O'Donnell, Talbot-Jones, 2018). With regard to this Spanish regulation, I propose to discuss, first of all, the following question:

Question 1

In which legal-normative approach would you situate Law 19/2022? The environmental rule of law? Or the constitutional ecology? Explain the reasons for the normative choice.

—To answer this question, in addition to the theory, read Law 19/2022, available at: https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-16019

Question 2

The second issue to be addressed is that, according to the legal literature, there is no doctrinal consensus on the scope of Law 19/2022 as a paradigm shift or not in terms of

environmental protection. Several authors have highlighted the shortcomings and loopholes in the law, while others defend its status as a turning point as a legal reference for progress in the recognition, by extension, of the legal personality of other threatened natural areas. Which of the two approaches do you consider to be in line with the paradigm of market constitutionalism in which it is inserted?

—To answer this question, read the following texts:

- Andrea García de Enterría Ramos: La personalidad jurídica de los entes naturales: ¿un cambio de paradigma? *Revista del Parlamento Vasco*, 4 (2023): 8-37. <https://doi.org/10.47984/legal.2023.007>
- Rubén Martínez Dalmau: Una laguna con derecho a existir. La naturaleza como sujeto de derechos y el reconocimiento de la personalidad jurídica del Mar Menor, *Teoría y Realidad Constitucional*, 52 (2023): 357-375. Available at: <file:///C:/Users/bcplaloa/Downloads/Dialnet-UnaLagunaConDerechoAExistirLaNaturalezaComoSujetoD-9214418.pdf>
- Blanca Soro Mateo, Santiago M. Álvarez Carreño, Elisa Pérez de los Cobos Hernández: El reconocimiento de personalidad jurídica y derechos propios al Mar Menor y su cuenca como respuesta a la crisis del derecho ambiental“, *Anuario. Observatorio de políticas ambientales*, 2023. Available at: https://www.boe.es/biblioteca_juridica/anuarios_derecho/abrir_pdf.php?id=ANU-O-2023-10098701026

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- Marcos de Armenteras Cabot. “El litigio climático ante la responsabilidad intergeneracional”, *Cuadernos Electrónicos de Filosofía del Derecho*, 44 (2021). Available at: <https://ojs.uv.es/index.php/CEFD/article/view/19409/pdf>

- Carlos de Cabo. *Teoría Histórica del Estado y del Derecho Constitucional. Vol. II. Estado y Derecho en la transición al capitalismo y en su evolución: el desarrollo constitucional*, Barcelona, PPU, 1993.
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- Peter Häberle. “La Ética en el Estado Constitucional. La relación de reciprocidad y tensión entre la moral y el Derecho”, *Dereito*, 5, 2 (1996): 159-165.
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Charity or Justice?

Rethinking Charitable Food in Light of the Human Right to Food

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Abstract:

Charity or Justice? Rethinking Charitable Food in Light of the Human Right to Food explores the ethical and political tensions between charitable food aid and the recognition of food as a fundamental human right. Within the broader educational framework of the Anthropocene—marked by systemic crises such as climate change, inequality, and democratic erosion—this chapter encourages students to critically examine whether charitable responses to food insecurity risk reinforcing structural injustice or masking state failures to guarantee rights.

Designed for university-level teaching, the chapter offers a ready-to-use activity that invites students to engage in ethical deliberation and systems thinking. It includes clear pedagogical guidance for instructors, student-facing materials, and downloadable resources such as a detailed teaching guide and worksheet. These tools aim to foster critical reflection on the role of charity, justice, and public responsibility in contemporary food systems, while also building key democratic competencies for responsible and engaged citizenship.

I. INTRODUCTION — RETHINKING CHARITABLE FOOD AID THROUGH AN ETHICAL AND EDUCATIONAL LENS

The tension between charitable food aid and the human right to food is a critical and ethically complex issue that deserves renewed attention in contemporary societies. While food charity has long been perceived as a generous and humanitarian response to hunger and food insecurity, critical voices increasingly argue that it may obscure deeper structural injustices and undermine the political responsibility of the state to guarantee the right to adequate food.

Research has shown that institutionalized charitable food systems can normalize food insecurity by allowing governments and citizens to believe the problem is being addressed, without tackling the root causes —poverty, inequality, and inadequate public policies (Riches, 2011). Moreover, reliance on food charity may displace collective political action and diminish the public’s sense of entitlement to claim their rights.

This chapter is part of the book *Educating for Ethics, Critical Thinking and Responsible Action in the Anthropocene*, which promotes pedagogical strategies that equip students to navigate the complex challenges of our era. Through a classroom activity designed for university-level teaching, the chapter invites students to reflect on the ethical and political implications of food charity in contrast to a rights-based approach to food security.

The material includes downloadable resources for both teachers and students, including detailed teacher instructions and a worksheet to guide student participation. The goal is to foster critical thinking, ethical reflection, and engaged citizenship by encouraging learners to examine whether food should be provided as charity or claimed as a right.

In a world increasingly shaped by global crises and social fragmentation, education has a vital role to play in empowering students to question dominant narratives, explore alternatives, and imagine more just and equitable food systems. This chapter offers a practical tool to support that transformative learning process.

II. THEMATIC OVERVIEW AND EDUCATIONAL FRAMEWORK: TEACHER’S NOTES

II.1. Contextualization: description of the relationship between charitable food and the right to food

The use of surplus food directed at people in situations of food insecurity has increased notably in recent decades. Aid resources such as Food Banks, which initially acted in emergencies, have gained strength and established themselves as an important support for the most impoverished sectors of society. In these resources, volunteer solidarity is fundamental.

A linear logic—“food surplus → useful response to food insecurity”—is often assumed in high-income countries. Global food surpluses are seen as covering the income gap of vulnerable people. However, having to rely on this type of food aid can have negative effects

on recipients, such as feelings of shame or the reinforcement of social stigma. Recipients are often excluded from consumer society and forced to consume products they have not chosen. Additionally, the food offered is not always appropriate to their personal needs, whether due to religious restrictions or health conditions. This dynamic helps obscure the importance of preserving the right to food.

Based on existing research, this text provides the conceptual elements necessary to understand these dynamics. It explores the factors that have consolidated the perceived convenience of this linear relationship, the role of charitable food aid, and its effects. Finally, it proposes an exercise aimed at rethinking this link to reflect on how the process of achieving the right to food should be structured.

II.2. Surplus food and food aid resources

The management of surplus food and waste is a major problem in contemporary societies. The FAO estimates that:

“Each year, approximately one-third of all food produced for human consumption in the world is lost or wasted. This food wastage represents a missed opportunity to improve global food security, but also to mitigate environmental impacts and resources use from food chains” (FAO, 2013).

According to another source, “around 88 million tonnes of food are wasted annually in the EU, with associated costs estimated at €143 billion” (Stenmarck *et al.*, 2016). Furthermore, destroying one ton of surplus food generates 4.5 tons of CO₂ (Pérez de Armiño, 2014: 140).

The Global Foodbanking Network (2023) emphasizes that “the problem of food loss and waste (FLW) is enormous. Food banks are an important part of a sustainable solution as they partner with farmers, packers, shippers, distributors, processors, grocers, food service, and transportation and supply chain companies to redirect wholesome food to people experiencing hunger. Not all surplus food is fit or appropriate for redistribution, but when unmarketable food is safe and wholesome, redistribution is the responsible course”.

Charitable food aid refers to “the phenomenon where non-governmental organizations (NGOs) provide free food to people living in poor social and economic conditions; in contrast to statutory welfare provision, food aid is voluntarily organized by the NGOs” (Salonen *et al.*, 2018). Food Banks were originally created to combat food waste. The European Federation of Food Banks (FEBA, 2023) states that their mission is: “To contribute to reducing food insecurity in Europe, through food waste prevention and the call for solidarity, by supporting and developing Food Banks in countries where they are most needed”.

Founded in 1986, FEBA “European Food Banks Federation” is a non-profit organization composed of 264 Food Banks from 22 European countries. It collects food that would otherwise be wasted and distributes it to charitable organizations and social centers. Riches and Silvasti (2014: 9) highlight the strengthening, corporatization, and

global establishment of Food Banks, led by FEBA and the Global Foodbanking Network in most rich OECD countries and rapidly developing nations.

Food Banks collect food that cannot be sold but is safe to eat (Power, 2015), and could be defined as:

“... nonprofit organizations whose main objective is to combat food insecurity by means of the distribution of food via intermediary entities. In some cases, although not always, this is surplus food which, if not donated, would become food waste. Although there are numerous types of Food Bank, the functioning of many of them depends to a large extent upon the work of volunteers. With a few exceptions, these are entities that distribute and/or deliver the food as and when it is received, that is without processing it” (Escajedo *et al.*, 2017).

Food aid resources, therefore, are seen as “a practical and simple solution to two important moral, social, and political problems: hunger and food waste” (Power, 2015). From an individual perspective, charitable operations are understandable as compassionate, practical responses to hunger (Silvasti and Riches, 2014: 204).

However, the commercial dimension must also be noted. Companies donating surplus food can receive tax deductions, reduce storage and transport costs, improve supply chain efficiency, and enhance corporate social responsibility, thereby benefiting their public image and reputation (Caraher and Cavichi, 2014; Silvasti and Riches, 2014).

II.3. What does food security mean in high-income countries?

In general, food security exists when, according to FAO (1996), all people at all times have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and preferences for an active and healthy life. However, some authors emphasize socially acceptable ways of acquiring food. In a broader definition, Dowler and O’Connor (2012: 45) understand food security as follows:

(Food security) “... implies that people have sufficient money to purchase the food they want to eat, to meet social as well as health and nutritional norms; that this money is not absorbed in other expenditure demands (rent, fuel, debt repayment, etc.); that people can reach shops or markets which stock appropriate food at affordable prices, or they can grow or otherwise obtain food in ways which are dignified and in keeping with social norms” (Dowler y O’Connor, 2012: 45).

One of the most widely used measures of food insecurity is that used by Eurostat (2022), based on the “share of the population unable to afford a meal with meat, fish, or a vegetarian equivalent every second day.” Data indicate that in 2021, 7.3% of the total EU population could not afford such a meal every second day, ranging from 22.4% in Bulgaria to 0.4% in Cyprus.

Food aid increasingly targets people with jobs and homes who face sudden or ongoing financial uncertainties (Dowler and O’Connor, 2012: 48). According to FEBA,

in 2021, 11.8 million of the most deprived people were assisted through 45,810 charitable organizations and 341 Food Banks committed to preventing food waste and reducing food insecurity. A total of 39,781 co-workers contributed, 83% of whom were volunteers, across 29 European countries (FEBA, 2021).

However, when access to food aid is socially stigmatizing, it negatively affects recipients. Lack of choice in acquiring food exacerbates stigma and a sense of powerlessness, as users must prove they are entitled to leftovers (Tarasuk and MacLean, 1990). Recipients lose part of their autonomy and inherent human dignity, being forced to accept donated food regardless of their needs and preferences (Riches and Silvasti, 2014: 9). Other studies highlight feelings of shame, fear, stigma, or even humiliation (Garthwaite, 2016; Middleton *et al.*, 2018: 707). Furthermore, food charity can reproduce welfare logics that foster disempowerment, reduce personal autonomy, and perpetuate poverty and social exclusion (Gastón and Montagut, 2015). Charitable food is also often nutritionally inadequate, with significant negative health consequences (Silvasti and Riches, 2014: 197).

Janet Poppendieck (1998) identified seven fundamental problems of emergency aid:

1. Insufficiency: food available through donations may not be enough;
2. Inadequacy: food may not match users' preferences, religious beliefs, or health needs;
3. Nutritional inadequacy: many Food Banks supply non-perishable items that fail to meet dietary recommendations;
4. Instability: donations and volunteer work are unpredictable;
5. Inaccessibility: Food Banks are not necessarily located where needed most;
6. Inefficiency: matching people with available resources is costly;
7. Indignity: reliance on Food Banks often provokes shame and humiliation.

Poverty is also a social and psychological condition. In consumer societies, the poor are excluded from the standard of a “normal” life, effectively becoming marginalized or “defective” consumers (Bauman, 2000). Resorting to food aid exacerbates this exclusion.

II.3.1. *The (human) right to food*

The right to food

“...is based on an a priori commitment to the value of human dignity and makes the individual an agent of change in a way that enables him or her to hold governments accountable and to seek redress for violations of his or her rights. A right-to-food approach is not based on vague and replaceable policy goals subject to periodic redefinition, but on existing, comparatively specific and continuously becoming more precise obligations undertaken by governments” (Mechlem, 2004: 631).

States' legal obligations regarding the right to food are defined in General Comment No. 12 of the International Covenant on Economic, Social and Cultural Rights (FAO,

2010). States must proactively reinforce people's access to resources and the means to ensure their livelihood, including healthy food. When individuals or groups cannot exercise the right to food independently, States are obliged to provide assistance, e.g., through food provision or social safety nets. States may not remain passive; ratifying the Covenant legally obliges them to guarantee food security. Therefore, the right to food is a legal obligation, not a matter of voluntary benevolence (Riches and Silvasti, 2014: 14).

II.4. Debates around the role of food resources

A critical question is why hunger exists in high-income countries. Scholars argue that hunger is not due to a lack of food but is a matter of distributive justice, human rights, and the impact of neoliberal economic policies on vulnerable populations (Riches, 2018).

The voluntary sector has indirectly displaced attention from the right to food. Some authors note:

“Systematic failure to fulfill people's rights to sufficient food for a healthy life is perpetuated by State reliance on voluntary sector responses to feed those who are hungry or without the means to purchase food” (Dowler and O'Connor, 2012: 48).

Third-sector entities have discretion over who receives aid, for how long, and under what conditions (Mata and Pallarés, 2014: 17). Institutionalizing charitable Food Banks creates the illusion that hunger is being addressed, framing it as a matter of charity and undermining the State's obligation to protect the human right to food. This depoliticizes hunger and diverts public discourse away from government responsibilities (Silvasti and Riches, 2014).

Former UN Special Rapporteur Olivier De Schutter (2012) states:

“Reliance on food banks is symptomatic of a broken social protection system and the failure of the State to meet its obligations to its people.”

If the public believes help is always available, governments may avoid assessing welfare programs, reducing pressure to address systemic food insecurity (Tarasuk *et al.*, 2014). Charity distracts from ineffective government policies and legitimizes personal generosity over structural change (Poppendieck, 1998).

II.5. Some concluding remarks

Several dynamics have led to the entrenchment of surplus food use to combat food insecurity. Economically, it is profitable and ecologically beneficial. Charitable food aid, supported by volunteers, partially addresses hunger in high-income societies. While socially valued, it obscures State responsibility for the right to food and reinforces stigma among vulnerable populations. Ultimately, this approach leaves the root problem—food insecurity—unresolved.

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III. CONTEXTUAL BRIEF - STUDENT’S NOTES

III.1. Introduction

In contemporary societies, a stark paradox defines our food systems: despite persistent hunger and food insecurity, we witness a consistent overproduction of food. Rather than addressing the structural causes of inequality, surplus food is often redirected through charitable channels to people in need. While this practice is widely accepted as a pragmatic solution, it raises important ethical concerns. Those who depend on such aid—although they are rights-bearing citizens—frequently experience a stigmatizing relationship with the providers of food assistance. Feelings of shame, loss of dignity, and lack of agency are common, as recipients have little or no choice over the food they receive, effectively excluding them from full participation in consumer society (Lambie-Mumford, 2017).

This situation calls for a critical reassessment of how food aid is conceptualized and implemented. First, we must examine the ethical implications of using surplus food to feed food-insecure populations. While this may seem efficient, it risks naturalizing food poverty and masking the need for structural solutions grounded in justice rather than charity. Second, the modes of surplus food distribution should be reconsidered to ensure that they explicitly recognize and uphold the human right to adequate food, as articulated in international human rights frameworks. This includes enabling choice, dignity, and cultural appropriateness in food access. Third, the role of volunteerism in charitable food systems deserves attention. Although volunteers are often well-intentioned, their efforts may inadvertently reinforce unequal power dynamics and dependency unless integrated into practices that foster empowerment, participation, and rights awareness among recipients.

III.2. Additional references for students

- De Schutter, O. (2013). *Freedom from hunger: Realising the right to food in the UK: A lecture by the United Nations special rapporteur on the right to food*. Social Policy, the Media, and Misrepresentation. London: Routledge.
- Escajedo San-Epifanio, L. & Rebato, E. (eds.) (2022). *Ethics of charitable Food. Dilemmas for policy and practice*. Springer.
- Pollard, C. M. & Booth, S. (2019). "Food insecurity and hunger in rich countries. It is time for action against inequality". *International Journal of Environmental Research and Public Health*, 16, 1804.
- Riches, Graham (2018). *Food bank nations. Poverty, corporate charity and the right to food*. Routledge.
- Van der Horst, H., Pascucci, S. & Bol, W. (2014). "The "dark side" of food banks? Exploring emotional responses of food bank receivers in the Netherlands". *British Food Journal*, 116(9), 1506-1520.

IV. DESCRIPTION OF THE TEACHING AND LEARNING ACTIVITY

The exercise consists of completing the chart provided for the students, who will work in groups, reflecting on the content of the chapter. Subsequently, the teacher will highlight the most noteworthy points discussed in class and consolidate them into a single summary table.

In contemporary societies, a stark paradox defines our food systems: while food is overproduced, surplus supplies are often distributed through charitable channels to people in need. Yet, those who rely on such resources—despite being full rights-bearing citizens—frequently experience a stigmatizing relationship with the providers, leading to feelings of shame and guilt. Moreover, they are effectively excluded from consumer society, as they cannot choose the foods they wish to eat, undermining their agency and dignity.

This situation calls for a critical rethinking of several key issues:

- a) The ethical implications of using surplus food to feed food-insecure populations.
- b) The modes of distributing surplus food in ways that explicitly acknowledge and reinforce the human right to food.

- c) The role of volunteerism in charitable food aid and its potential to either reinforce dependency or foster empowerment.

IV.1. Downloadable sheets

In the downloadable student worksheet, participants are invited to critically analyze and reframe the relationships described above—such as the dynamics between surplus food, charitable distribution, and the right to food—by applying the key concepts and analytical approaches discussed in the chapter. The activity encourages students to explore alternative models that better align with principles of dignity, justice, and rights-based approaches to food security.

DOWNLOADABLE ELEMENTS *are two:*

- A. Instructions for teachers.
- B. Downloadable elements for students to carry out the activity.

DOWNLOADABLE INSTRUCTIONS FOR TEACHERS

- a) Table-summary of concepts

Guidelines can be defined in establishing the prevailing point of view on how to alleviate food insecurity as shown in the following table:

Linear trajectory	Food as a donable object	Food within the charitable circuit	Food as a way to alleviate food insecurity	Right to food
	— Food surplus. — Profitable for companies. — Positive ecological impact.	— Establishment of distribution networks through food aid resources. — Taking advantage of volunteer work.	— Partial solution to food insecurity. — Side effects: stigma, shame, reinforcement of exclusion, expulsion from the consumer society, harmful effects on health.	— Vulnerated.

- b) The activity is structured into three exercises:

EXERCISE 1. *Understanding Food Aid Resources*

Objective: Learn how food aid resources, such as Food Banks, operate and whom they serve.

Instructions:

1. Visit the website of the European Food Banks Federation: <https://www.eurofoodbank.org/>

2. Collect and summarize the following information:

- Number of people served annually.
- Percentage of volunteers involved.
- How products move through the system (trajectory of the food).
- Number of companies donating surplus food (include examples).

Outcome: Students should gain a clear understanding of the scale, organization, and functioning of food aid networks in Europe.

EXERCISE 2. *Reading and Discussion*

Objective: Engage critically with theoretical and empirical perspectives on charitable food and the right to food.

Instructions:

1. Read the selected texts listed in Student's Notes (III.2).
2. In small groups, discuss key questions:
 - How do charitable food systems interact with the right to food?
 - What ethical, social, and political issues arise from surplus food distribution?
 - How does volunteerism influence power dynamics and user agency?

Outcome: Students will develop critical thinking and discussion skills, linking theory with real-world practice.

EXERCISE 3. *Table Re-Elaboration*

Objective: Synthesize knowledge by mapping the relationships between food surplus, food aid resources, and the right to food.

Instructions:

1. Complete the table provided in the worksheet (below) by analyzing the following dimensions:
 - Food surplus: What is surplus, why does it exist, and who benefits?
 - Food aid resources (Voluntary work): How is the surplus distributed? What role do volunteers play?
 - Effects: What are the social, ethical, and health impacts of the current system on recipients?
 - Right to food: How are recipients' rights respected or violated?
2. Propose alternative approaches to improve dignity, agency, and rights-based access to food.

Outcome: Students produce a critical framework linking theory, practice, and rights-based thinking, fostering reflection on structural solutions rather than solely charitable responses.

Reworked path	Food surplus	Food aid resources (voluntary work)	Effects	Right to food

DOWNLOADABLE SHEET FOR STUDENTS

EXERCISE 1. *Understanding Food Aid Resources*

1. Visit the website of the European Food Banks Federation: <https://www.eurofoodbank.org/>
2. Collect and summarize the following information:
 - Number of people served
 - Percentage of volunteering
 - Trajectory of the products
 - Number of companies involved (+ examples)

EXERCISE 2. *Reading and Discussion*

Reading of selected texts indicated in Student's notes (III.2). Discussion in small groups.

EXERCISE 3. *Synthesize knowledge by mapping the relationships*

Synthesize knowledge by mapping the relationships between food surplus, food aid resources, and the right to food.

Reworked path	Food surplus	Food aid resources (voluntary work)	Effects	Right to food

Literature and Sustainable Development Goals: Teaching ethics and sustainability in a university classroom through Children's and Young Adult Literature¹

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Abstract:

Climatic emergency and profound inequalities have proved the need for a society-wide mobilization, the urgent need for a deep social and economic transformation. We must 'think global and act local', following the slogan that has been used not only for environmental issues but also in an educational context. Sustainable Development and Children's and Young Adult Literature could certainly go hand in hand to foster ethical values such as equality and equity, peace, cooperation and respect for other people, and the animal and natural world. Nursery and Primary School Bachelor students, and therefore future Nursery and Primary School teachers, must be aware of the transformative power of literature and must also acknowledge the importance of working on sustainable development. This paper focuses on the various active methodologies such as Dialogic Literary Gatherings (cooperative learning) and Literary Interest Points (project-based learning) carried out in the context of the subject Language and Literature Didactics. Through the mentioned active methodologies, literary education, ethical values and sustainability are fostered, and a large variety of transversal competences are practised.

Keywords:

Education for Sustainable Development, literature didactics, dialogic literary gatherings, Nursery Education, Primary Education.

¹ This research was held thanks to various projects: the project 24ENCI founded by the Campus Bizia Lab Programme of the University of the Basque Country EHU, the project IT1565-22 financed by the Basque Government and the project PID2023-149915NB-I00 of the Ministry of Science, Innovation and Universities.

I. INTRODUCTION

The field of Children's and Young Adult Literature bridges education and the humanities. It has been historically considered marginal and therefore neglected in the field of literary studies and as a result, Children's and Young Adult Literature and its didactic has been recently incorporated into Spanish universities (Soto-Vázquez *et al.*, 2022). The three faculties of Education of the University of the Basque Country (EHU) offer a BA in Nursery Education and a BA in Primary Education. Both bachelorships include the subject Language and Literature Didactics, in which Children's and Young Adult Literature is specifically analysed.

Children's and Young Adult Literature is directed at young readers, and it therefore plays an important educational role. Children's and Young Adult Literature has three main goals: it provides access to the collective imagination, it allows the learning of language, and it serves as a tool for cultural socialization (Colomer, 2010). Literature shows children and young people what the world is like, but it can also show them what kind of world we would like it to be. It is the perfect tool to dream of a better world and, based on that dream, to promote social transformation. In the last decades much attention has been drawn to the importance of literary education and literature didactic during Nursery and Primary School (Campos Fernández-Fígares & Quiles Cabrera, 2019; Cerrillo Torremocha, 2007; Colomer, 2010; de Vicente-Yagüe Jara & Jiménez Pérez, 2018; García-Rivera, 1995; López Valero & Encabo Fernández, 2013; Mendoza Fillola & Briz Villanueva, 2003; Ruiz Campos, 2000; Soto Vázquez *et al.*, 2017).

Education for Sustainable Development has also gained much importance in recent years, although the emergence of ecologism and environmental issues is traced back to the 1960s and 1970s. The first United Nations Conference to face environmental concerns was held in Stockholm in 1972. Environmental issues were placed 'at the forefront of international concerns and marked the start of a dialogue between industrialized and developing countries on the link between economic growth, the pollution of the air, water, and oceans and the well-being of people around the world' (United Nations, n.d.-b). The nineteenth principle of the Stockholm Declaration affirms that environmental education 'is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension' (United Nations, 1972, p. 5). Only three years after the Stockholm Conference, the first International Workshop on Environmental Education was held in Belgrade. Participants proposed a global framework for environmental education, known as the Belgrade Charter, which stated:

the foundations must be laid for a world-wide environmental education programme that will make it possible to develop new knowledge and skills, values and attitudes, in a drive towards a better quality of environment and, indeed, towards a higher quality of life for present and future generations living within that environment. (UNESCO, 1975, p. 2)

During the 1977 World's First Intergovernmental Conference on Environmental Education, organized by UNESCO in Tbilisi (Georgia, USSR), the Tbilisi Declaration

was adopted, and the importance of environmental education was noted. The next United Nations Conference on Environment and Development, also known as the ‘Earth Summit’, was held in Rio de Janeiro, Brazil, in June 1992. It was in this conference that the concept of sustainable development was defined, and one of its major results was the Agenda 21, that reflected ‘a global consensus and political commitment at the highest level on development and environment cooperation’ (United Nations, 1992, p. 12). Since then, UNESCO has attempted to reorient Environmental Education (EE) towards Education for Sustainable Development (ESD). In 2000, a Millennium Summit was held in New York and the Millennium Declaration was adopted, in which the eight Millennium Development Goals (MDGs) were set out. Two years later, the 2002 World Summit on Sustainable Development in Johannesburg adopted a resolution to put in place the United Nations Decade of Education for Sustainable Development (2005-2014), which ‘sought to mobilize the educational resources of the world to help create a more sustainable future’ (UNESCO, 2021). Shortly after the Decade of Education for Sustainable Development came to its end, in 2015 all members of the United Nations adopted the 2030 Agenda for Sustainable Development (United Nations, 2015), a plan of action for people, planet, prosperity, peace and partnership, which set out a 15-year plan to achieve 17 development goals.

To achieve the Sustainable Development Goals (SDGs), collaboration between institutions, authorities, and the civil society is of great importance, and efforts must be made at local, regional, national, and international scales. In 2022 the United Nations elected the city of Bilbao to host the Secretariat of the Local Coalition 2030. The coalition is the network for supporting and accelerating the SDGs. In Maimunah Mohd Sharif’s words—Executive Director of UN-Habitat—the UN recognizes that ‘Spanish municipalities and regions, such as Bilbao and the Basque Country, have been at the forefront of efforts to accelerate achievement of the global goals’ (United Nations Development Programme, 2022). The Basque Government has also published the DECRETO 130/2022, de 2 de noviembre, de Impulso a la Educación Ambiental para la Sostenibilidad en la Comunidad Autónoma del País Vasco, a decree law that promotes the Education for Sustainable Development in the Autonomous Community of the Basque Country.

The University of the Basque Country (EHU) ‘sees the SDGs as a route map to bring the University’s work into line with the major challenges facing the planet and people’ (University of the Basque Country EHU, n.d.-a). The University therefore published its own EHU agenda 2030 and works through several projects in favour of those SDGs. One of those projects or programmes is the Campus Bizia Lab (CBL), an initiative arising from the Erasmus University Educators for Sustainable Development Project. The CBL seeks to generate a collaborative process between academic staff, administration and service staff, and students, to respond to sustainability challenges from a multidisciplinary approach. The report of the Transversal Competences of the EHU (Uranga Iturrioz, 2019) establishes eight competences (autonomy and self-regulation; social commitment; communication and multilingualism; ethics and professional responsibility; information management and digital citizenship; innovation and entrepreneurship; critical thinking; and teamwork) that are common to all degree qualifications (undergraduate course, master’s course, doctorate and continuous training), and which also go in line with the SDGs.

II. TEACHING ETHICS AND SUSTAINABILITY IN A UNIVERSITY CLASSROOM THROUGH CHILDREN'S AND YOUNG ADULT LITERATURE

For the last four academic years we have been working on four CBL projects (20ENCI, 21ENCI, 22ENCI, and 23ENCI) and we are currently working on a fifth one (24ENCI). All the projects deal with sustainability and Children's and Young Adult Literature and, like all CBL projects, they are within the IKDi3 strategy of the University of the Basque Country EHU: 'i to the power of three: learning ('ikaskuntza' in Basque) x research ('ikerkuntza') x sustainability ('iraunkortasuna'), which means multiplying learning by research and by sustainability' (University of the Basque Country EH, n.d.-b). Most of the CBL members are teachers from the three Faculties of Education of the EHU and our main goal is to foster the Sustainable Development Goals in Education. We have promoted the Sustainable Development Goals within university students (BA in Nursery Education and BA in Primary Education), mainly through Children's and Young Adult Literature. But as the CBL project has various purposes, within this project students of Nursery and Primary Education degrees have been given the opportunity to complete Final Degree Theses that combine the Sustainable Development Goals and Children's and Young Adult Literature. In addition, tools have been offered to mediators working in education, so that they can use them in reading plans and in schools. Following the UN's SDG Book Club, we have published two reading guides that compile books dealing with the SDGs (Aperribay-Bermejo *et al.*, 2021; Aperribay-Bermejo *et al.* 2022). We have also published a volume dealing with the Sustainable Development and Children's and Young Adults Literature (Aperribay-Bermejo *et al.*, 2023). Other publications related to SDG5 (Esparza Martin & Aperribay-Bermejo, 2024) and SDG6 (Aperribay-Bermejo, 2024) have also being published within the various CBL projects. The UNESCO Chair on World Language Heritage of the EHU created the SDG17+1 (or 18), which seeks to 'guarantee linguistic and cultural diversity (...) [and] the presence and recognition of all languages and cultures as essential keys for personal and social development' (UNESCO Chair of World Language Heritage of the EHU, n.d.). Taking SDG17+1 into account, most of the readings proposed in these guides are written in or translated into Basque. Both guides have been published with open access (under a CC BY-NC-ND licence), so that anyone can read, translate, print, or download them and so that anyone can reuse them for educational purposes, in accordance with SDG10, to reduce inequalities and to promote free of charge educational materials.

The main purpose of this CBL project is to show undergraduate students the connections between Children's and Young Adult Literature and the Sustainable Development Goals. As future teachers, they must transmit the importance of sustainable development and eco-pedagogy to future generations (Antunes & Gadotti, 2006; Freire, 2018; Gadotti, 2006; Gutiérrez & Pardo, 2010). Students were familiar neither with the SDGs nor with Literature Didactics. For that reason, theoretical explanations and practical activities, and following tasks, were carried out in the third-year subject Language and Literature Didactics:

- Develop literary education through theoretical explanations.
- Study the role of literature in the process of socialization and emphasize its importance in the transmission of culture, emotions, and knowledge.
- Analyse the role of literature in the Nursery and Primary School curriculums (DECRETO 75/2023 and DECRETO 77/2023 decree laws in force) and also the

specific contents of the previous Basque curriculum (compiled on the DECRETO 236/2015 decree law), where a guide list of Basque authors and literary works (not only written literature but also oral literature) was offered.

- Present the basics of dialogic literary gatherings (DLG) and share thoughts and opinions about various literary texts through these gatherings.
- Determine the presence of sustainability at the University in general and in Nursery and Primary Education Degrees in particular.
- Introduce the 2030 Agenda and other previous documents such as the Tbilisi Declaration or the Millennium Development Goals.
- Explain each Sustainable Development Goal.
- Read various literary works, analyse the presence of aesthetic language, and find out their connection with the SDG, both orally and written.
- Examine the connection between sustainability (SDG), the Basque curricula (DECRETO 75/2023 and DECRETO 77/2023 decree laws) and the Environmental Education in the Basque Autonomous Region (DECRETO 130/2022 decree law.)

One of the main interests of Literature didactics is dealing with literary texts. In this sense, and within the subject Language and Literature Didactics, students of Nursery and Primary Education (and thus future Nursery and Primary School teachers) have carried out a range of activities to build up a strong theoretical and practical basis. Theoretical and critical approaches to literary studies have been presented: classical rhetoric, historiography and canon, or narratology, to mention some. The relationships between literature, culture and society has also been highlighted, paying special attention to theoretical-critical schools that start from sociological-based postulates (polysystem theory, reception theory...). New approaches to literary and cultural studies have also been made, for example from the perspective of gender studies (in consonance with SDG5), multiculturalism (SDG10 and 16), or ecocriticism (SDG6, 12, 13, 14 and 15).

The concept of Children's and Young Adult Literature (CYAL) has been defined, literary genres and their characteristics have been underlined, and students have learned to recognize the difference between the ethical and the aesthetical facets of literature. For a long time, many publications have been focusing on the ethical-practical aspect and thus often left aside the aesthetic in literary texts. Sánchez Corral (1992) talks about the aesthetic aspect of discourse, that puts discourses and languages at the centre. On the one hand, we have standard language, a language tool that promotes utilitarian communication. On the other hand, poetic or creative language, which promotes aesthetical communication. For this reason and from an aesthetic point of view, the literariness of the texts must be proclaimed, and thus we build a bridge between the social function of literature and the Education for Sustainable Development. In other words, the main goal is to emphasize the double dimension of literature, where ethics and aesthetics are combined. It is important to note that literature, and the development of literary education, play a major role in the transmission of culture and knowledge; therefore, as Colomer (2010) affirms, aesthetical sensitivity should be favoured in literary and reading practices at school, as it is useful for promoting every individual's critical awareness, which is essential for the development of critical skills.

Reading is strongly beneficial, above all for young readers. Basic speech skills and logical thinking skills are improved through reading, and it helps children develop a substantially better memory retention. It broadens children's knowledge, fights stereotypes and definitely provides advantages that will follow the reader throughout his or her life. On this basis, teaching literature pursues linguistic and cultural aims, fostering intercultural understanding, and encouraging an inclusive and equitable quality education (SDG4).

Since the emergence of the Children's and Young Adult Literature and its Didactics, a broad variety of themes have been included in CYAL books. As has already been stated, CYAL provides access to the collective imagination, allows the learning of a language, and serves as a tool for cultural socialization (Colomer, 2010). As an adult, a literary mediator during the early stage of development and as a (future) teacher, one must be aware of which kind of literary works are read to or with children of a certain age, taking into account that their reading interests change through their different stages of development, and their reading ability grows exponentially through time. At the earlier stages, children need a mediator who reads to them and who knows what kind of reading they like. From 0 to 2 years old, babies are impressed by sounds and movements, so they develop an interest in songs, rhymes, and short verses. Between the ages of 2 and 6, children tend to like short stories, tales, or fables, as well as riddles and tongue-twisters. Reading skills are usually developed at the age of 5-6, which is the age from which they can begin to be independent readers. When they are 7 to 9 years old, children tend to like fairy tales and fantastic stories. Children between 9 and 11 like adventure books through which they can identify themselves with the main protagonists (Gomez Hernandez, 2002). It is between 2 and 5 years of age that children start recognizing reality, so from that age on, and progressively, different subjects can be treated through literature, because literature in general (and fairy tales in particular) provide a unique way for children to come to terms with the dilemmas of their inner lives. Psychoanalyst Bruno Bettelheim affirms that:

Modern stories written for young children mainly avoid (...) existential problems, although they are crucial issues for all of us. The child needs most particularly to be given suggestions in symbolic form about how he may deal with these issues and grow safely into maturity. 'Safe' stories mention neither death nor aging, the limits of our existence, nor the wish for eternal life. The fairy tale, by contrast, confronts the child squarely with the basic human predicaments. (2010, p. 8)

As UNESCO affirms, '[t]he study of literature as a means to develop empathy gives students a sense of community, clarifies values, understands sustainability from multiple perspectives, and motivates them to act' (2017, p. 51). Considering that its formative dimension has a clear potentiality to change values and behaviours, an infinite variety of topics have been represented through Children's and Young Adult Literature in the last decades: from human rights to such ethical values as respect, equality and equity, or environmental values like caring for the natural and animal world. First order problems such as climate change or inequalities show us that we must modify not only our way of acting, but also our way of thinking, creating new habits, attitudes and behaviours that help us achieve sustainable societies. Educational systems must respond to this social need through quality education, and quality education comprehends inclusiveness, equality and equity, or linguistic and cultural rights. SDG4 enacts to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (United Nations, 2015, p. 21). We live in a

bilingual region and our educational system is multilingual. Children learn Basque, Spanish and English (sometimes even French or German during High School) from Nursery School to High School. Basque, as a minority language, remains always the main language. For us, to teach and learn in Basque is a matter of cultural and linguistic rights, but also a matter of inclusiveness and equity, because language acts as a means of cohesion and integration. That is what SDG17+1 affirms (UNESCO Chair of World Language Heritage of the EHU, n.d.). Consequently, SDG18 is connected to SDG4, because it is not possible to speak about quality education without taking minority languages and cultures into account.

Nursery and Primary Education students need to develop their critical thinking, but they also need to know which literary works are ethically and aesthetically suitable. In Spain, more than 10,000 books are published every year (Colomer *et al.*, 2018). Some of these publications are not literature (fiction), but divulgative-informative (non-fiction) books. Students must be able to know which ones are literature and which ones can be considered quality literature. They also learn that school reading plans should contain a group of classical and canonical readings, some contemporary readings, and some newly published books (Colomer *et al.*, 2018).

To practise reading and to teach students how to gather around a specific book, dialogic literary gatherings (DLGs) were celebrated each week. DLGs have their origin in the 1980s at the Adults' School from La Verneda-Sant Martí, in Barcelona. These gatherings are meetings about literature in which participants read and discuss classics of Universal Literature. Even though the first DLGs were aimed at adults with no formal education, they are currently considered a cultural and educational activity aimed also at students, who gather around a certain book (universal classic books). The methodology used in the discussion is based on dialogue, and the contributions of all participants become generators of learning (Flecha, 2000), practising the Cooperative Learning active methodology. Dialogue has a transformative power, as does dialogic learning:

Dialogue is thus an existential necessity. And since dialogue is the encounter in which reflection and action of the dialoguers are addressed to the world which is to be transformed and humanized, this dialogue cannot be reduced to the act of one person's 'depositing' ideas in another, nor can it become a simple exchange of ideas to be 'consumed' by the discussants. (...) It is an act of creation; it must not serve as a crafty instrument for the domination of one person by another. The domination implicit in dialogue is that of the world by the dialogues; it is conquest of the world for the liberation of humankind. (Freire, 2018, pp. 88-89)

In schools and universities, dialogical literary gatherings usually take place during the Language and Literature classes, which means that participants do not always join the gatherings freely. But we must remember that DLGs can take place in all kinds of centres such as cultural associations, libraries, bookshops, women's groups, or community centres. Students or participants have previously read a great literary work which must be age and/or skill-appropriate (for younger readers or for adult participants with lower-reading ability, for example). Students sit in a circle and share opinions: what they have liked from the text, what they have understood, or how they have interpreted this or that extract. Other participants may agree or disagree and provide new explanations and visions that encourage critical thinking. Students may also share personal views and emotions. Villardón-Gallego *et al.* (2018) state the following concerning DLGs:

(...) children engage in a collective interpretation of the great literary works, where dialogue is not prompted by an adult and starts from their own meanings and reflections

about their reading. Consistent with previous studies (...), children provide articulated contributions that elicit high-level thinking and reasoning about friendship, help, justice, or discrimination. This dialogic dynamic creates affordances for children to engage in a collective reasoning about human relationships where prosocial behavior takes place, which has an important role in building relationships across the lifespan. (p. 8)

The definition and a brief history of DLG were presented and the readings were chosen. CYAL classics such as tales from *One Thousand and One Nights* ('*Ali Baba and the Forty Thieves*' or '*Aladdin and the Wonderful Lamp*'), Grimm's *Children's and Household Tales* (1812) ('*Hansel and Gretel*', '*Cinderella*', '*Little Red Riding Hood*' or '*Snow White and the Seven Dwarfs*'), Jonathan Swift's *Gulliver's Travels* (1726), Jules Verne's *Twenty Thousand Leagues Under the Seas* (1870) or *Around the World in Eighty Days* (1872) and Robert Louis Stevenson's *Treasure Island* (1883) were chosen (translations into Basque were read). A weekly DLG was carried out, students participated actively and made significantly constructive contributions about this active methodology. They found particularly interesting the fact that they could share their opinions while no teacher told them that certain ideas were incorrect or that the writer wanted to share this or that specific idea.

Literary interest points were also presented. These interest points could be particularly useful in schools, to read and learn about a certain topic, to celebrate a certain day, or to get to know the literary works of a certain author. Interest points are a section with a sample of books that deal with the same topic. Books on different themes can temporarily be taken off the shelves of the school library and attractively arranged at specific points with the intention of making them more accessible. Various points of interest with different content can be installed throughout the year, for example to celebrate various international days such as the International Migrants Day, the International Women's Day, the Human Rights Day, the International Mother Language Day, the International Children's Book Day, or the International Day of Education (United Nations, n.d.-a). A point of interest can also be formed with books from a certain literary genre (point of interest of comics, point of interest of poetry, picture books...), or a certain author on her/his birthday or death anniversary, for example Roald Dahl's, Jules Verne's, Astrid Lindgren's, or Christine Nöstlinger's point of interest. These points of interest remain available to readers for a limited period (sometimes one or two weeks, sometimes a month...). Before starting the task (developing interest points), two questions were asked: Which CYAL authors do you know? And which CYL female authors do you know? Students were able to compound only a brief list of authors, and the majority of them were male authors who wrote mostly in English. After that, we decided to analyse some publications that included a selection of authors and/or literary texts, to see which authors and books have been considered canonical or important. The first was *Stories and Poems for Extremely Intelligent Children of All Ages* (Bloom, 2001), an anthology of more than 120 stories and poems. Fifteen of these poems and stories were from anonymous authors, and only six of these selected texts were of female authorship. The second list was taken from a book entitled *Cien libros para un siglo* (Equipo Peonza, 2004). The book compiles a list of one hundred CYAL texts published between the years 1901 and 2000. Students noted that only 24 female authors were listed, with three-quarters of the mentioned authors being male writers. That fact made them reflect about gender issues and female authorship: very few female authors are part of the canon, or of those 'best book' lists. To pursue our goal of selecting literary works with a high aesthetical quality, students were shown which CYAL selections and awards have worldwide recognition. The White Ravens catalogue from the *Internationale Jugendbibliothek* (n.d.) in Munich is an annually published catalogue that selects

200 new books from more than 50 countries and is published in more than 30 languages. That selection is published each autumn, presented at the Frankfurt Book Fair and the following year at the Book Fair in Bologna (those two book fairs are the main European ones as far as CYL is concerned). Another extremely important CYAL selection is the one made by the IBBY (International Board on Books for Young People), that selects:

(...) outstanding, recently published books, honouring writers, illustrators and translators from IBBY member countries. (...) the books are representative of the best in children's literature from the country and (...) are suitable for publication throughout the world. The selection provides insight into the diverse cultural, political and social settings in which children live and grow and it can be used by all those involved with developing educational and literacy programmes and publishing initiatives to develop exemplary 'international' collections. (International Board on Books for Young People, n.d.)

After studying those international lists and catalogues, two new questions were asked: Which Basque authors do you know? Which Basque female authors do you know? Only a few students were able to name more than two or three Basque authors, most of them authors who write in Spanish. Students needed to know that there are a significant number of Basque authors who write in Basque. For that purpose, two web pages were presented: the Association of Basque Authors (Euskal Idazleen Elkarte, 2022) and the Basque PEN (2015).

A third question was asked: How many of the Basque authors (male and female) write Children's and Young Adult Literature? Surprisingly this last question got no answer at all. Seeing that their knowledge of Basque literature and concretely about Basque CYAL was so limited, we started analysing the specific contents of the Basque curriculum (DECRETO 236/2015 decree law), where a guide list of Basque authors and literary works (not only written literature but also oral literature) is offered. The list mentions 22 writers, and only three of them are female authors. We also read some publications dealing with the History of Basque Literature. The work by Villasante (1979) for example mentions only one female author between the 16th and the 19th centuries. The Etxepare Basque Institute works 'to enhance the international presence and visibility of the Basque language and contemporary Basque creativity, to promote international cooperation and to foster exchange and communication between creators, professionals, stakeholders and public institutions' (Etxepare Basque Institute, 2025). The Institute publishes some anthologies and studies of Basque Literature. *Basque Literature in the Twentieth Century* mentions that '[t]he number of women writers is still small in comparison to that of men (it is believed to be around 15 per cent)' (Ezkerra, 2012, p. 37). Another remarkable publication was published under the title *Contemporary Basque Literature for Children and Young People: A Catalog* (Arroitajuregi, 2012). This catalogue mentions 12 Basque CYAL authors, only three of them being female.

A significant CYAL Award was also mentioned: the Premio Nacional de Literatura Infantil y Juvenil (CYAL National Award), founded in 1978 by the Spanish Ministry of Culture. During its 47-year history only 18 women have received the award, only two of them Basque. Euskadi Literatur Sariak (Euskadi Literary Awards) are also highly significant (Basque Government, 2025). They were founded in 1982, the year when the Basic Law number 10 of November 24th, 1982 on the Standardization of the use of the Basque Language (Euskara) was approved (Basque Government, 2012). One must remember that the Basque language was prohibited during Franco's regime and that it was not until 1979

that it could again be used and taught. Regarding the CYAL category, even though the number of awarded women writers has grown exponentially in the last decades, the majority of those awarded are still male authors.

After having studied and analysed a significant number of books, anthologies, lists and catalogues, students were shown several examples of interest points through photographs and brochures. Later, following Project Based Learning and Cooperative Learning methodologies, they were given the task of arranging a point of interest (one by each group of 4 to 5 students), that compiled a group of books that included contemporary quality readings. Taking into consideration the small number of cultural minorities (Basque authors) and the unequal presence of male and female authors, students were asked to arrange interest points that compiled CYAL books written in Basque (in line with SDG17+1, ‘guarantee linguistic and cultural diversity’) and preferably to consider gender perspectives (in accordance with SDG5, ‘achieve gender equality and empower all women and girls’). Students presented various interest points. Some of the groups decided to display Basque CYAL books published during a certain decade: one group showed an interest point of the 80s (when the Basque law was approved) and another group exhibited books from the last decade (2010s). Some groups showed interest points compiling Basque CYAL that dealt with a certain SDG; for example, a group collected a list of books by Basque female authors to work on SDG5. Another group organized an interest point for the International Women’s Day around the literary work of Mariasun Landa, an award-winning author and one of the leading CYAL Basque authors. Another group arranged an interest point for the International Women Writers Day around Basque female writers who had been awarded the Euskadi Saria (CYAL category), such as Miren Agur Meabe, Asun Balzola, Yolanda Arrieta, Eider Rodriguez, Leire Bilbao, Uxue Alberdi and Mariasun Landa.

III. CONCLUSIONS

Children’s and Young Adult Literature shows younger generations what the world is like, and what kind of world we would like it to be. Consequently, it is the perfect tool to dream of a better world and to promote social transformation. Literary language is useful for understanding the reality outside the text, and literature, from an aesthetic and ideological point of view, perpetuates social values or questions them. For this reason, literature is essential in the development of the critical awareness of children and young people. Therefore, putting social values and literary values at the centre, it is legitimate to say that Children’s and Youth Literature is an essential tool for teaching the Sustainable Development Goals to new generations from an early age, because literary language is not only useful for understanding the reality outside the text, but also essential for developing the critical awareness of children and young adults.

With the theoretical and practical tasks carried out in the subject Language and Literature Didactics, several transversal competences were practised, like communication (oral and written), autonomy and self-regulation, social commitment, critical thinking, information management and teamwork. Thanks to the literary theory, students improved their literacy vision and culture, and they learned how to distinguish the aesthetic and ethical aspects of literary works and how to choose quality literary oeuvres to develop a School Reading Plan.

As has been demonstrated, the majority of the practical tasks were conducted through active learning methodologies such as Project Based Learning (interest points) and Cooperative

Learning (teamwork). Through Dialogic Literary Gatherings, cooperative learning has been practised. Students have not only developed better reading, language and communication skills (transversal competence in all stages of education), but they have also practised autonomy and self-regulation, active listening, social commitment, building a cohesive group based on respect, and above all they have learned how to share opinions and knowledge. Teacher trainees have seen that Children's and Young Adult Literature is not only literature, but also literary reflection. Additionally, we have worked on literary texts that rework classical texts from multiple perspectives, from different codes and from different focuses. Furthermore, we have proposed to reread the texts from new literary and critical perspectives.

Interest points serve to command the attention of the students and foster their interest in reading. To arrange each of the interest points, students have had to search for books dealing with a certain topic or published by a certain author or during a certain decade. They have had to read the books they have selected to establish that they were suitable for their interest point. Transversal competences such as information management, communication, critical thinking, teamwork and collaboration were practised.

Ultimately, thanks to the readings and the literary theory, dialogic literary gatherings and interest points, students got to know the Sustainable Development Goals and were able to distinguish the aesthetic and ethical aspects of literary oeuvres.

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Political trilemmas within a new socioecological paradigm

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Abstract:

Unlike other realities of our world, climate change is a phenomenon that opens our eyes to the existence of a global risk that affects all of humankind. In effect, even if not in the same terms, climate change affects all countries, all geographies and to all social classes; everybody can observe and can suffer in one or other degree the effects and consequences of the climate change. For the first time, humanity can feel that we are part of the same society, of the same political community—global risk community—which urges us to act in common and in a coordinated and cooperative manner. Furthermore, climate change shows us the limits of our economic model; a model based on endless growth and consumer sovereignty—we aspire to consume whatever fits our individual and material appetite—that has become unsustainable. Against this backdrop, we can distinguish three broad political responses to the ecological catastrophe: the liberal globalism, the nationalistic capitalism and the foundational economy, the latter being the only one that takes seriously the new socioecological paradigm. Under the premise that the only sustainable modes of living are those that can be universalized for everybody without endangering the existence of human beings in the planet, the proponents of the Foundational Economy are committed to prioritize the collective and democratic provision of goods and services over the individualistic consumerism. This approach is intended to satisfy the basic needs of everybody in a way that ensures the sustainability of our world. Hence, the new paradigm implies profound changes in our modes of producing, working and in our consumption habits, which undoubtedly will generate important resistances and challenges. Through personal observation and self-reflection, this exercise purports first to raise the awareness on the reality, scientific evidence and tangibility of climate change as a global threat. Secondly, it aims to encourage critical thinking about the unsustainability of our socioeconomic model and, at the same time, to promote creative thinking in proposing new ideas and new patterns for this new socioecological paradigm.

Keywords:

Climate change, global community of risk, foundational economy.

I. EXPLANATORY AND THEORETICAL PART

The proposed exercise aims to highlight, on the one hand, the unsustainability of the current economic, social and political paradigm of our society in times of globalization. In particular, it is intended to illustrate the unfeasibility of our development parameters from the phenomena that we can all observe in our daily lives in relation to climate change. Thus, among others, climate change constitutes one of the main instruments enabling us to realize that we belong to a global risk community in Ulrich Beck's words¹. Indeed, we are no longer faced with those scientific warnings that may be distant and abstract from our life experience, but we are all undergoing remarkable changes in our daily lives that tell us about important issues and challenges that need to be addressed to ensure the survival of the human species. Paradoxically, this imminent risk in the lives of all people can have an emancipating effect (emancipatory catastrophism²), in the sense of promoting a truly global and committed response to the environment beyond individual interests.

On the other hand, and based on this observation, the exercise aims to encourage critical thinking and the creative development of new ideas intended to alleviate and solve the structural causes of the ecological catastrophe we are experiencing. In this regard, and based mostly on overcoming Rodrik's trilemma, the process of reflection and proposal of solutions and transformations to be adopted will be framed within the framework of the so-called Foundational Economy based on planetary co-existence and socio-economic democratization.

To undertake this task, we propose three distinguishable parts: first, the student will analyze the main scientific evidence about climate change and will have to reflect on some transformations that he/she has personally experienced and that are attributable to the mentioned phenomenon. Secondly, the student will be shown what Rodrik's trilemma is and the ways in which the paradoxes of the trilemma have been dealt with over time and from a historic point of view as well as the responses and alternatives that we can observe nowadays in different political models. Finally, the student or group of students will be encouraged to propose, from their personal experience, changes and transformations in the logic of the foundational economy to guarantee the viability of the human species in the planet.

In this sense, the theoretical framework and practical information for the development of the tasks proposed below are contained in two blocks: one related to some scientific evidences on the climate change (1.1), and the other regarding Rodrik's trilemma and its conversion on a political trilemma through which the approach given by the Foundational Economy Collective emerges as an eventual solution.

I.1. How Real is Climate Change?

According to the Intergovernmental Panel on Climate Change (IPCC), "Since systematic scientific assessments began in the 1970s, the influence of human activity on

¹ Beck, U. (2011). "Cosmopolitanism as imagined communities of global risk." *American behavioral scientist*, 55(10), 1346-1361.

² Beck, U. (2015). "Emancipatory catastrophism: What does it mean to climate change and risk society?" *Current sociology*, 63(1), 75-88.

the warming of the climate system has evolved from theory to established fact.”³ It is obvious that over time Earth’s climate has changed. There have been eight cycles of ice ages and warmer periods the last 800,000 years, with the end of the last ice age about 11,700 years ago marking the beginning of the modern climate era and the emergence of human civilization. Most of these climate changes are attributed to very slight variations in Earth’s orbit that change the amount of solar energy our planet receives. However, the current warming is happening at a rate not seen in the past 10,000 years and it is the result of human activities since the mid-1800s (the industrialization era). How do human activities affect the warming of the planet? Due to industrial activities that are responsible for the atmospheric gases that trap much of the solar energy in the atmosphere. This extra energy warms the Earth: the atmosphere, ocean, and land, and provokes extensive and rapid changes in the atmosphere, ocean, cryosphere, and in the biosphere.

There are diverse visible effects that show us how this climate change is something real and empirically observable. Ice cores drawn from Antarctica, Greenland and tropical mountain glaciers are the materialization of Earth’s reactions to changes in greenhouse gas levels. Furthermore, we find ancient evidence in ocean sediments, tree rings, ocean sediments, coral reefs, or layers of sedimentary rocks. This ancient evidence reveals that current warming is occurring approximately 10 times faster than the average rate of warming after an ice age. This is because carbon dioxide from human activities is increasing about 250 times faster than it did from natural sources after the last Ice Age⁴. In particular, following some analysis made by the NASA⁵ we should mention the following self-evidencing and observable and measurable occurrences in our planet:

1.º *Increase in global temperature*

As we can observe in the chart below (Figure 1), the planet’s average surface temperature has risen about 1 degree Celsius since the late 19th century (beginning of the industrialization era). Besides that, most of the warming has occurred in the past 40 years, with the seven most recent years being the warmest. According to the 2021 Global Climate Report from NOAA National Centers for Environmental Information⁶, every month of 2021 was warmer than average being the years 2013-2021 all rank among the ten warmest years on record.

Warming has not been uniform across the planet. However, the trend in the globally averaged temperature shows that more areas are warming than cooling. According to NOAA’s 2021 Annual Climate Report the combined land and ocean temperature has increased at an average rate of 0.08 degrees Celsius per decade since 1880 but the average rate of increase since 1981 (0.18°C) has been more than twice that rate.

³ IPCC Sixth Assessment Report, Technical Summary available at: <https://www.ipcc.ch/report/ar6/wg3/>

⁴ Gaffney, O., & Steffen, W. (2017). “The Anthropocene equation”. *The Anthropocene Review*, 4(1), 53-61.

⁵ How Do We Know Climate Change Is Real? Available at: <https://climate.nasa.gov/evidence/>

⁶ This report can be found at: <https://www.ncdc.noaa.gov/sotc/global/202113>

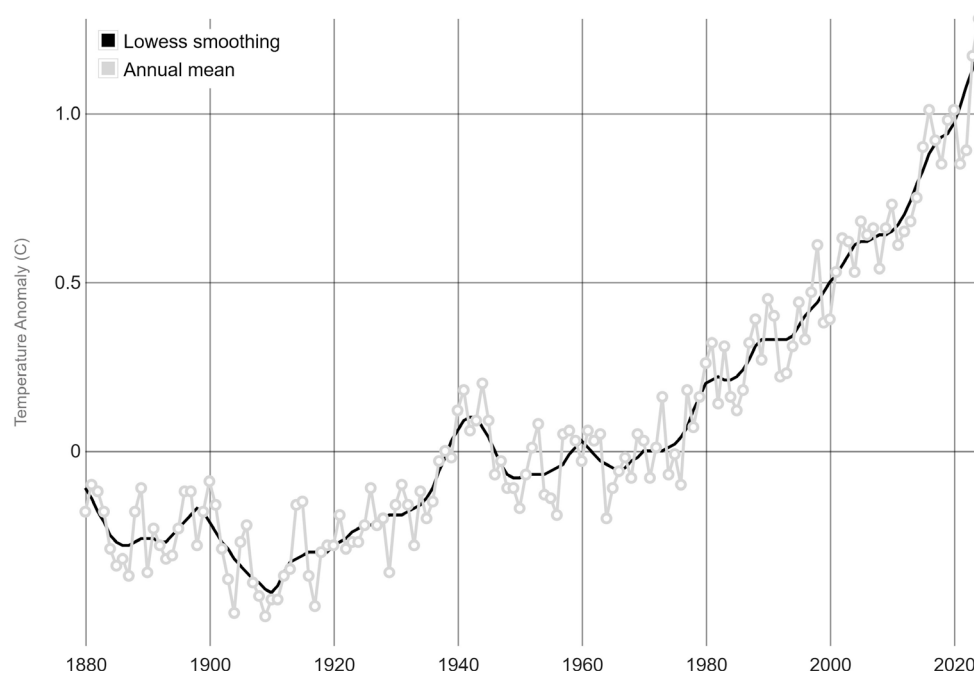


FIGURE 1

Global Land-Ocean Temperature Index

Data Source: NASA's Goddard Institute for Space Studies (GISS. Credit: NASA/GISS.)

2.° Ocean warming

As we can appreciate in the chart below (Figure 2) The Ocean has absorbed much of this increased heat, with the top 100 meters of ocean showing warming of more than 0.33 degrees Celsius since 1969. Earth stores 90% of the extra energy in the ocean⁷. Warming of the oceans have many other severe consequences. In this sense and according to a 2012 report by the Food and Agriculture Organization (FAO) of the United Nations⁸ marine and freshwater capture fisheries and aquaculture provide 4.3 billion people with about 15% of their animal protein. Fisheries and aquaculture are also a source of income for millions of people worldwide. Ocean warming leads to significant alterations in the maritime ecosystem by altering distributions of fish stocks and increasing the vulnerability of fish species to diseases implying a serious risk to food security and people's livelihoods globally.

Ocean warming also affects vegetation and reef-building species such as corals and mangroves, which protect coastlines from erosion and sea-level rise and it is linked to the increase and spread of diseases in marine species.

To see a short video explaining the effects of Ocean warming, please visit: <https://youtu.be/msnOHuPep9I>

⁷ Von Schuckmann, K., Cheng, L., Palmer, M. D., Hansen, J., Tassone, C., Aich, V. & others (2020). "Heat stored in the Earth system: where does the energy go?" *Earth System Science Data*, 12(3), 2013-2041.

⁸ FAO. 2012. The State of World Fisheries and Aquaculture 2012. Rome. 209 pp. available at: <https://www.fao.org/publications/card/fr/c/81ea54da-0f65-56c6-91d2-8257b8ac4136/>

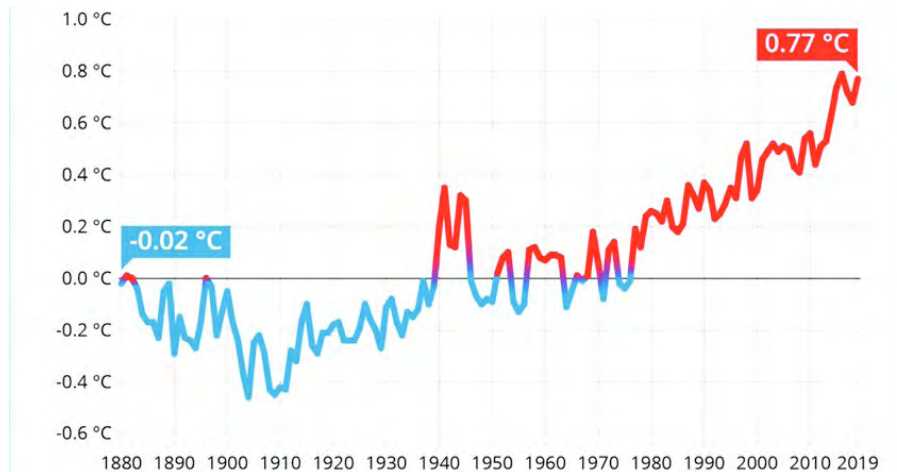


FIGURE 2

Ocean surface temperatures

Source: NOAA National Centers for Environmental Information (NCEI).

3.º Shrinking of the Ice Sheets

The Greenland and Antarctic ice sheets have decreased in mass. Data from NASA's GRACE satellites show Antarctica mass variation since 2002 (Figure 3), according to which an average of 151 billion metric tons of ice per year are being lost since 2002.



FIGURE 3

Antarctica mass loss

ANTARCTICA MASS VARIATION SINCE 2002

Data Source: Ice mass measurement by NASA's GRACE satellites. Gap represents time between missions. Credit: NASA. RATE OF CHANGE: 135.0 billion metric tons per year since 2002

4.° *Decrease of snow cover*

The amount of spring snow cover is disappearing earlier in the year than it did in the past over the past five decades in the Northern Hemisphere (Figure 4). The snow is also melting earlier. Historically, Siberia, Alaska, and northern Canada remained partially snow covered in June. This no longer happening nowadays.

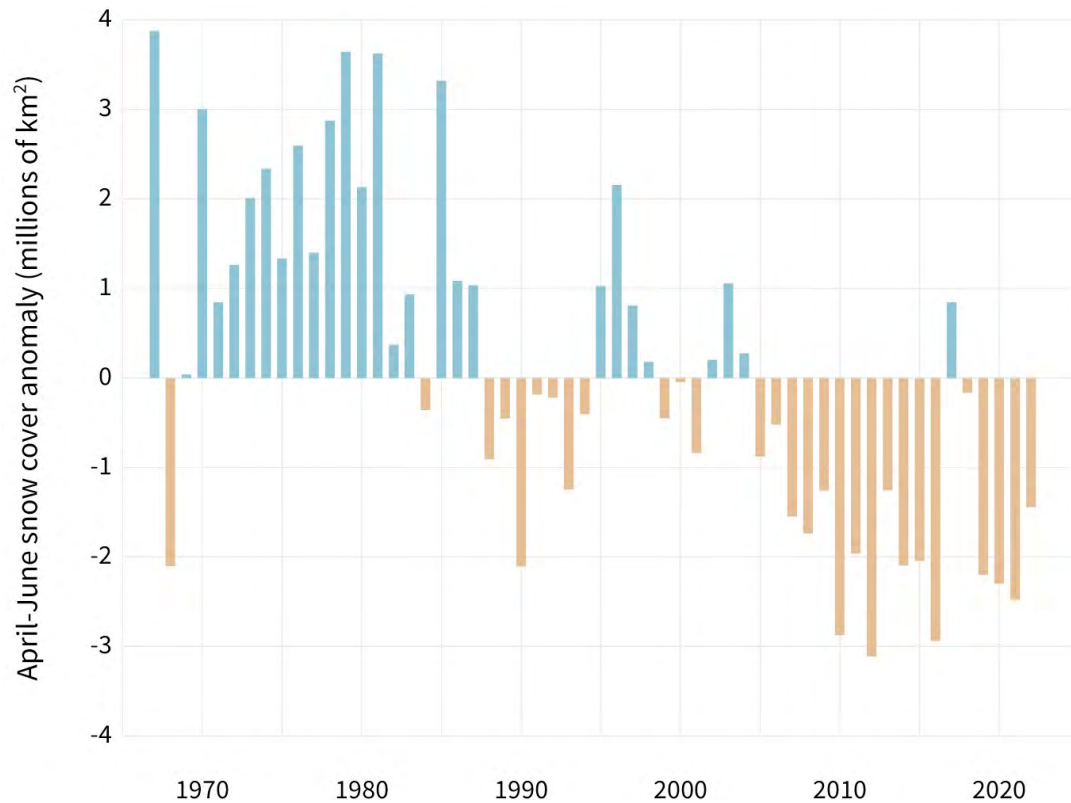


FIGURE 4
Spring snow cover

Source: Sprint (April-June) snow extent each year compared to the 1981-2010 average. Years with above-average snow cover are blue-green, while years with below average snow cover are brown. Graph by NCAA Climate.gov, based on Rutgers Snow Lab data provided by Thomas Estilow.

5.° *Rising of the Sea Level*

Average sea levels have risen about 20 cm in the last century (see Figure 5). In addition to that, the rate in the last two decades is nearly double that of the last century and accelerating slightly every year⁹.

⁹ Nerem, R. S., Beckley, B. D., Fasullo, J. T., Hamlington, B. D., Masters, D., & Mitchum, G. T. (2018). "Climate-change-driven accelerated sea-level rise detected in the altimeter era". *Proceedings of the national academy of sciences*, 115(9), 2022-2025.

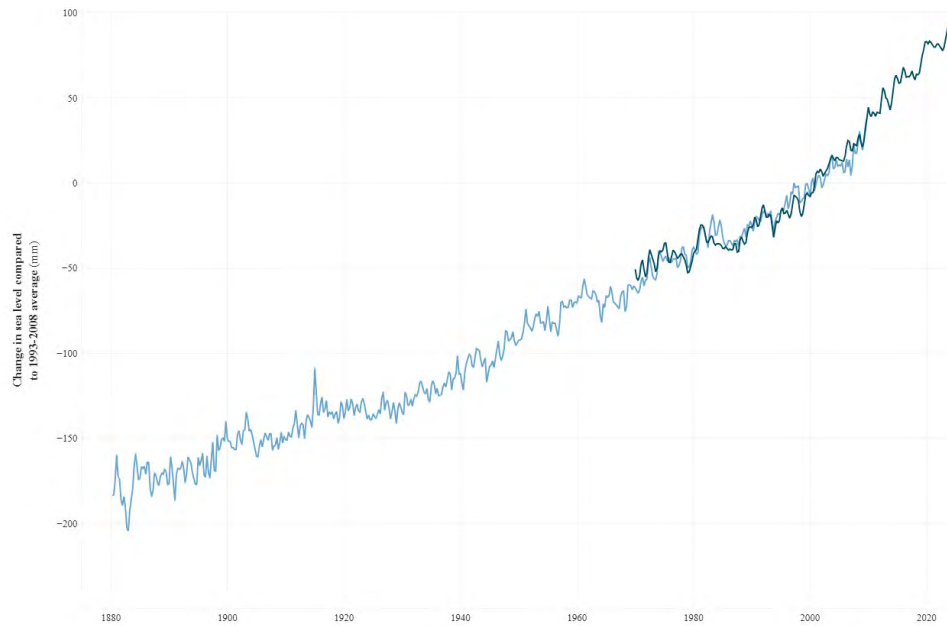


FIGURE 5

Sea level variation

To see how the world map could change in the year 2100:

<https://www.youtube.com/watch?v=6tesHVSZJOg>

There is an interesting quiz to test your knowledge of sea level and its relation to climate change and our quality of life at: <https://climate.nasa.gov/quizzes/sea-level-quiz/>

6.º Increase of the frequency of Extreme Events

From wildfires in the US and heatwaves in India and Pakistan to typhoons in Asia and record-breaking rainfall in the UK. The result is mounting evidence that human activity is raising the risk of some types of extreme weather, such as floods, heatwaves, droughts and storms. Scientists have published more than 400 peer-reviewed studies (Figure 6) looking at weather extremes around the world. Those studies can be found in the interactive world map at: <https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world/>



FIGURE 6

Scientific studies around the globe

7.º Increase of Ocean Acidification

According to some scientific studies, since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30%. It is a significant and harmful consequence of excess carbon dioxide in the atmosphere. Its effects are happening underwater. At least one-quarter of the carbon dioxide (CO₂) released by burning coal, oil and gas does not stay in the air, but instead dissolves into the ocean. The ocean has absorbed between 20% and 30% of total anthropogenic carbon dioxide emissions in recent decades (7.2 to 10.8 billion metric tons per year).¹⁰ Climate Change dramatically affects and changes the Ocean and the oceanic ecosystems (Figure 7).

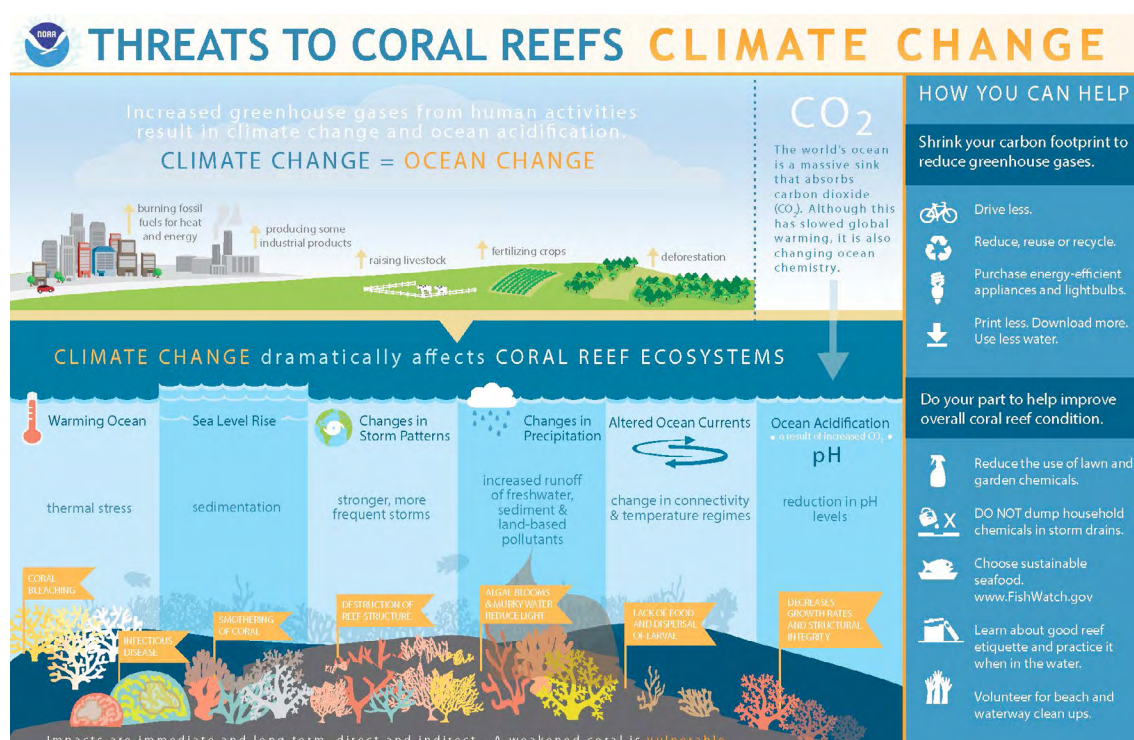


FIGURE 7

Graphic by the US National Oceanic and Atmospheric Administration (NOAA) Department of Commerce

I.2. Political Trilemma within a New Socioecological Paradigm

In his celebrated book "the Globalization Paradox"¹¹, the Turkish economist and Ford Foundation Professor of International Political Economy at the John F. Kennedy School of Government at Harvard University, Dani Rodrik poses a paradox of globalization around the incompatibility of some of the axes of contemporary societies, mainly Western societies.

¹⁰ Sabine, C. L., Feely, R. A., Gruber, N., Key, R. M., Lee, K., Bullister, J. L & Rios, A. F. (2004). "The oceanic sink for anthropogenic CO₂". *Science*, 305(5682), 367-371.

¹¹ Rodrik, D. (2011). *The globalization paradox: Democracy and the future of the world economy*. WW Norton & Company.

He posits that democracy, national sovereignty and global economic integration are mutually incompatible, that is to say, we can combine any two of the three, but never have all three simultaneously and in full (Figure 8).

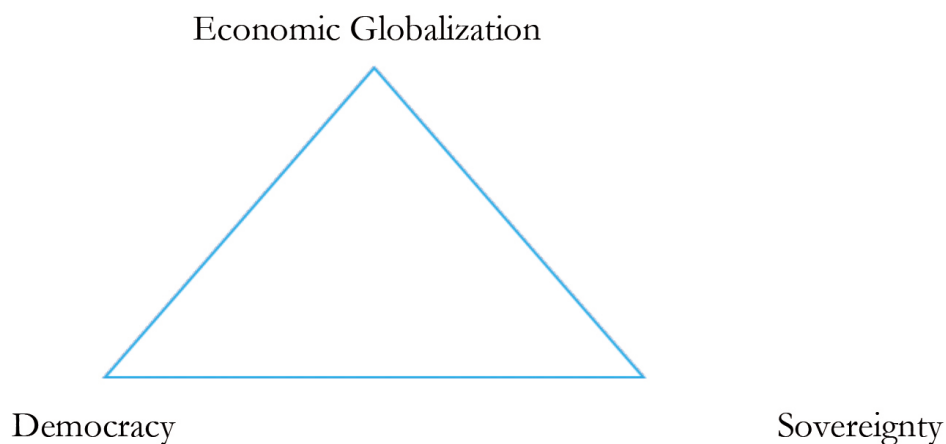


FIGURE 8
Rodrik trilemma

In Rodrik trilemma there are certain assumptions that are not either self-evident or explicitly stated. In this sense, in picking two of the three values one may wonder why we should give up the third one: why democracy is not possible should economic globalization and sovereignty be chosen? Why and how can I choose economic globalization and democracy at the expense of sovereignty? Finally, why do I have to renounce globalization if I want to maintain sovereignty and democracy within one state? Well, the unspoken reality in Rodrik's assumption about economic globalization is that globalizing world economy would entail the necessity for liberal democracies to cope with dramatic choices or “perverse choices” questioning their basic principles and values. Why? Because it is assumed that over time, staying economically competitive requires the adoption of measures detrimental to the cohesion of civil society by cutting back on social benefits of the Welfare State and by eroding some basic social compromises of the Social States.

On the assumption that these collateral imbalances resulting from economic globalization will not be tolerated from a democratic point of view, the only viable way out to maintain sovereignty in a context of economic globalization would be the undermining of democracy by restricting civil liberties and political participation.

In 1995 and prior to Rodrik trilemma, German-British sociologist, philosopher and political scientist Ralf Gustav Dahrendorf held that a growing and globalising world economy would promote contradictions and important challenges for liberal democracies. In this sense, Dahrendorf argued that in order to stay economically competitive over time, governments should either adopt measures detrimental to the cohesion of civil society or restrict civil liberties and political participation. Hence, for OECD countries, the task ahead for the early 21st century, was “to square the circle between growth, social cohesion and political freedom”. This challenge became known as the Dahrendorf Quandary (Figure 9).

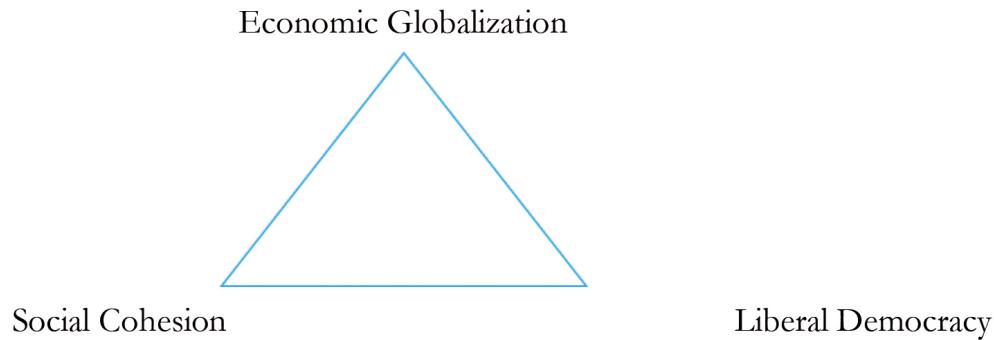


FIGURE 9
Dahrendorf Qandary

It is remarkable that both trilemmas are sustained on a fixed and dogmatic economic paradigm, the economic paradigm of liberalism, i.e., an individualist worldview of development that believes in a society based on each individual pursuit of self-interest. This view tends to legitimize consumer sovereignty as the supreme good often to the detriment of societal responsibility and a common mode of living and working that is sustainable and inclusive. However, the ecological catastrophe announced by the climate change shows us that this model is no longer tenable. In this sense, the current economic globalization would be the result of a politics of unsustainability; the established economic order, patterns of resource exploitation, wealth distribution and lifestyles in Western consumer societies are profoundly unsustainable.¹²

Following ANDREAS NOVY's conversion of the Rodrik's Trilemma¹³ in a political trilemma, we could distinguish in our contemporary world three different ways of facing current challenges: 1) Liberal Globalism; 2) Nationalistic capitalism and; 3) Foundational economy based on planetary coexistence. While the two first approaches are entrenched within the current (and unsustainable) paradigm of economic development assumed in the Rodrik's trilemma, the third one (Foundational economy based on planetary coexistence) is embedded in the new socioeconomic paradigm that takes into account the unsustainability of current consumer societies.

1.º *Liberal Globalism*

Liberal Globalism deny the existence of any trilemma and considers that economic hyperglobalization is compatible with individual flourishing, full democracies and strong sovereign nation states. It supports voluntary self-organization, but restrains national government space from interfering with individual freedoms, property rights or lifestyle choices. Politics should abstain from intervening in the way people produce, work or live.

¹² Blühdorn, I. (2020). "The legitimization crisis of democracy: emancipatory politics, the environmental state and the glass ceiling to socio-ecological transformation". *Environmental Politics*, 29(1), p. 147.

¹³ Novy, A. (2022). "The political trilemma of contemporary social-ecological transformation—lessons from Karl Polanyi's The Great Transformation". *Globalizations*, 19(1), 59-80.

Consumer sovereignty is perceived as a means of emancipation. In fact, nowadays, limiting or prohibiting private consumption patterns has been questioned not just by elites but also by ordinary citizens in what BLÜHDORN identifies as “a broad alliance to sustain a politics of unsustainability”¹⁴. Environmental policies, if any, of those states following liberal policies, continue focusing on efficiency, technology and pricing to solve environmental problems without questioning the modes of capitalist growth.

2.º *Nationalistic capitalism*

Nationalistic capitalism capitalizes on the failures of globalism and it implies a populist and reactionary form of political countermovement against the perceived loss of cultural identity¹⁵. Instead of problematizing the increasing inequality and the loss of social protection provoked by the neoliberal economic globalization, nationalistic capitalism focuses its critic towards some liberal tenets: multiculturalism, separation of powers, rule of law, rights of minorities, free press etc. It defends the status quo and interpret the current crisis in terms of an antagonistic “us” against a problematic “other”. It also proposes a cultural war against foreign and new modes of living. In a word, nationalistic capitalism solves the problem of scarcity by sustaining the good life only for the selected few. Even if it is hostile to supranational economic institutions (WTO, EU etc.) Nationalistic capitalism does not question the core of global capitalism like markets and property rights. It combines *dominium*, domination via private property rights and *imperium*, domination via political force, a departure from neoliberal globalists¹⁶.

3.º *Foundational economy based on planetary coexistence*

Following the description made by A. NOVY¹⁷, this approach is the only one putting the socio-ecological challenges at center stage. Even those states with committed environmental policies and with a clear environmental political agenda do not question the basic institutions of capitalism and the market-prone liberal democracy. What those eco-friendly states do in most occasions is offshoring the ecological impact resulting from their model of economic growth.

However, according to proponents of the Foundational economy the changes required to cope with ecological challenges need a radically new politico-economic paradigm. Instead of focusing on current economic models oriented to achieve individual consumer sovereignty and optimize individual wants satisfaction through a resource-intensive growth, the Foundational economy proposes alternative forms of democratic, inclusive and collective provisioning favoring the satisfaction of basic needs as well as climate change mitigation. Under the premise that the “only sustainable modes of living are those that can be universalized” —enabling freedom for more than the selected ones—

¹⁴ Blühdorn, I. *op. cit.*, p. 147

¹⁵ Holmes, C. (2018). *Polanyi in times of populism: Vision and contradiction in the history of economic ideas*. Routledge.

¹⁶ Slobodian, Q. (2018). *Globalists*. Harvard University Press.

¹⁷ Novy, A. (2022). *Op. cit.*, pp. 73-74.

the Foundational Economy approach intends to overcome the growth imperative and consumerism inherent in a hyperglobalized economy by satisfying basic needs like physical health and autonomy.

However universal, basic needs are satisfied by context-specific forms of needs satisfaction where collective provisioning trumps individual consumption. Collective provisioning of those basic goods and services combine artifacts (material infrastructures like utilities for gas and water, schools and hospitals, public gardens, swimming pools, public transport and other public spaces or utilities) with regulations on their provisioning, access and use. These infrastructural configurations are multi-level, ranging for instance from municipal assets, national health or global regime of human rights or all those global commons (for instance in the domain of climate change) that require an international political cooperation for the benefit of all. The concrete artifacts and regulations (infrastructural configurations) have to be defined and implemented from the bottom up in a participatory manner. In this sense, as it has happened during Covid-19, climate change should also justify some important restraints on choice and individual preferences within the frame of the consumer sovereignty.

For further information on the approach represented by the Foundational economy, please visit the page of the Foundational economy collective at <https://foundationaleconomy.com/>

For a brief documentary on the Foundational economy approach, please visit: <https://www.youtube.com/watch?v=uXe6NL5gffk&t=3s>

There are many other working papers on different dimensions of the Foundational economy:

- Bentham, J., Bowman, A., De la Cuesta, M., Engelen, E., Ertürk, I., Folkman, P. & Williams, K. (2013). "Manifesto for the foundational economy". *Manchester: Centre for Research on Socio-Cultural Change*. Available at <https://www.ppru.org.uk/wp-content/uploads/2017/12/FoundationalEconomy.pdf>
- Calafati, L., Froud, J., Haslam, C., Johal, S., & Williams, K. (2021). "Meeting social needs on a damaged planet: Foundational Economy 2.0 and the care-ful practice of radical policy". *Foundational Economy Collective*. Available at <https://foundationaleconomy.com/publications/>
- Hall, S., & Schafran, A. (2017). *From foundational economics and the grounded city to foundational urban systems* (No. 3). Foundational Economy Working Paper. Available at <https://foundationaleconomy.com/publications/>
- Engelen, E., Froud, J., Johal, S., Salento, A., & Williams, K. (2017). "The grounded city: from competitiveness to the foundational economy". *Cambridge Journal of Regions, Economy and Society*, 10(3), 407-423. https://www.research.manchester.ac.uk/portal/files/59684344/Engelen_et_al_Grounded_City_AAM_for_CJRES.pdf

2. PROPOSED ACTIVITIES

Based on the information and theoretical approaches described above, we propose the following classroom activities:

2.1. First Activity. The Reality and Scope of Climate Change

Climate change is not an invisible or an abstract phenomenon. All citizens of the world are suffering (or are likely to suffer) its consequences to a greater or lesser extent.

In this sense, we propose that you identify:

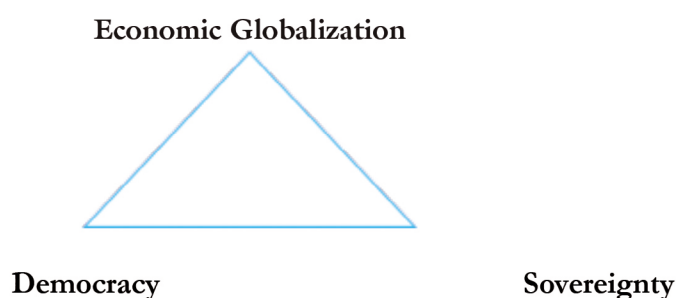
1. Personal experiences or personal observations on changes of the environment or climate that may be motivated by climate change.
2. Local news about climatic or other events that have been attributed to climate change in your community.
3. Forecasts and studies conducted in your local or national community regarding expected changes in the future of your geography or landscape (desertification, sea level rise, etc.).

For the development of the activity, please use some of the scientific evidence on climate change and the materials, webpages and graphics described above.

2.2. Second Activity. Rodrik's Trilemma

We have seen how according to Rodrik's trilemma, democracy, national sovereignty and global economic integration are mutually incompatible in a nation-state, that is to say, we can combine any two of the three, but never have all three simultaneously and in full. Following this approach, we propose you the following exercises:

1. Along history, there have been different forms of globalization. In particular, we can distinguish a "first globalization" based on the gold standard and the military power of the British Empire, and a second globalization represented by the Bretton Woods compromise' of the post-World-War II period (1945-1973) where GATT and certain trade liberalization and capital controls were put in place. How do you think the different dimensions were combined?



2. Taking today's globalization as a reference, how do you think the three dimensions are being combined and what do you think is the trend in the immediate future?

In order to prepare the response of this activity, you can use some reflections made by Rodrik in his manuscript: Rodrik, D. (2000). How far will international economic integration go?. *Journal of economic perspectives*, 14(1), 177-186. Available at: <https://pubs.aeaweb.org/doi/pdf/10.1257/jep.14.1.177>

2.3. Third Activity. Political Trilemma and some Ideas for the New Ecological Paradigm

We have seen that the new ecological catastrophe, which is dramatically represented by the effects of climate change, has triggered different political models that seek to respond to the challenges posed. In particular, we have distinguished between Liberal Globalism, Nationalistic capitalism (both of which prioritize consumer sovereignty) and Foundational economy based on planetary coexistence, which implies a profound paradigm shift in political and economic modes, with major alterations in our consumption habits, the way we produce and the way we work. In this sense, the following exercises are proposed:

1. Identify political regimes and political movements of the last decade where we can observe any of the three models of the political trilemma.
2. The recipe proposed by the Foundational economy is based on alternative, more sustainable and equitable choice architectures which offer plural forms of collective provisioning favoring the satisfaction of basic needs of everybody. As we have seen above, the collective provisioning of those basic goods and services combine **material infrastructures** (utilities for gas and water, schools and hospitals, public gardens, swimming pools, public transport and other public spaces or utilities) with **regulations** on their provisioning, access and use. In addition to that, these infrastructural configurations are **multi-level**, ranging for instance from municipal assets to national or global common goods. Material infrastructures and regulations have to be defined and implemented from the bottom up in a participatory, democratic and inclusive manner. In this sense, we propose you to:
 - a) Think of those public goods and services that should be provided to everyone.
 - b) Highlight those common goods that should be guaranteed globally, i.e., those domains that should be regulated at a global scale. For instance, biodiversity.
 - c) Propose some material infrastructures that could be used for the collective provision of basic goods and services in your local community. For example, public transport.
 - d) Identify those consumption habits and modes of living of today's world that are not sustainable in your view. Please remember that according to the foundational economy, the only sustainable modes of living are those that can be universalized, i.e., everybody could enjoy them without endangering the subsistence of the planet. For instance, is it sustainable that everybody has a private car? A private swimming pool?

The Iberian Wolf Case: A Contested Conservation Dilemma at the Crossroads of Governance, Law and Ethics

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Abstract:

The present activity is based on a case study of the unique ambivalent legal situation of the Iberian wolf in Spain until very recently. The case study is used with students of the core subject “Law and Ethics in Biosciences”, which is taught in the second semester of the third year of the Degree in Biology, Degree in Biochemistry and Molecular Biology, and Degree in Biotechnology at the University of the Basque Country (Spain). This subject began to be taught in 2010 and aims to enable graduates to deal with the ethical, social, and legal issues that will affect their professional practice. Environmental biologists, clinical biologists, and biotechnologists have, over the last decade, experienced increasing regulatory intervention by public institutions in governance arenas ranging from the local to the global level. The activity on the Iberian wolf, in particular, fosters the following skills in students: 1. The ability to recognise not only the institutions but also the structural and circumstantial factors that positively or negatively affect the protection of the environment and wild species. 2. The capacity for analysis, synthesis, organisation, and planning to enable decision-making and the elaboration and transmission of information. 3. Critical reasoning and ethical commitment to society’s values.

1. MORAL REASONING AND POLITICAL TWISTS: THE PARADOXICAL SITUATION OF THE IBERIAN WOLF IN THE EUROPEAN UNION

When we hear that a species is endemic and has been officially protected, our minds usually jump to a set of familiar ideas. We tend to think of fragile ecosystems, the importance of biodiversity, and the moral duty to preserve nature for future generations. We might imagine pristine forests, mountain landscapes, or rivers teeming with life, and assume that the decision to protect the species is straightforward, guided purely by science and clear ethical principles. Protecting an endemic species sounds, at first, like an uncontroversial good—a simple case of “what is right for nature is right for us.” Yet, as we will see with the Iberian Wolf in the European Union, the reality is far more complex, as ethical ideals quickly encounter social, political, and economic challenges.

The situation of a predator species, like the Iberian Wolf, can easily lead to simplistic interpretations. Historically, hunting this species was allowed, and farmers were often permitted to defend their livestock against attacks. At first glance, it might seem like a straightforward conflict: humans protecting their livelihoods versus a “dangerous” animal. Yet such quick readings overlook a deeper truth: humans rarely reflect on our responsibility toward the natural world or our place within it. Over centuries, we have invaded the habitats and ecosystems where the wolf lives, altering landscapes and significantly reducing the availability of its natural prey. What may appear as aggression from the wolf is often a direct consequence of human actions and our reshaping of the environment.

This tension between human interests and the survival of the Iberian Wolf quickly moves beyond biology into the realm of ethics and governance. Decisions about protection are not made solely on ecological criteria or scientific evidence; they involve weighing the needs of farmers, local communities, and broader society. Ethical principles—such as the value of biodiversity or our duty to preserve species—clash with economic interests and social realities. As a result, what might seem like a clear moral choice in principle becomes entangled in political negotiations, compromises, and regulatory frameworks. In this context, the Iberian Wolf becomes more than a species to protect: it is a lens through which we can examine the complexity of moral reasoning in the face of messy governance.

In practice, the protection of the Iberian Wolf is not a simple matter of applying ethical principles or ecological science. Legal frameworks, political interests, and social pressures all intersect, creating a web of dilemmas and trade-offs. Understanding this complex reality requires moving beyond quick judgments and simplistic readings. In the following sections, we will explore these issues in depth. But before diving into the ethical and political debates, it is essential to introduce the protagonist of our reflection: the Iberian Wolf, *Canis lupus signatus*, its biology, behaviour, and ecological role.

2. THE IBERIAN WOLF IN CONTEXT: BIOLOGY, BEHAVIOUR, ECOLOGY, AND EUROPEAN DISTRIBUTION

The Iberian wolf (*Canis lupus signatus*), also known as the “marked wolf,” represents one of the most emblematic subspecies of the gray wolf (*Canis lupus*) in Europe. First described by Ángel Cabrera in 1907, this taxon is endemic to the Iberian Peninsula and

has been the subject of significant scientific and conservation interest. Its recognition as a distinct subspecies has been supported not only by morphological markers but also by ecological and behavioural traits that distinguish it from other European wolf populations (Cabrera, 1907; Blanco & Cortés, 2009).

From a morphological perspective, the Iberian wolf is slightly smaller and more slender than other gray wolf populations in northern and central Europe. Adult males typically weigh between 30 and 40 kilograms, while females are somewhat lighter. Their pelage exhibits a combination of gray, brown, and ochre tones, often with distinctive darker patterns. The name “signatus” derives from the Latin *signatus*, meaning “marked,” a reference to several characteristic features. Among these, the most notable are white patches around the upper lips, black markings on the tail and shoulders, and two or more vertical dark stripes running down the forelegs. These traits provide a reliable means of distinguishing Iberian wolves from their central European counterparts (Cabrera, 1907; Llaneza *et al.*, 2012).

The Iberian wolf is a social carnivore, structured around cohesive family groups generally referred to as packs. A pack is usually composed of a dominant breeding pair, their offspring from previous years, and occasionally unrelated individuals. Within these groups, a strict social hierarchy is observed, regulating access to food, mating opportunities, and leadership in hunting strategies. Pack sizes vary, but in most Iberian populations they range between five and nine individuals, although smaller or larger groups may occur depending on prey availability and anthropogenic pressures (Mech & Boitani, 2003; Llaneza *et al.*, 2012).

In terms of feeding ecology, the Iberian wolf exhibits a broad trophic spectrum, although ungulates constitute the main component of its diet. Wild boar (*Sus scrofa*), roe deer (*Capreolus capreolus*), and red deer (*Cervus elaphus*) are the primary wild prey species. Predation on wild animals occurs independently of the availability of domestic prey, as wolves tend to select wild prey rather than the easiest available targets.

In areas with low density and diversity of wild ungulates, where wolves may hunt livestock, factors such as increases in wild prey populations, heightened livestock vigilance, and restricted access to carcasses can push wolves to specialize in hunting wild animals (Barja *et al.*, 2023). Conversely, in regions where wild ungulates are scarce or where pastoralism remains dominant, livestock—including sheep, goats, and cattle—may also be targeted. Historically, this has fueled conflicts with rural communities, particularly shepherds and small-scale livestock breeders, who often view wolves as a direct threat to their livelihoods (Blanco & Cortés, 2009; Torres *et al.*, 2015). The prevalence of livestock predation varies geographically, tending to be higher in marginal areas where wild prey densities are low.

The Iberian wolf occupies relatively large territories, with home ranges that may extend from 100 to more than 400 km². Territory size is influenced by prey density, human disturbance, and pack structure. Wolves mark their territories with scent and vocalizations, particularly howling, which serves as both an intra-pack communication tool and a deterrent against intruding conspecifics. In landscapes dominated by human activity, such as the agricultural mosaics of northwestern Spain, wolves have demonstrated remarkable behavioural plasticity, often adapting to fragmented habitats and exploiting anthropogenic food resources (Llaneza *et al.*, 2012; López-Bao *et al.*, 2015).

From a conservation standpoint, the Iberian wolf is of particular concern. Recent estimates indicate that Europe hosts approximately 17,000 wolves across 27 countries, reflecting a significant recovery over the last three decades (Chapron *et al.*, 2014; European Commission, 2022). Within this broader continental picture, Spain is home to between 2,000 and 2,500 Iberian wolves, making it one of the strongholds of the species in Western Europe. The majority of these individuals are concentrated in the regions of Castilla y León, Galicia, Asturias, and Cantabria, with smaller isolated populations persisting in Sierra Morena in the south, though the latter is considered critically endangered and possibly extirpated (Blanco & Cortés, 2009). In Portugal, wolf populations survive primarily in the north of the country, although they are fragmented and under greater demographic pressure.

Legal protection frameworks have played a decisive role in the persistence of the Iberian wolf. In Portugal, the species was granted full legal protection in 1988, prohibiting hunting and implementing conservation measures to safeguard its habitat. In Spain, however, management remained more heterogeneous until very recently. While wolves south of the Duero River enjoyed strict protection under the European Union Habitats Directive (Annex IV), populations north of the river were subject to controlled hunting as part of management plans. This dual status created a patchwork of legal regimes that often complicated conservation. In September 2021, the Spanish government resolved this inconsistency by including all Iberian wolf populations in the List of Wild Species under Special Protection (Listado de Especies Silvestres en Régimen de Protección Especial, LESPE), effectively banning wolf hunting throughout the country (Ministerio para la Transición Ecológica y el Reto Demográfico, 2021).

Despite these advances, the species faces significant threats. Human persecution, whether through illegal hunting, poisoning, or retaliatory killings, remains a major concern. Additionally, habitat fragmentation caused by infrastructure development reduces connectivity between populations, limiting gene flow and increasing the risk of local extirpations. Road traffic collisions are another source of mortality, particularly in areas where highways bisect wolf territories. Finally, persistent conflicts with livestock breeders continue to challenge coexistence strategies, despite the availability of compensation schemes and preventive measures such as livestock-guarding dogs and reinforced enclosures (Torres *et al.*, 2015; Álvares *et al.*, 2019).

On a continental scale, the Iberian wolf forms part of the larger picture of wolf recovery in Europe. Once driven to near extinction in many regions during the nineteenth and early twentieth centuries, the species has recolonized parts of Germany, France, Switzerland, and Scandinavia. This resurgence has been facilitated by strict legal protections under the Bern Convention and the EU Habitats Directive, combined with rural depopulation and the recovery of wild ungulate populations. Nevertheless, the Iberian subspecies retains particular importance due to its geographic isolation, its genetic distinctiveness, and its cultural symbolism within Iberian rural traditions and folklore (Chapron *et al.*, 2014; European Commission, 2022).

In sum, the Iberian wolf epitomizes both the successes and the ongoing challenges of large carnivore conservation in human-dominated landscapes. Its distinctive biology and behaviour, its ecological role as a top predator, and its uneven protection status across national boundaries render it a focal point for debates on biodiversity conservation, rural

development, and human–wildlife coexistence. A nuanced understanding of its biology, ecology, and distribution is therefore indispensable for designing effective conservation strategies that balance ecological integrity with the socioeconomic realities of the Iberian Peninsula.

3. ENDEMISM AS A SCIENTIFIC AND CONSERVATION CONCERN

From a biological perspective, an endemic species is one that occurs naturally and exclusively within a specific geographic region and is not found anywhere else in the world. This region may range from an island or a mountain range to a country or a particular type of ecosystem. The phenomenon of endemism can arise from unique evolutionary processes, geographic isolation, or ecological barriers that limit species dispersal and promote local adaptation over time. Endemic species often exhibit high ecological specialization, which contributes to their restricted distribution and sometimes to their vulnerability (Gaston, 1994).

The concept of endemism began to take shape during the 19th century, closely linked to the emergence of biogeography and evolutionary theory. Pioneering naturalists such as Alexander von Humboldt and Alfred Russel Wallace played a key role in observing and documenting species distribution patterns across continents and islands (Wallace, 1876). These observations laid the groundwork for recognizing that some species had highly limited ranges. The idea gained further traction following Charles Darwin’s voyage on the HMS Beagle (1831-1836). Darwin’s studies of the Galápagos Islands revealed the presence of numerous unique species, such as finches and tortoises, that were clearly adapted to specific island environments. These findings supported the emerging view that geographic isolation could lead to the formation of new species—a central mechanism behind endemism (Darwin, 1859/2003). By the latter half of the 19th century, endemism had become both a scientific interest and a conservation concern, as scientists began to recognize that species with highly restricted ranges were often at greater risk of extinction.

The quantitative measurement of endemism developed more systematically during the 20th century, as ecologists and conservationists sought methods to identify regions of high conservation value. Initial efforts involved compiling regional floristic and faunistic inventories, which facilitated the identification of endemic species and comparisons across regions. As conservation science evolved, indices of endemism were introduced, including absolute counts of endemic species and refined measures such as the endemism richness index, which adjusts for area size (Anderson, 1994). Such tools became essential for recognizing biodiversity hotspots—regions with exceptionally high levels of endemism and concurrent threats to biodiversity (Myers *et al.*, 2000).

In the 21st century, the study of endemism has been enhanced by advanced spatial and computational tools. Modern approaches incorporate various metrics: absolute endemism refers to the total number of endemic species in a specific area, while relative endemism considers the proportion of endemic species relative to total species richness. The Weighted Endemism Index assigns greater value to species with extremely limited ranges, emphasizing their conservation importance (Crisp *et al.*, 2001). Geographic Information Systems (GIS) and ecological niche modeling now enable the spatial analysis and prediction of areas of

high endemism based on environmental variables and species occurrence data. Furthermore, global databases such as the Global Biodiversity Information Facility (GBIF) and the IUCN Red List provide up-to-date information on the distribution and conservation status of endemic species, supporting regional and international planning (IUCN, 2023).

The link between endemism and governance emerged in the latter half of the 20th century. The United Nations Conference on the Human Environment (Stockholm, 1972) first placed biodiversity within the global environmental agenda. Later, the Earth Summit (Rio de Janeiro, 1992) institutionalized biodiversity governance through the Convention on Biological Diversity (CBD), which recognized the protection of endemic species and ecosystems as a shared international responsibility (United Nations, 1992). Since then, endemism has been central to frameworks such as the IUCN's Key Biodiversity Areas (KBAs) and Conservation International's biodiversity hotspots model, both of which use high levels of endemism as a core criterion for global conservation priorities (Eken *et al.*, 2004; Myers *et al.*, 2000).

The current model of biodiversity governance positions endemism as a strategic indicator for conservation. It is characterized by:

- Multilateral institutions, including the CBD and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which employ endemism as a priority-setting criterion.
- Standardized metrics and indicators, such as weighted endemism and proportion-based indices, enabling global comparability.
- Technological tools, including GIS, ecological niche models, and global biodiversity databases.
- Area-based conservation frameworks, such as hotspots and KBAs, which prioritize protection of regions with high concentrations of endemic species under threat.
- Multilevel governance, combining international treaties, national biodiversity strategies, local protected areas, and recognition of the role of Indigenous and local communities.
- Integration with climate change policy, recognizing that endemic species are particularly vulnerable to habitat shifts and range contractions (Bellard *et al.*, 2014).

In sum, the governance of endemism has evolved from a 19th-century scientific discovery into a central element of the 21st-century global biodiversity framework. Protecting endemic species is now recognized as protecting irreplaceable components of Earth's natural heritage.

4. THE IBERIAN WOLF BETWEEN BORDERS AND BUREAUCRACIES: A MULTILEVEL GOVERNANCE PERSPECTIVE

The Iberian wolf (*Canis lupus signatus*) epitomizes the challenges of conserving wide-ranging carnivores within fragmented governance systems. Although endemic to the Iberian Peninsula, it is not exclusive to a single national jurisdiction. Consequently, its conservation

status and management differ significantly between Spain and Portugal, despite both countries being subject to the overarching European Union framework.

4.1. The European Framework and National Divergence

Under the EU Habitats Directive (92/43/EEC), wolves enjoy strict protection across most of Europe (Annex IV). However, Spain historically maintained a legal distinction: wolves north of the Duero River were listed under Annex V, which allowed regulated hunting, while those to the south were strictly protected. This dual regime persisted for decades, reinforcing regional disparities and providing the legal foundation for continued hunting in northern Spain (Trouwborst, 2010).

Portugal, by contrast, adopted a stricter conservation stance much earlier. Since 1988, wolves have been fully protected under national law, making hunting illegal nationwide. Portuguese legislation was accompanied by compensation schemes for livestock losses and state-supported mitigation measures, such as subsidies for guard dogs and reinforced enclosures (Álvares, 2011). This approach reflects an earlier institutional recognition of the wolf's conservation value, though conflicts with livestock breeders persist.

4.2. Spain's 2021 Policy Shift and Multilevel Tensions

In September 2021, the Spanish government included the Iberian wolf in the national List of Wild Species under Special Protection (LESPE). This decision effectively banned wolf hunting across the country, aligning Spain with Portugal's legal regime and with the strictest interpretation of EU law. However, the move was taken without consensus among regional governments or livestock associations, sparking intense controversy (Garzón *et al.*, 2022).

Regional administrations in Castilla y León, Asturias, Cantabria, and Galicia—home to most of Spain's wolf populations and where depredation incidents are concentrated—strongly opposed the ban. Farmers' organizations also mobilized against the measure, pointing to the estimated 4,000 livestock losses annually attributed to wolf predation, which disproportionately affect small-scale family farms in rural areas. Critics argued that the government's decision lacked proper consultation, failed to guarantee adequate compensation, and ignored the socio-economic realities of affected regions.

4.3. Mitigation Measures and Coexistence Mechanisms

Both Spain and Portugal have experimented with a variety of practical measures to reduce human-wolf conflicts, many of which are supported by EU biodiversity and rural development programs (LIFE projects, Interreg, etc.):

- a) Compensation schemes: Financial reimbursement for livestock losses due to wolf attacks. Portugal has had well-established compensation programs since the 1990s, while Spain has recently expanded such schemes, though coverage and implementation remain uneven across regions.

- b) Livestock guardian dogs (mastines): Deployment of traditional and trained breeds to protect herds. These dogs are subsidized under EU rural development funds and LIFE projects.
- c) Reinforced enclosures and fencing: Installation of predator-proof fencing and night pens, often co-funded by regional governments or EU grants.
- d) Insurance schemes: Private and public insurance policies to cover wolf predation losses, tested in Castilla y León and Galicia.
- e) Community engagement and awareness campaigns: Efforts to promote coexistence strategies among farmers, local authorities, and conservation NGOs, including workshops, technical support, and conflict mediation.

These measures demonstrate that coexistence is possible but requires long-term coordination, institutional support, and financial investment, particularly in areas where wolves are expanding their range or concentrated in human-dominated landscapes.

4.4. Discrepant Voices and Ongoing Conflicts

The debate over wolf protection in Spain and Portugal brings together sharply discrepant voices:

- a) Conservationists and scientific organizations emphasize the wolf's ecological role, genetic singularity, and the importance of securing viable populations across its natural range. They welcomed Spain's 2021 decision as a landmark for biodiversity.
- b) Regional governments in northern Spain argue that a hunting ban undermines their ability to manage rural conflicts and damages local economies dependent on livestock.
- c) Farmers and ranchers highlight the socio-economic costs of wolf depredation, often framed as an existential threat to traditional pastoral systems. For many, strict protection represents a top-down imposition that disregards their realities.
- d) National authorities and the EU defend strict protection as part of international commitments, framing wolf recovery as a European conservation success story.

5. REFLECTIONS ON DECISIONS AND TRANSITIONS: ETHICS, GOVERNANCE, AND THE TIME WE LET PASS

The Iberian case highlights how divergent national strategies can emerge even under a shared European framework. Portugal's early adoption of strict protection and investment in coexistence measures contrasts with Spain's more fragmented path, shaped by the country's decentralized governance model. The Spanish central government's 2021 intervention illustrates the difficulty of harmonizing conservation priorities in a context where autonomous communities hold substantial powers over wildlife management.

This divergence also underscores the asymmetries of multilevel governance: while EU law sets minimum standards, implementation depends on national and subnational authorities, whose interests often conflict. For the wolf, this means that protection does not translate uniformly into practice. Instead, it generates contestation between state institutions, regional governments, and local stakeholders.

The case illustrates that species conservation—especially for non-endemic, transboundary species—is not limited to the application of rules: it involves complex decisions, social and ecological tensions, and consequences that extend across generations. Every action, and every inaction, has an impact: choosing not to decide—letting time pass without intervention—is itself a decision, with tangible effects on ecosystems and human communities.

Are we truly prepared to anticipate the consequences of our decisions? How can we balance local, regional, and transboundary interests with the urgency of protecting biodiversity? Should we not reflect on the transitions needed to make governance systems and conservation policies more integrative, just, and sustainable?

Ultimately, the question for students, professionals, and policymakers is both ethical and practical: beyond current legislation or economic incentives, what role do we want to assume in the face of the complexity of nature and our societies? Conservation is not merely a technical or legal challenge; it is a continuous exercise in deliberation, commitment, and shared responsibility.

PROPOSED ACTIVITY 1. ARE HUMANS A WOLF (ALSO) FOR THE IBERIAN WOLF?



Author of the image: Arturo de Frías Marqués, Iberian Wolf AdF, CC BY-SA 4.0.

Objective

To critically examine the ethical, social, and governance dimensions of species conservation, using the Iberian wolf as a case study. Students will reflect on how human perceptions, laws, and multilevel governance affect the protection of species, and consider their own role in conservation decisions.

Instructions

1. Preliminary Reading:

Read the attached case study on the Iberian wolf carefully, paying attention to:

- The species' biology, ecology, and behaviour.
- Historical and current legal protection frameworks in Spain, Portugal, and the EU.
- Conflicts among stakeholders (farmers, regional governments, national authorities, conservationists).
- Ethical and governance challenges highlighted in the text.

2. Individual Reflection (15-20 minutes):

Answer the following questions in a brief written response:

- a) Humans tend to protect species based on perceived utility, beauty, or relevance. How might this influence which species are conserved? Consider both predators like the wolf and “less charismatic” species, such as endangered plants or “weeds.”
- b) The Iberian wolf was not fully protected until the central government acted. What does this suggest about the relationship between law, governance, and timely conservation action?
- c) The wolf’s protection varies across borders and regions, often following political rather than ecological boundaries. How does this challenge our understanding of “effective conservation”?
- d) Identify the main stakeholders involved. Are some voices more influential than others? Should the wider society have a role in deciding conservation priorities?

3. Group Discussion (30 minutes):

In small groups, share your answers and discuss:

- How ethical principles (e.g., the value of biodiversity, duty to future generations) clash or align with economic and social interests.
- Examples of practical mitigation strategies (compensation schemes, guardian dogs, reinforced fencing). Are they sufficient? Who bears responsibility for implementing them?
- Whether conservation should rely solely on governments and institutions or also include broader societal participation.

4. Scenario Analysis (Optional Extension):

- Imagine you are a policymaker responsible for wolf conservation in a border region between Spain and Portugal.
- Design a plan that balances ecological, social, and political considerations.
- Identify potential conflicts and propose solutions that involve multiple stakeholders.
- Reflect on the ethical dilemmas you would face.

5. Wrap-Up Reflection (10 minutes):

Individually, write a short paragraph answering:

- What surprised you most about the Iberian wolf case?
- How has this case influenced your view of conservation, governance, and ethics?
- What lessons could apply to other species or environmental challenges?

Expected Learning Outcomes

- By the end of this activity, students should be able to:
- Recognize the ethical, legal, and social dimensions of species conservation.
- Critically evaluate how human perceptions influence which species are protected.
- Analyze the effects of multilevel governance on biodiversity conservation.
- Appreciate the roles and responsibilities of different stakeholders.
- Reflect on their own ethical stance regarding human responsibility toward nature.

HANDOUT 1. ARE HUMANS A WOLF (ALSO) FOR THE IBERIAN WOLF?



Author of the image: Arturo de Frías Marqués, Iberian Wolf AdF, CC BY-SA 4.0.

Objective

Critically examine ethical, social, and legal aspects of species conservation, using the Iberian wolf as a case study.

Instructions

Step 1. *Read & Understand*

Review the case study on the Iberian wolf: biology, behaviour, legal protection, stakeholders, and ethical/governance issues.

Step 2. *Individual Reflection (15-20 min)*

Answer in writing:

- How do human perceptions of “beauty, utility, or relevance” influence which species are conserved?
- The Iberian wolf was not fully protected until government action. What does this reveal about law, governance, and timely conservation?

- Protection varies across borders and regions. How does this challenge “effective conservation”?
- Who are the main stakeholders? Should society have a broader role in conservation decisions?

Step 3. Group Discussion (30 min)

Share your answers in small groups. Discuss:

- Conflicts between ethical principles and economic/social interests.
- Practical coexistence measures: compensation schemes, guardian dogs, fencing.
- Responsibilities of governments vs. society in conservation.

Step 4. Scenario Analysis (Optional Extension)

Imagine you are a policymaker in a border region. Design a conservation plan balancing ecological, social, and political considerations.

Step 5. Wrap-Up Reflection (10 min)

Answer briefly:

- What surprised you most about this case?
- How has it influenced your view on conservation, governance, and ethics?
- Lessons for other species or environmental challenges?

Learning Outcomes

- Recognize ethical, legal, and social dimensions of conservation.
- Analyze human influence on species protection.
- Understand multilevel governance challenges.
- Appreciate stakeholder roles and societal responsibility.

PROPOSED ACTIVITY 2. ACTIVE LEARNING SESSION: THE IBERIAN WOLF – ETHICS, GOVERNANCE, AND CONSERVATION



Author of the Image (CC BY-SA): Juan José González Vega.

Duration: 50 minutes.

Objective: Foster ethical reasoning, critical thinking, and discussion about conservation, governance, and societal responsibility, using the Iberian wolf as a case study.

Session Outline

1. Introduction (5 minutes):
 - Briefly summarize the Iberian wolf case: its biology, endemic status, and the legal protection paradox in Spain, Portugal, and the EU.
 - Highlight the central tension: ecological and ethical imperatives vs. social, economic, and political realities.
2. Warm-Up Question (5 minutes):
 - Ask students to reflect silently and answer:

“If a species is ugly, dangerous, or seemingly irrelevant, should it receive the same protection as a charismatic or ‘useful’ species? Why or why not?”
 - Invite 2-3 students to share brief thoughts.

3. Stakeholder Mapping (10 minutes):

Divide students into small groups (3-5 per group).

Task: Identify and list all stakeholders in Iberian wolf conservation (farmers, regional governments, national authorities, EU institutions, conservationists, general society).

Discuss each stakeholder's interests, influence, and potential conflicts.

4. Guided Ethical Debate (15 minutes):

Pose a central ethical dilemma: "The Spanish government banned wolf hunting nationwide without full regional consensus. Was this decision ethically justified?"

Each group argues either for or against the decision, considering:

- Biodiversity and ecological responsibility
- Economic and social impacts on local communities
- Governance constraints and multilevel regulations

Encourage groups to propose alternative solutions that balance competing interests.

5. Multilevel Governance Reflection (10 minutes):

Facilitate a whole-class discussion:

- How do EU, national, and regional policies create paradoxes in wolf conservation?
- Should protection follow ecological boundaries instead of political borders?
- Is society as a whole responsible for species protection, or just governments?

6. Wrap-Up Reflection (5 minutes):

Ask students to write a short answer to: "After today's discussion, what role do you think humans should play in deciding which species to protect and how?"

Optional: Invite a few students to share responses.

Learning Outcomes

Students will:

- Understand the ethical and governance complexities of species conservation.
- Analyze the influence of political, social, and economic factors on legal protection.
- Appreciate multiple perspectives and stakeholder interests in conservation conflicts.
- Reflect on human responsibility for biodiversity, beyond legislation.

HANDOUT 2. ACTIVE LEARNING SESSION: THE IBERIAN WOLF – ETHICS, GOVERNANCE, AND CONSERVATION

Debating Conservation: The Iberian Wolf in Action



Author of the Image (CC BY-SA): Juan José González Vega.

Objective

Engage in discussion and ethical reasoning about conservation, governance, and societal responsibility using the Iberian wolf case.

Session Outline (50 min)

1. Introduction (5 min):

Summary: Iberian wolf's biology, endemic status, and legal protection paradox.

2. Warm-Up Question (5 min):

Reflect silently: "Should 'ugly' or 'dangerous' species receive equal protection as charismatic species?"

Share 2-3 thoughts with the class.

3. Stakeholder Mapping (10 min):

In small groups, list stakeholders: farmers, regional/national authorities, EU, conservationists, society.

Discuss each stakeholder's interests, influence, and conflicts.

4. Guided Ethical Debate (15 min):

Debate: “Was Spain’s nationwide hunting ban ethically justified?”

—Consider: biodiversity, economic/social impacts, governance limits.

—Propose alternative solutions balancing interests.

5. Multilevel Governance Reflection (10 min):

Whole-class discussion:

—How do EU, national, and regional policies create paradoxes?

—Should protection follow ecological rather than political boundaries?

—Who is ultimately responsible for species protection?

6. Wrap-Up Reflection (5 min):

—Write: “What role should humans play in deciding which species to protect and how?”

—Optional sharing of responses.

Learning Outcomes

—Understand ethical and governance complexities of conservation.

—Analyze the influence of political, social, and economic factors

—Appreciate multiple stakeholder perspectives.

—Reflect on human responsibility for biodiversity.

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Globalized Diets, Consumer Rights, and Food Citizenship: Reclaiming Ethical Choices

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Abstract:

This chapter critically examines the impact of globalization on food systems, focusing on how it homogenizes diets, undermines nutritional health, and erodes consumer rights. It highlights the transition from traditional diets, such as the Mediterranean, to modern supermarket-driven consumption patterns shaped by mass production and aggressive marketing. The analysis introduces the concept of “food citizenship,” emphasizing the role of empowered consumers in reorienting food governance towards sustainability, justice, and cultural diversity. The chapter combines theoretical perspectives—ranging from food ethics to constitutional reflections on consumer rights—with practical classroom activities, including case studies, role-playing, and group debates. These pedagogical tools aim to cultivate ethical awareness, critical thinking, and responsible action among students, enabling them to recognize the political implications of food choices and to engage actively in building more equitable and democratic food systems.

1. INTRODUCTION: RECLAIMING FOOD AS AN ETHICAL AND POLITICAL ISSUE

Food is not merely a biological necessity but a deeply political and ethical matter. In the Anthropocene, where human activity reshapes ecosystems and destabilizes global balances, the way we produce, distribute, and consume food has become a decisive factor for sustainability, justice, and democratic life. Globalized food systems promise abundance and variety but often at the cost of nutritional quality, cultural diversity, and consumer autonomy. The homogenization of diets, aggressive marketing strategies, and the dominance of supermarket culture contrast with long-standing traditions such as the Mediterranean diet, raising questions about identity, fairness, and responsibility (Baumann, 1993; Warde, 1997; Counihan & Van Esterik, 2009).

This chapter invites readers to explore the ethical and political dimensions of food consumption. It argues that consumers are not passive recipients of what the market offers but potential “food citizens,” capable of influencing governance and promoting more sustainable and just systems (Mair, 2005; Micheletti, 2003; Halkier, 1999). By combining theoretical reflection with practical classroom activities, the chapter seeks to foster critical awareness and empower students to rethink their role in shaping food futures.

Humans require essential nutrients to survive, with access to water and adequate food being vital (FAO/WHO, 1951). Unlike other species, however, the human relationship with food is complex, encompassing sowing, harvesting, livestock breeding, processing, packaging, commercializing, distribution, and consumption, all influenced by socio-political, economic, and cultural factors (Barona, 2012). Political and economic tensions, social inequalities, wars, market failures, and financial crises have historically transformed food into a major social issue (Milman & Kates, 1990). At the individual level, dietary choices reflect personal identity and the notion that “we are what we eat” (Escajedo, 2005).

Despite advances in science, technology, and social organization, hunger and malnutrition continue to threaten millions globally, while diet-related illnesses have risen alarmingly (WHO, 2009). Research under the motto “Understand to Transform” seeks to explain how food attitudes and behaviors evolve, the causes of food system breakdowns, and the processes of nutritional transition (Barona, 2012). Contemporary food ethics increasingly considers environmental sustainability, fairness in distribution, and the capacity of communities to maintain autonomous food systems (Escajedo, 2005; MAIR, 2005).

Historically, moral reflection on food existed since Antiquity, but only in the 19th century did social dimensions gain prominence, particularly regarding production and distribution (Simons, 1994). Industrialization and urbanization shaped modern food systems, while 20th-century crises introduced political and economic factors. Post-industrial welfare societies have increasingly focused on overconsumption and the substitution of traditional diets, with consequences such as obesity, alcoholism, and diet-related illnesses (Escajedo, 2006).

In recent decades, critical reflection on food has expanded beyond nutrition to include values such as cultural diversity and personal identity (Escajedo, 2005; MAIR, 2005). Ethical reflection on food governance assumes that societies can rationally modify food

systems to achieve broader objectives. Among the protagonists of this transformation are consumers—empowered or political consumers, or food citizens—who exercise political empowerment through consumption choices (Micheletti, 2003; Halkier, 1999). This utopian vision aligns with the concept of food constitutionalism, which projects instruments historically used to regulate power and uphold human dignity onto food governance (Escajedo San-Epifanio, JAGE, 2015).

Globalization has intensified challenges to national food regulation, prompting initiatives that recognize a human right to food, defend food sovereignty, and promote food citizenship (Oosterveer, 2007). Simultaneously, traditional diets are being replaced in some countries by imported, lower-quality products—a phenomenon described as “dietary colonialism” or “Coca-colonization” (Zimmet, 2003; Jackson, 1997). Public health strategies increasingly emphasize consumer empowerment through educational measures, labelling, and nudges in supermarkets, exemplified by front-of-pack labelling and traffic light systems (Regulation EC No. 1924/2006).

2. THE MEDITERRANEAN DIET AS A PARADIGMATIC CASE IN THE FACE OF GLOBAL FOOD STANDARDIZATION

The Mediterranean Diet exemplifies the tension between culturally rooted dietary practices and global food standardization. UNESCO defines intangible cultural heritage as practices, expressions, knowledge, and techniques embodying symbolic cultural value, protecting them against homogenization in the context of globalization (MISC/2003/CLT/CH/14). Spain, Greece, Morocco, and Italy proposed the Mediterranean Diet for recognition under UNESCO’s Intangible Cultural Heritage of Humanity, resulting in its inscription in 2013. The diet encompasses agricultural and culinary knowledge, communal meals, traditional food markets, and intergenerational transmission of culinary skills (Serra-Majem, Roman, & Estruch, 2007; León & Castillo, 2002).

The Mediterranean Diet also demonstrates the link between traditional food systems and public health, associated with lower coronary disease incidence (Kromhout *et al.*, 2001; de Keys *et al.*, 1986; Scarmeas *et al.*, 2009). Its abandonment carries cultural and health implications, reflecting broader societal and ethical concerns (Mackenbach, 2007).

Global food standardization seeks to reduce billions to a singular “consumer,” often undermining food sovereignty—the right of peoples to define agricultural, fishing, food, and land policies (Vía Campesina, 1996). Despite protective measures, the widespread availability of less healthy foods contributes to obesity and diet-related illnesses worldwide (WHO, 2009; Hughes & Lawrence, 2005). UNESCO notes that globalization also encourages “glocalization,” a selective rediscovery of traditional practices (Langreo, 2005; Sucháček, 2008).

Public authorities employ labeling strategies such as front-of-pack traffic lights and detailed nutritional profiles to guide informed choices without restricting freedom (Regulation EC No. 1924/2006). The Mediterranean Diet exemplifies how culturally embedded, health-promoting systems can resist globalization pressures, highlighting the interplay between cultural heritage, public health, consumer empowerment, and food citizenship.

Dimension	Mediterranean Diet (Paradigmatic Case)	Globalized Food Standardization
<i>Cultural Heritage</i>	Intangible heritage recognized by UNESCO; promotes identity, continuity, and shared values	Risk of cultural homogenization; erosion of traditional food practices
<i>Health & Lifestyle</i>	Physically active, frugal, plant-based diet; lower incidence of coronary diseases	Increased availability of calorie-dense, ultra-processed foods; rising obesity and diet-related diseases
<i>Food Governance</i>	Local markets, artisanal production, communal eating; food sovereignty respected	Centralized global food markets; consumer treated as homogenized economic unit
<i>Consumer Role</i>	Active “food citizen”; empowered to maintain cultural and nutritional standards	Passive or misinformed consumer; guided by labeling and market interventions
<i>Environmental Impact</i>	Sustainable agricultural practices respecting seasonal cycles	Mass industrial agriculture; resource-intensive, standardized production
<i>Social Dimension</i>	Intergenerational transmission of knowledge; inclusion of all social classes	Selective access to “healthy” or traditional foods; exclusion of lower-income populations
<i>Rationale</i>	Promotes solidarity, intercultural dialogue, respect for diversity	Prioritizes market efficiency and profit over cultural and health concerns

TABLE 1

Mediterranean Diet versus Globalized Food Standardization (by the authors)

3. THE “HYPOTHETICAL” CONSUMER IN THE EUROPEAN UNION: A PRESUMPTION OF ATTENTION BEYOND REALITY

Progressive economic integration has been one of the most salient features of economic development in recent decades, both within Europe and globally. Since the idea of a global economy began to take shape after World War II, market evolution has transformed contemporary society into a complex reality often summarized in the literature with the term globalization. While globalization is a multidimensional process encompassing science, politics, culture, and society, its most defining characteristic is undoubtedly the interdependence of financial markets, facilitated in large part by deregulation and liberalization (Escajedo San-Epifanio, 2015)..

A central component of this integration has been the markets for goods and services, with the food sector standing out as the most complex to harmonize. Its economic and social significance renders it one of the most heavily regulated sectors within national economies. Furthermore, food is deeply intertwined with each country’s legal frameworks, traditions, and cultural norms.

Nevertheless, key actors in the sector have pursued market liberalization, primarily through mechanisms such as World Trade Organization (WTO) agreements, dominated by developed countries, particularly the United States, and through Codex Alimentarius standards. These frameworks have often disadvantaged developing countries.

Within the European Union, the strategy for integration has been more intricate. Member states retain substantial powers and may, formally or informally, block the common market. According to the principle of mutual recognition, any product legally marketed in one member state should be accepted throughout the Union. Exceptions, permitted under the Treaties, must be justified on grounds of public health or consumer protection (Article 30 TEC). States maintain significant competence in these areas, legitimizing certain trade restrictions. While this provision applies to all products, EU institutions have tolerated greater obstacles in the food sector due to its sensitivity. In the early decades of the European Economic Community, only purely protectionist or disproportionate measures were curtailed by the Court of Justice.

The 1990s witnessed crises—such as dioxin contamination, BSE, and controversies surrounding genetically modified organisms—that exposed the sector’s vulnerability. The absence of a centralized, agile authority capable of rapid response became evident. Although unjustified hesitations and moratoria between states were widespread, the resulting distrust among consumers was profound (Escajedo San-Epifanio, 2015). This concern had already been recognized in the First Triennial Consumer Policy Plan of the EEC (1990-1992): “to maximize the benefits of the internal market, citizens must be willing to use it.”

To restore confidence, particularly in the food sector, a series of measures were implemented. Following the BSE crisis, during which France banned British beef, the European Council in Helsinki (1999) adopted key measures to modernize safety systems, ensure consumer confidence, and eliminate unjustified trade barriers. The concept of minimum harmonization, embedded in the founding Treaties, was activated to align national legal and regulatory frameworks affecting market functioning.

The White Paper on Food Safety (2000) exemplifies this approach, reinforced by the independent European Food Safety Authority (EFSA). By elevating protection levels across the Union, no state can justify additional barriers on the grounds of food safety. This interpretation was upheld by the Court of Justice in 2004, effectively achieving harmonization at a high level of protection. While member states may implement additional measures, these must not impede free movement of goods.

Consequently, the EU’s regulatory framework assumes a highly informed, attentive, and discerning consumer as the benchmark. Critics have likened this to “enlightened consumerism”: everything for the consumer, but without the consumer. This hypothetical consumer serves as the target of EU protective measures, diverging significantly from reality, particularly given ongoing rates of diet-related illness.

4. NUTRITIONAL TRAFFIC LIGHTS AND NUTRITIONAL PROFILES ON FOOD LABELS: STRATEGIC COMPARISONS

Political and governance efforts to mitigate the consequences of the abandonment of traditional diets and their health impacts do not, in any way, question the standardization of eating patterns. Nor do they challenge, much less, the trend toward standardizing lifestyles. Through various strategies, policies aimed at preventing diet-related diseases primarily focus on empowering the food consumer, yet they do so within the framework of an already standardized market.

Although socioeconomic and cultural levels, belonging to ethnic minorities, or difficulties in accessing health services are also relevant factors in diet-related diseases, the prevailing understanding remains that the “consumer” —once again treated as a single, homogenous entity— is obese because they fail to choose what is appropriate from the array of food products offered by the market. Consequently, these measures aim only to mitigate the negative effects of standardization, without ever questioning it. Let us now examine these measures in detail.

4.1. Nutritional traffic lights from the UK Food Standards Agency (FSA) and voluntarily adopted by some private label brands

The Food Standards Agency (FSA) explains its traffic light labeling model in a clear and detailed manner. Specifically, it states that “if we wish to follow a healthy diet, one of the things we should do is reduce fats —especially saturated fats— salt, and added sugars. Food products labeled with front-of-pack traffic lights will indicate whether the item you are considering contains high, medium, or low amounts of fat, saturated fat, sugars, and salt. In addition to the traffic light color, you will also see the number of grams of each nutrient in a portion of that food” (Food Standards Agency, n.d.).

To avoid confusion, the FSA’s Traffic Light Labelling document further clarifies that a red light on the front of a package signals that the food is “high in something we should try to avoid.” The emphasis on “should” reflects the agency’s persuasive tone. The FSA adds, “It is fine to consume it occasionally, but monitor how often you choose foods of this type or try to consume them in smaller amounts.” Amber indicates that the food is not high in that nutrient, making it an acceptable choice, although consumers are encouraged to prefer green-labeled products. “The more green lights, the healthier your choices.”

However, the system is not straightforward. First, each product may feature multiple traffic lights, one for each key nutrient, often resulting in a mix of red, amber, and green indicators. Second, the guidance “aim for green” must be contextualized: the FSA reminds consumers that the objective is to achieve a balanced diet. This raises the question: what constitutes a balanced diet? Simply choosing foods with green traffic lights does not suffice. According to the FSA informational leaflet, a healthy diet should include whole-grain bread, pasta, or rice; significant amounts of fruits and vegetables (at least five servings daily); protein-rich products (such as meat, fish, legumes, milk, and dairy); and, crucially, minimize foods and beverages high in red-coded nutrients (fat, saturated fat, sugar, or salt). Interestingly, many foods on this recommended list—fruits, vegetables, meat, fish, eggs, and some dairy—rarely carry traffic lights, as they are not packaged.

The traffic light system also oversimplifies the causes of poor diet. Diet-related diseases result from multiple factors, including unequal access to healthy foods, particularly fresh, unprocessed items; socioeconomic and cultural status; minority status; place of residence; and healthcare access (Rudd Center for Food Policy and Obesity, as cited in Fiese & Schwartz, 2008). Family meal quality and timing also influence nutritional education, socialization, and value transmission (Fiese & Schwartz, 2008). These structural factors challenge the assumption underpinning label-based policies, which presumes a “single, rational consumer.”

Nevertheless, the UK FSA's nutritional traffic light system remains a key tool for informing consumers about critical nutrients in foods. This front-of-pack labeling uses colors to indicate low (green), medium (amber), or high (red) levels of fat, saturated fat, sugars, and salt. According to the FSA's Making Food Better Tracker Survey 2024, although 92% of consumers recognize the system, only 49% actively use it during shopping (Food Standards Agency, 2024). This suggests that despite high visibility, the system's impact on purchasing behavior may be limited by factors such as nutritional literacy and commercial promotions. Moreover, the report notes that consumers from lower socioeconomic groups are more likely to use traffic light labels to assess sugar, salt, and fat content. However, the system's effectiveness could be compromised without complementary educational strategies promoting a deeper understanding of nutritional information.

4.2. The model of nutritional profiles

In continental Europe, some major retail chains voluntarily use traffic light systems, but as previously noted, the European Union's regulatory approach presumes an "average, normally informed, attentive, and discerning consumer." Accordingly, regulatory frameworks favor detailed nutritional profiles on food labels, which consider not only nutrients associated with increased or decreased risk of chronic diseases but also nutrients that provide specific advantages or complement particular diets.

The European Commission's 2007 White Paper on a European Strategy on Diet-Related Health Issues, Overweight, and Obesity identifies "better-informed consumers" as those requiring clear, coherent, and verified information when purchasing foods. It also emphasizes the influence of the "informational environment," shaped by cultural factors including advertising (European Commission, 2007).

Within the EU, establishing nutritional profiles is a key strategy for regulating nutritional and health claims on foods. The European Food Safety Authority (EFSA) provides scientific advice, emphasizing the importance of basing profiles on nutrients relevant to public health, such as saturated fats, sugars, and salt (European Food Safety Authority, n.d.). Regulation (EC) No. 1924/2006 on nutrition and health claims on foods employs nutritional profiling as a central tool: any food product making voluntary nutrition or health claims must display a detailed nutritional profile. This applies not only to functional foods but to all products subject to such claims (European Parliament & Council, 2006).

The regulation stipulates that the European Commission, with EFSA's scientific guidance, sets these profiles, advising on: (1) whether profiles should cover all foods or specific categories; (2) the range and balance of nutrients considered; (3) reference amounts; (4) calculation methods; and (5) feasibility and testing of the proposed system. This broad scope reflects the absence of a single scientific solution to many of the challenges posed by nutritional profiling. Profiles must consider nutrient content (fat, saturated fat, trans fats, sugars, salt), the food's role in the overall diet of the general population or at-risk groups (including children), and the overall nutritional composition with scientifically recognized health effects.

The process has proven highly complex and remains incomplete. While it is generally agreed that profiles should be set by food categories and nutrients selected based on scientifically established links to chronic disease risk, there is no consensus on how to address nutrient deficiencies, the methodology for profiling, or ways to prevent consumer misunderstanding. Initially, consumers were expected to understand all voluntary claims, but EFSA technical guidelines for claim authorization omit this requirement. Implementation of harmonized nutritional profiles across the EU has faced delays; although the European Commission announced a legislative proposal for 2022, it has yet to be formally submitted (European Parliament, n.d.). The lack of clear profiles may allow high-nutrient foods to use health claims misleadingly—for example, high-sugar products advertised as high in fiber without providing a complete nutritional picture.

4.3. Critical reflections and proposals for improvement

Despite efforts to empower consumers through labeling systems, the tendency to standardize eating patterns persists without challenging the cultural and dietary homogenization imposed by the global market. Current approaches treat consumers as autonomous individuals expected to make informed choices, neglecting structural factors such as access to healthy foods, nutritional education, and social and economic influences.

To move toward more sustainable and equitable food systems, it is essential to adopt an approach recognizing the interdependence between individuals and their environment. This involves not only improving label information but also implementing public policies that promote equitable access to healthy foods, support early nutritional education, and foster cultural diversity in diets.

5. BEYOND NUTRITIONAL LABELS: REFOUNDING FOOD GOVERNANCE THROUGH FOOD CITIZENSHIP

Empowering consumers to become food citizens invites us to rethink the very governance of the food system. It challenges the homogenizing logic of accelerated consumption, which seeks to reduce billions of diverse individuals to a single type of consumer (Escajedo, 2011), and instead posits that each choice—when projected collectively—can influence markets, promote sustainability, and nurture equity. “Shopping bag power” becomes not merely a tool for personal preference but a mechanism through which our presence in the market can shape environmental, social, and ethical outcomes, transforming food from a commodity into a site of civic engagement.

Food citizenship carries profound pedagogical and political potential. It offers a lens for critically evaluating contemporary food governance and imagining alternatives to current models. Scholars such as Wright, Middendorf, and De Tavernier highlight the possibilities of citizens reshaping food systems and framing consumption as an act of civic responsibility. Yet the European experience demonstrates that consumer trust cannot be assumed. Crises like BSE and GM controversies in the 1990s revealed the fragility of confidence in regulatory systems, showing that rebuilding trust requires not just institutional responses but active engagement from citizens themselves (Bunte & Dagevos, 2009).

Labelling initiatives have emerged as the primary practical instrument for encouraging responsible consumption. They provide information, guide choices, and offer a limited avenue for autonomy. However, their potential is constrained: the “average consumer” imagined by EU regulations is inconsistently defined, ethical concerns are recognized selectively, and labels often serve market segmentation more than civic empowerment. Moreover, systems like traffic-light labelling, while helpful, oversimplify complex nutritional realities, risk excluding vulnerable populations, and can inadvertently reinforce packaged over fresh food consumption.

These limitations point to a fundamental insight: food citizenship cannot be reduced to the provision of information. It requires cultivating critical capacity, awareness, and collective responsibility. The future of ethical food governance depends on imagining strategies that transcend market logics and standardized consumer models. It demands engagement with values that include fairness, sustainability, cultural diversity, and the assurance of a dignified life for all—a task that can only be accomplished through sustained collective effort, often requiring individual sacrifices in favor of the common good.

Globalization, modern production systems, and accelerated consumption patterns have reshaped not only what we eat but how we relate to the natural and social world. This transformation threatens cultural identity, community cohesion, and public health. While short-term measures like labelling can mitigate immediate harms, they cannot replace deeper interventions aimed at restoring the richness and diversity of food cultures, promoting equitable distribution, and fostering diets tailored to human needs rather than market convenience.

Ultimately, food citizenship is an invitation to rethink our relationship with food as a civic and ethical act. It challenges us to recognize that our everyday consumption choices are political and moral decisions. By embracing this perspective, we move beyond seeing food as merely nourishment or a commodity: we reclaim it as a terrain for justice, sustainability, and shared responsibility. In a globalized world, where individual choices reverberate across ecological, social, and economic systems, becoming a food citizen is not only desirable—it is indispensable.

SUGGESTED STUDENT ACTIVITIES

Globalized Diets, Consumer Rights, and Food Citizenship: Reclaiming Ethical Choices

Activity 1. *Mapping the Globalized vs. Local Diet*

Objective: To critically reflect on the degree of dependence on global food systems in students’ everyday diets.

Duration: 1 week preparation + 60 minutes class discussion.

Materials: Food diaries (notebooks or digital spreadsheets), whiteboard/flipchart.

Steps:

1. Students keep a food diary for one week, recording everything they eat and drink.
2. In class, they categorize each item by origin: local/regional vs. global/imported.
3. Groups calculate the approximate percentage of local vs. global foods in their diets.
4. Plenary discussion: What are the ethical, environmental, and cultural implications of these patterns?

Rationale: This activity fosters self-awareness of one's food footprint and encourages students to see their diet as a site of ethical and civic engagement, linking personal habits to broader social and ecological consequences.

Activity 2. *Role-play: Negotiating the Food System*

Objective: To understand the conflicting interests of different actors in the global food chain.

Duration: 90 minutes.

Materials: Role descriptions (farmers, consumers, supermarket chains, government regulators).

Steps:

1. Students are divided into groups, each representing one stakeholder.
2. Present a scenario involving a contested issue, such as the introduction of GM crops, stricter labeling requirements, or policies supporting small-scale producers.
3. Groups prepare arguments defending their assigned position, considering economic, social, and ethical perspectives.
4. A moderated debate simulates negotiation among stakeholders.
5. Reflection: What power imbalances became evident? Were compromises achievable? How do structural inequalities shape food policy outcomes?

Rationale: By embodying different perspectives, students grasp the complexity of food governance, recognize the ethical dimensions of policy decisions, and develop empathy for multiple stakeholders.

Activity 3. *Label Analysis Workshop*

Objective: To develop critical consumer literacy and identify gaps in food labeling.

Duration: 60 minutes.

Materials: Food packages brought by students (preferably processed foods), highlighters, worksheets.

Steps:

1. Students bring packaged food products to class.
2. In small groups, they analyze labels, focusing on ingredients, country of origin, nutritional claims, and marketing language.
3. Each group identifies gaps, ambiguities, or misleading information.
4. Class discussion: How could labeling systems better support informed choices and food citizenship? What role should ethical, environmental, and social information play in labels?

Rationale: This activity encourages students to move beyond passive consumption, equipping them with tools to interrogate market information and make ethically informed choices.

Activity 4. *Comparative Case Study*

Objective: To assess the ethical and sustainability implications of different food distribution models.

Duration: 90 minutes.

Materials: Short case descriptions prepared by the instructor (e.g., a global supermarket chain vs. a local food cooperative).

Steps:

1. Groups are assigned a case study to analyze, considering:
 - Health impacts.
 - Environmental footprint.
 - Consumer rights.
 - Cultural diversity.
2. Each group presents their findings to the class.
3. Comparative discussion: Which model better supports food sovereignty and why? How do systemic structures shape access, choice, and equity?

Rationale: By comparing models, students develop a critical understanding of how institutional arrangements influence food systems, moving from theoretical reflection to applied analysis.

Activity 5. *Designing a Responsible Consumption Campaign*

Objective: To encourage students to translate ethical reflection into public advocacy.

Duration: 2-3 hours (in or outside of class).

Materials: Paper, markers, or digital tools (Canva, PowerPoint, video apps).

Steps:

1. In groups, students choose a campaign theme, such as promoting local products, reducing ultra-processed foods, or demanding transparent labelling.
2. They design a mini-campaign (poster, social media post, or short video) aimed at raising awareness and influencing behavior.
3. Campaigns are presented in class.
4. Reflection discussion: Which communication strategies were most effective? How can messaging inspire ethical and civic engagement in everyday food choices?

Rationale: This activity encourages students to connect reflection with action, cultivating practical skills in advocacy, communication, and civic responsibility while reinforcing the principles of food citizenship.

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Eco-Anxiety and Animal Ethics: Environmental Ethics Pedagogy through Role-Playing and Ethics Roundtables

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Summary:

Role-playing techniques encourage empathy and forge sensitivity to epistemic justice. Interactive performance theatre and ethics roundtable enhance collaboration, problem-based learning, active communication skills, civic engagement and ethical analysis and deliberation. These techniques were used to accentuate deliberation around eco-anxiety and human-animal ethics issues in an Environmental ethics class.

Keywords:

Eco-anxiety, environmental ethics, animal ethics, interactive performance theatre, theatre of the oppressed, role-playing, ethics roundtables, teaching disaster ethics.

INTRODUCTION

Two topics have caught the imagination of my environmental ethics students of late. The first, eco-anxiety, is an emerging concern, especially among younger students. It is a result of the felt negative impacts of all-encompassing transformations to our planet from climate change. The second is about understanding human-animal relationships and the moral status of individual animals and species. Here, recent technological developments are catalyzing novel ethical concerns regarding engineering animals or their environments, including, resurrecting, extinct species to augment biodiversity and for conservation purposes. Students are interested in understanding the values operative in policy decisions regarding the environment and treatment of animals, respectively, and how to research, frame and deliberate about these issues constructively. They turn to ethics to bolster critical thinking, environmental justice and reasonable decision-making along with the best available science.

Eco-anxiety is punctuated by an all-consuming uncertainty in the wake of major ecological catastrophes and extreme weather disruptions (Clayton *et al.*, 2017; Pihkala 2020). Our leaders seem to be driving our planet into the abyss by their inaction on climate change, i.e., we have gone over a number of critical global processes that regulate the stability and resilience of our planet and are now teetering precariously on the “point of no return” (Richardson *et al.*, 2023).

Climate change-induced natural disasters are no longer rare nor unpredictable. The risks are known, however, and individuals and communities need to be supported by their governments to prepare for an impending catastrophe. Unfortunately, many of my students in Alaska are well-acquainted with these disasters. Many already have internal scars that mirror the external damage to the landscapes they inhabit. Their chronic anxiety, distress, depression or grief are in direct response to what has already occurred to them and their families, such as physical changes to their ecosystems or communities, including having to relocate their villages. In other cases, the climate crisis has anticipatory effects, including mental anguish from being abandoned by their governments at a time of crisis, being forced to rapidly come to terms with changes to social norms from the loss of human, plant, animal life and traditional folkways, or bearing the weight of transmitting intergenerational trauma (Cunsolo and Ellis 2018; Cianconi, Betro and Janiri 2020). In late October 2025, the Indigenous villages of Kipnuk and Kwigillingok in western Alaska suffered catastrophic flooding from the storm surge of Typhoon Halong. Homes were destroyed and water and energy infrastructure severely compromised, forcibly displacing over 1,000 evacuees to cities like Anchorage and Bethel, many miles away, ahead of winter. Early estimates suggest that many of these displaced villagers will not be able to return to their homes for approximately 18 months, if at all possible.

In the wake of their first existential crisis, many of my younger students are delaying making major life decisions, such as whether or not to have children and where to relocate. They are increasingly worried about the impacts of planet-warming pollution and sea level rise, including increasing deaths tolls from recurring climate induced heatwaves and dangerous flooding and ecosystem destruction. (Hickman *et al.*, 2021), food insecurity and poor health, and lack of warning and communications systems and preparedness infrastructure in a new climate world.

The prospect of inheriting a degraded and inhospitable Earth is also worsening their physical and mental health. Some mourn the loss of family members, homes, ancestral lands, cultural activities, species and wild spaces, ecosystems, and dreams (Ostapchuk *et al.*, 2015). The psychological distress or chronic fear from impending ecological or climate doom is paralyzing

and can lead to emotional numbness. In their view, there is no return to a healthier yesterday. More fires, floods, storms, poor air quality and droughts that seem only to be more frequent and intense are the norm that is our future. The lack of concerted political will on climate action by global, national, state and local officials and public safety decision-makers compounds their sense of resignation, grief, dismay and psychological and behavioral tumult. Moreover they fear that the scale of eco-anxiety can affect our solidarity towards each other and our ability to collaborate towards solutions due to “the loss of social identity and cohesion, hostility, violence, and interpersonal and intergroup aggression” (Clayton *et al.*, 2017). They look to ethical analysis and deliberation for inspiration on how to be more ethically, emotionally and existentially resilient.

As ethics instructors concerned about the impacts of climate change on our students’ mental and physical well-being and overall resilience, the questions before us then are:

- How can our classes help our students (i) understand and cope with the different forms of eco-anxiety, (ii) overcome their immobility due to climate despair, and (iii) cultivate a sense of purpose as they adjust to a new ecological environment and social reality?
- What role can ethics play (iv) in equipping our students with the tools to address the philosophical dimensions of both their transitional and anticipatory mourning, actual loss or trauma, and (v) to inspire moral imagination, action and hope?

Beyond providing students with the science to combat climate change (Goldberg *et al.*, 2019) or knowledge of various ethical theories, ethics classes can serve as a venue to help them discuss the sense of peril they feel (Dodds 2021; Kurth and Pihkala 2022), to confront their growing anxieties due to the chronic climate crisis (Rose *et al.*, 2017), and develop problem-solving skills and moral sensitivity towards others, especially marginalized communities or peoples of color bearing the brunt of the most severe impacts from immeasurable damage to the atmosphere and their homes. This might include ways to connect with others through listening and story-telling and to (re)discover collective rituals and adaptive strategies for healthy coping, including avenues to transform anxiety and despair into action and mitigate their sense of helplessness, resignation or distress from witnessing the vanishing of treasured environmental entities or the fear that their relationship to nature and their futures is disintegrating (Coffey *et al.*, 2021; Cunsolo and Landman 2017).

Ethics classes can serve as a vehicle to ensure that students experiencing eco-anxiety are legitimately heard and feel supported; that they know that their psychological, practical and ethical concerns are taken seriously and they have allies when tackling the ethical disputes around climate politics and physical impacts of climate change. These classes can serve as incubators to forge new climate imaginaries, rekindle sustainable narratives and build responsible preparedness infrastructure. Ethics classes can serve as places to examine collective responses and invigorate adaptive strategies and innovative solutions that are guided by justice, trust, compassion and solidarity (Golberg *et al.*, 2021). Students need to know that no action is too small, and solutions are not out of their reach.

COURSE DESIGN: THE NATURE OF PHIL/ENVI A303

The Environmental Ethics course (PHIL/ENVI A303) that I taught at the University of Alaska Anchorage (UAA) in Spring 2025 centered on ethical analysis and deliberation,

standpoint epistemology, and ethics in the service of strengthening environmental justice, local social capital and community action, public policy and adaptive governance.

This upper division undergraduate Environmental ethics course undertakes to examine and articulate, from philosophical and ethical perspectives, our attitudes and responsibilities towards nonhuman animals and Nature. A number of students typically come from the natural sciences. Others might include students from the social sciences and the humanities. Students first learn about the difference between science and normativity and then are exposed to normative issues associated with a variety of environmental challenges. Topics range from risk management and policy making, obligations to future generations, anthropocentrism, the moral status of animals, sustainability, Indigenous ways of knowing, the philosophy of food, ethical governance in the Anthropocene, the moral status of geoengineering and synthetic proteins, and health and poverty and the environment, and just transitions and epistemic justice.

This course is designed to provide students with familiarity of some of the main ethical theories in environmental ethics and help them develop their own positions regarding various environmental issues through oral communication and sound philosophical reasoning skills.

Per the student learning outcomes for Spring 2025, students will be able to:

- Demonstrate orally and in writing improved critical thinking skills regarding environmental issues (such as be able to critically examine and discuss the relevant ideas and arguments).
- Demonstrate orally and in writing understanding of influential ethical theories and approaches and how they apply to major issues concerning environmental preservation and protection, including intersections with food and agricultural systems.
- Analyze issues regarding human-nature interactions using the concepts and frameworks in the discipline.
- Demonstrate understanding of key issues and arguments related to environmental ethics and their multidisciplinary perspectives.

Besides lecturing and group discussions, I also invited my students to listen and share their personal journeys through narrative during the 16-week semester. Here, I employed a variety of role-playing activities to emphasize the research (an argumentative essay assignment and a case study project) they could do, so students have the opportunity to integrate their disciplinary perspectives with a deep dive into the ethical implications of their professional commitments. Case studies were aimed at promoting moral awareness of an emerging and significant environmental ethics concern. Students were invited to explore conceptual ethical themes informed by empirical data on their chosen topic. Their case studies had to be thesis driven, critical and offer a balanced scholarly exposition of their topic. Many students chose to investigate eco-anxiety from an ethical perspective, including how ethics can help frame the issue as structural and not merely an existential feeling of chronic crisis, trauma and grief. Many students also focused on how eco-anxiety impacts their local communities in Alaska.

ROLE-PLAYING

In general terms, role-playing provides a communal safe space to address difficult dialogues, including to process climate grieving with others, build trust and deliberate about values and reflect on the merits of the best available evidence supporting decision-making. Role-playing offers students the opportunity to listen to each other's personal journeys, to strengthen their deliberative ethical skills and heighten their moral sensibilities, while appreciating the diverse professional or disciplinary expertise of their classmates.

Through role-playing, students are invited to vocalize or conceptualize their climate change-related emotions and anxieties, share their firsthand experiences and consider how they might respond to real life dilemmas, including walking in someone else's shoes who is dealing with situational vulnerabilities like climate grief, mourning, loss and hostile physical, social and political structures (UN SPDPMESEC 1994; Jamieson 2007; Hourdequin 2010).

Role-playing is an important form of doing standpoint epistemology (Harding, 2004) for it encourages students to develop moral sensitivity to their own and others' frustrations or invisibility from repeatedly defending their concerns regarding the destruction of nature and systemic forms of hegemonic oppression. It can challenge them to think creatively about the place-based challenges they face between ethics and nature, including how to describe their loss of cultural activities publicly due to climate change or to give voice to the emotions related to their experiences (e.g., guilt or shame from being agents of climate destruction, frustration, anger, impotence, acceptance, hope), and how to invest purpose into activities that can address their eco-anxiety meaningfully.

Role-playing cultivates supportive and understanding allies, and helps to identify different traumatic or mourning stages that someone suffering from eco-anxiety endures. It can bring new concepts to light, including new terms like "sea-ice anxiety" or "sea-ice relief," to describe their emotional states.

Role-playing, through *interactive performance theatre* and *ethics roundtables*, can be particularly instructive forms of student learning regarding epistemic injustices that can stymie the public discussions around climate politics. Students who participate in role-playing in their ethics classes also learn to develop and strengthen discursive thinking and deliberative skills and appreciate the full benefits of multidisciplinary and collaborative approaches to finding real solutions to "wicked problems" (see Rittel and Webber, 1973) including how to stand-up for their ethical values and engage with local decision-makers to protect ecological resources and improve critical infrastructure (see Scott and Francis, 2011).

The two activities that will be outlined below can help students give voice to their eco-anxiety and to realize that, despite the current environmental losses, their futures and moral imaginaries are still-unwritten.

The role-playing activities were designed to provide the students with exposure to stakeholder analysis and the complexities involved in moral dilemmas around climate change. The role-playing exercises helped to unearth multi-stage investigatory and learning processes, where students were invited to share their stories and experiences about climate loss and grief. Students explored local issues that many had experienced directly, and the short-term mitigation solutions that they were apart of in turning their

eco-anxiety into productive initiatives. They were also able to integrate their existential questions and psychological perspectives related to the work that they did or witnessed. They also shared concerns they had about existing environmental policy and the lack of urgency from global and local leaders to take their eco-anxiety concerns seriously. Role-playing allows students to acknowledge and correct their assumptions and reasoning missteps, and to examine any ignorance, assumptions, or overgeneralizations that contribute to their biases.

In what follows, I describe the context and the focus of the inquiry for the semester, and the design and implementation of two role-playing activities. I end with a discussion of outcomes and reflections on the methods that were employed to promote ethics inquiry and student success.

TWO IN-CLASS ROLE-PLAY ACTIVITIES

Activity 1

By the third week of the semester, students have been exposed to core concepts in environmental ethics, major ethical approaches and some significant environmental ethics-science debates. They are also introduced to the writings of various Indigenous scholars, including Barnhardt and Kawagley 2004; Pows Whyte 2017; Lame Deer and Erdoes 1972). Then, the students were invited to participate in two role-playing activities, namely, interactive performance theatre and ethics roundtables. The goal of interactive performance theatre is to give voice to marginalized epistemologies and highlight the importance of stakeholder positionality and systemic forms oppression. Students (from the natural, health, and social sciences and humanities) were invited to think about their current or future professional roles. There are two versions of Activity 1 (re-act and time out versions) that are modeled after the “Theatre of the Oppressed”.

The class period began with an introduction to central ethical issues regarding climate change faced by vulnerable peoples. Students viewed a video involving climate change involving a Yup’ik village of Kipnuk in western Alaska (near Bethel) and a lawsuit that was filed by a number of minors from the village against the state of Alaska. (see <http://vimeo.com/33921321>). A discussion of where things stand today regarding this and similar legal cases ensued.

After viewing the video, students were asked to help frame the ethical issues by identifying the stakeholders involved and their main concerns. They were also invited to think about the requirements of ethics in addressing this problem vis a vis three questions:

1. What would a just response look like to climate change?
2. Would a just response necessarily be synonymous with an effective response?
3. Why might someone from Kipnuk experience ecologically related distress, mourning and resignation?

Students were asked to discuss their reflections through various ethical theories of utilitarianism, Kantian deontology, virtue ethics, feminist ethics, contractarianism, deep ecology and Indigenous ecological philosophies, and where applicable, to share their own personal experiences about how they or their communities have been impacted by climate change.

I opted for an unscripted role-play for the first role-play activity, since a number of students volunteered to share how they have been impacted by climate change, including watching their villages deteriorate into the ocean and losing cultural activities like subsistence hunting. The first role-play activity, i.e., an interactive performance theatre is inspired by the Theatre of the Oppressed, developed by Brazilian director, artist and activist Augusto Boal (see Babbage, 2004) and by Paulo Freire's Pedagogy of the Oppressed (1970). In both theatre and pedagogy of the oppressed, participants and audience members are invited to be active "spectators": to explore the values and ethical commitments of the stakeholders and consider broader concepts from critical theory, like the logos, pathos and ethos motivating their actions. Students were invited to consider the positions of the various stakeholders and consider their ethical aspirations as well as systemic issues associated with the climate-induced crisis from political, economic and social dimensions.

In developing this role-play based on firsthand experience, students were invited to structure their roles in terms of key ethical aspects, including advocating for environmental justice and equity for those disproportionately impacted by climate change, the perspectives of vulnerable rural or Indigenous communities, and thinking through sustainable and just transition policies. Students were also encouraged to consider how they would describe or frame eco-anxiety or climate grief based on different regions of the state and if they represented Indigenous or non-Indigenous stakeholders. They were also invited to consider the positions of state officials or political decision-makers and representatives (e.g., Native elders or corporation leaders) and the relationship between climate distress or eco-anxiety and good governance, through the concepts of trustworthiness, transparency and accountability. Lastly, students modeled desirable community level change and collective responses to mitigate eco-anxiety. Students were asked to consider the values operative in the roles they represented and how they might bring people together to share opposing views and work towards a shared goal or set of solutions from their professional or disciplinary perspectives using different ethical approaches previously discussed during the first three weeks of the semester.

In previous semesters, I used a prepared script, which was based on court documents and interviews. Student volunteers from the class were assigned roles that mimicked *Kanuk v. State of Alaska, Department of Natural Resources* (Kanuk v. Alaska Department of Natural Resources, Superior Court No. 3AN-11-07474CI; Kanuk v. Alaska Department of Natural Resources, Supreme Court Case No. S-14776). There were five major actors, which included Mr. Nelson (the plaintiff from the small Yup'ik village, the State's attorney, the plaintiff's attorney, Jim Hansen—amicus curiae, and the judge (from Alaska's Superior Court). Briefly, Mr. Nelson's role is to profile what's going on in his village due to climate change, to focus on environmental mourning and cultural losses already endured, and to raise ethical questions about the future of his village and Alaska if the state does not intervene. The State's attorney's role is to challenge the legality of the suit, i.e., whether

the courts or the legislature is the right venue to debate climate change and obligations to future generations. Mr. Hansen, a notable expert on climate change and proponent for more government intervention in managing climate change, is the scientist who provides evidence of anthropogenic climate change. The plaintiff's attorney and judge offer reactive accounts to the other three. No judgment is rendered by the judge at the conclusion of the trial in this play (although in actuality, the Superior Court of Alaska denied to the plaintiff). In this scripted role-play version, the judge merely indicates what the main issues are from where she sits and the play concludes when she has provided her delineation of these main concerns. Since the case is a few years old, one could also pose questions related to how the verdict has impacted the plaintiffs and fellow villagers in terms of eco-anxiety and non-legal solutions like community mitigation strategies. One can also discuss the impact of forced migration inland on the mental and behavioral health of the villagers and their cultural activities.

In a *Re-act* version, after the initial dialogue concludes, the student actors are seated in front of the class. The actors stay in character during this time. The student spectators ask questions about the positions held by the main characters, including the moral reasons for and ethical motivations behind their arguments (e.g., "In this scene you said.... Can you tell us what was going through our mind then?").

If there is time, the script can be repeated. Students can "tag an actor" and substitute for him/her as the script unfolds in real time. The "play" can take a different path at this stage as students identify new responses and solutions. It gives students an opportunity to challenge instances of moral insensitivity or injustice and to consider different expressions of epistemic justice. Spectators can substitute the same character multiple times and they are able to re-enact the particular dialogue in the way they ultimately would like it to unfold.

Interactive theatre performance is lively, entertaining, and gets students out of their comfort zones. The role-playing inspires moral sensitivity and awareness and challenges students to see as others may and consider the impact of testimonial, hermeneutical and contributory injustice (Fricker 2007; Dotson 2012) respectively, in environmental ethics dilemmas. Students can ask each other (initially in character), about their positions and reasons for their positions. For example, if the judge sides with the defendant, the state of Alaska in passing climate policies, the questioner may ask if this is what the person playing the "judge" truly believes.

After the students have exhausted the time allocated for questions, a full class discussion ensues with the instructor serving as moderator. Students are invited to return to the three original questions raised (e.g., What would a just response look like to climate change? Would a just response necessarily be synonymous with an effective response? Why might someone from Kipnuk experience ecologically related distress, mourning and resignation? They are asked whether their answers have changed as a result of what they have just witnessed and participated in, and—à la Boal and Freire—to consider systemic forms of injustice in their reasoning. Students are able to engage in the interplay between ethics, state and local politics, the science of climate change and cultural issues related to climate induced grief and anxiety. Since they come from different disciplines, the students have a wide range of disciplinary knowledge and experiences from which to draw to enhance the role-playing activities, which can mimic real-world affairs.

Outcomes from Activity 1 include:

1. Representing genuine accounts of eco-anxiety through interactive performance theatre by students.
2. Bringing local experiences (e.g., from the villages or professional perspectives) into the classroom.
3. Integrating disciplinary knowledge and experiences with normative aspects to address a real-world problem, of which many students already have firsthand experience (unfortunately).
4. Addressing difficult dialogues around eco-anxiety using ethical analysis and decision-making.
5. Exploring the bases of epistemic injustices that are intertwined with institutional oppression: racism, sexism, colonialism, etc.

Activity 2

Ethics Roundtables can be used to reinforce the place of ethical analysis and deliberations around key concepts like the moral status of animals, sustainability, food security and obligations to future people. Students are organized to participate in a series of focused conversations involving rights, conflicts of duties and interests, virtues and vices and benefits and harms, and factors that influence their relationships to scientific evidence, technology, law, policy, customs, culture and politics.

Increasingly, environmental ethics students are also interested in discussing regarding respectful and humane treatment of animals. For this activity, students were assigned a set of readings on the moral status of animals and the ethics of conservation (see reference section) They were also shown a series of short videos involving the science and ethics of de-extinction of certain animals most notably, Colossal Biosciences.

Students were broken up into small groups by the instructor and informed that they will participate in two consecutive ethics roundtable conversations. As a class, students took turns reading out loud two articles, the first “The case against dogs in the office” (Pierce 2024) and the second, “Zoos must embrace animal death for education and conservation” (Clauss *et al.*, 2024).

After the first article was read as a class, the students deliberated over the following questions in their smaller groups:

1. Are there legitimate ethical concerns that should warrant reflection?
2. What are the central ethical issues to consider regarding the author’s main argument?
3. What are the competing ethical principles at stake?
4. Are there legitimate ethical concerns on sides, for and against, of this issue?

5. How does empirical evidence inform your assessment of the author's main argument?
6. What else do you want or need to know about what is at stake regarding the author's main position?
7. Is there a common ground from which to work?
8. Who does the decision to move forward or not move forward impact?
9. What is the best way to proceed?

In the roundtables, students trade places as speakers-listeners-respondents and consider the main ethical positions of the authors they've read in preparation for the activity. Students deliberate about the moral status of companion animals in light of what they know about animal welfare concepts and practical and legal considerations related to human workspaces. Students engage with each other, first in speak-listen-respond dyads. Then, they integrate with other members of their whole group; an opportunity for the dyads to report back to other members for the broader exchange of perspectives. Ideally, each conversation builds on the previous one to deepen and expand understanding of the topics and challenges at hand. Students were given 3 minutes to speak-listen-respond in their dyads followed by an additional 7 minutes to brainstorm as a whole group, again modeling the speak-listen-respond format. The group decides on a note-taker to capture 3-4 salient points. He/she reports back to the class.

After this initial in-group conversation concludes, students partner with one or two members of other groups. The students are challenged to enact and defend a workplace policy concerning companion animals and consider human-animal trade-offs. A larger group discussion ensues followed by note-taking again of 3-4 salient points.

Next, the class reads out loud the second article. In their original groups, they discuss the moral status of species and in particular animals housed in zoological gardens for conservation or educational purposes. They are invited to deliberate on the significance of planned killing of surplus animals. The discussion centers on whether and how animal liberation is compatible with environmental holism. In their dyads and smaller groups, students consider what animal welfare at the group level might mean and if species can be harmed morally. Students run through the same set of nine questions and consider any others that pertain to the moral status of groups of animals. One or two students join other groups to discuss other perspectives before the class engages in a larger group discussion for one final time. Key points are noted and discussed as a group and policy proposals or best practices are shared.

At the end of the activity, I ask the students to reflect on:

1. How ethical deliberation informs policies involving animal ethics and animal welfare science in real world contexts?
2. What ethical norms are realized through their policies and what norms may be violated?
3. What are acceptable trade-offs in terms of human-animal relationships with conservation and biodiversity in mind?

After the class, students are also required to share their reflections from the roundtable activity on Blackboard, a popular content management system. Feedback prompts include (inspired by Brookfield and Preskill, 2005):

- What is the most contentious statement you heard?
- What is the most important point that was made?
- What question would you like to have answered regarding any of the arguments that were raised that we did not get to?
- What is the most unsupported assertion you’ve heard during our discussions?
- Of all the ideas and points you’ve heard which is still obscure or ambiguous to you?
- At what moment during the activity were you most engaged as a learner?
- What action or comment did someone in the class take or make (respectively) that you found most affirming or helpful?
- Were the other media items like brief interviews and documentaries helpful in your understanding of the issues and concepts?
- How would you assess the quality of the group work of which you were a part?

Ethics roundtables mirror mini-cases and invite students to reflect on the role of ethical analysis and deliberation in real world situations. They challenge students to deploy ethical concepts and approaches and problem solve in non-ideal situations and to deliberate with other stakeholders who may or may not share their philosophical orientations (Olien and Harper, 1994). This activity bolsters students’ fluency in ethical deliberation and works well to reinforce basic concepts and ways to deliberate with others in fruitful ways. This activity also encourages students to integrate scientific concepts and evidence into their philosophical arguments.

This group activity helped to reinforce important animal ethics and animal welfare concepts at the individual and group levels, and encouraged deep thinking on the significance of cultural, ethical, legal and environmental considerations in human-animal relationships, including regarding species conservation, protecting endangered wildlife, preventing biodiversity loss and augmenting ecosystem stability.

Outcomes from this second activity include:

1. An appreciation for the intractable nature of human-animal dilemmas and the inextricable relationship between science and ethics in addressing real world problems and pursuing meaningful research questions.
2. Collaboration to discover shared commitments regarding the treatment of animals.
3. Developing mechanisms to engender concrete solutions to the complex problems regarding human responsibilities to individual and groups of animals.
4. Providing an ethical framework to evaluate novel technologies involving endangered species and the de-extinction of animals for species conservation purposes.

DISCUSSION: REFLECTIONS AND OBSERVATIONS

Environmental ethics courses are excellent venues to expose students to ethical analysis and deliberation in groups, and to the importance of the relationship between and competing epistemologies. They can challenge students to go beyond their initial moral intuitions and implicit biases about who and what matters and how they think about the ethical trade-offs they make in non-ideal contexts. They are terrific incubators for advancing deliberative democracy, and to mobilize civic action.

These two interactive activities helped to enhance the instructional goals for the course as well as make content delivery “edutaining.” The instructional goals of the course that semester involved:

- Providing examples of techniques for critical thinking in philosophical and ethical reasoning.
- Providing instruction and evaluation of leading ethical theories and approaches, and their application to contemporary moral issues that concern preserving and protecting environmental systems, including intersections with food and agriculture systems.
- Providing learning opportunities for effective communication and engaged learning.
- Drawing connections and integrating content with other disciplines and non-Western perspectives regarding human-nature interactions, including environmental science and education, Alaska Native ecological philosophy, and public policy.

These instructional goals support broader teaching objectives designed to help students learn about different ethical approaches and to develop better discursive and deliberation skills that they can employ in a value plural and democratic context. Role-playing and the group nature of ethics roundtables facilitate greater moral sensitivity (the ability to recognize morally relevant features or problems); promote more discerning moral judgments (the ability to reason well and apply moral approaches); enhance moral motivation (the capacity to choose to behave morally and act on principle); and inculcate moral character (the ability to follow through with a moral decision based on one’s conviction) (Rest, 1986).

There is a societal expectation that ethical integrity be part of a university graduate’s resume. Moral sensitivity, adeptness in moral decision-making, and knowledge of and competency in ethics make for a more competent graduate, especially when ethical skills in the classroom are tailored towards professional duties and citizenship virtues, and if they encourage the propensity for life long learning. Role-playing was a crucial element in the students’ learning that semester, since it promoted new learning pathways that accentuated the importance of deliberative ethics for civic participation; a likely feature of the students’ future professional lives.

Many UAA students will live and work in Alaska and engage with Alaska’s diverse population. UAA students expect that their upper division ethics courses will help them prepare for the real world. Apart from providing key concepts and knowledge of subject matter, applied ethics courses should also expose them to different types of issues and

challenges they will face in a complex and competitive climate of ideas. Critical thinking, cultivating empathy and deliberative ethics skills, and working in teams, become highly valued for they help students come to terms with their own personal beliefs and ways to judiciously and respectfully argue through them. Students who acquire these skills tend to feel enthusiastic about their competency in ethics and empowered throughout their professional lives.

Problem-based training and role-playing are central to learning. They offer students the opportunity to research specific problems through different vantage points and to develop practical and meaningful recommendations for public consumption (Salvador *et al.*, 1995). Role-playing can help students, either as individuals or as members of a community, learn more effective communication modalities which will be helpful when they eventually engage with different publics in their professional lives (Fletcher and Branen, 1993). Through these role-playing exercises, students are exposed to more natural and authentic forums for integrating discussions, textual material and ethics concepts; arguably resulting in better mastery of philosophy and command of their own arguments. Students demonstrate better listening and critical thinking and other-regarding skills, since they have to think on their feet and receive instantaneous peer feedback and evaluation. I have observed that quiet and shy students and those not typically accustomed to talking in class cast their reservations and inhibitions aside. They are more comfortable sharing their personal views and preferences after a safe atmosphere has been established through role-playing activities. In safe spaces, where difficult dialogues can be explored systematically, students tend to be freer to express their real and reasoned views. They can then transfer and model these discursive skills to ethical discussions they may encounter elsewhere.

Early on in the process, the students modeled best practices for ethical engagement. They quickly developed a class code of conduct, a set of expectations for respectful engagement with each other. This code of conduct helped them to shape the learning community and pacify the unsettling nature of peer-to-peer evaluation and confrontation. The research topics on climate change and animal ethics are imbued with diversity of perspectives that at times can occasion turbulent discourses. Role-playing can open up a panoply of emotions, e.g., doubt, anxiety, passion, excitement, hope, that instructors and students may not always be ready for. Interactive performance theatre and ethics roundtables encourage students to experiment with deliberative processes in a safe place (either through pretending cum acting or the cover of an academic thought experiment). During the semester, students persisted in focusing on pressing concerns and how to confront them equitably and with humanity, collectively. They discovered, while enhancing their awareness of local and global issues (especially towards typically marginalized populations), the benefits of promoting healthy discourse communities around complex issues. They have a new awareness of and appreciation for their civic responsibilities in promoting vibrant and balanced ethical discussions in their immediate sphere of influence and throughout their professional lives.

Having frequently employed role-playing and ethics roundtables as participatory and problem-based teaching methods, I can attest that these activities have had a positive impact on student achievement and in meeting the learning objectives of my ethics classes.

ACKNOWLEDGEMENTS

I am grateful to students in my Spring 2025 Environmental Ethics class for their audacity, caring and ingenuity.

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Beyond Climate Litigation: Civic Action as a First Step Toward Democratic Engagement and Environmental Justice

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Abstract:

In the current Anthropocene era, characterized by rapid climate crisis and increasing governmental inaction, strategic climate litigation has emerged as a crucial tool to demand accountability and promote environmental justice (Crutzen & Stoermer, 2021; Stoermer & Crutzen, 2000). However, while these legal actions represent a significant step, they are insufficient on their own. It is imperative that they be complemented with active citizen participation and robust community building to achieve meaningful systemic change (Barber & May, 2023; Vandenhoe, 2018).

Globally, there has been a rise in climate-related legal cases, reflecting growing awareness and action by civil society (Fridays for Future, n.d.; Sußner, 2023). For instance, in 2024, the European Court of Human Rights condemned Switzerland for its inadequate climate action, recognizing that the lack of appropriate measures violates citizens' fundamental rights (European Court of Human Rights, 2024). Such litigations underscore the necessity for governments to assume responsibility in environmental and public health protection (Barber & May, 2023).

Nevertheless, litigation alone does not address the structural causes of the climate crisis nor promote profound transformation in social and political practices (Hickel, 2020; Daly & May, 2018). Therefore, fostering active citizen participation in environmental decision-making and building resilient communities is essential. Initiatives like the implementation of the Aarhus Convention, which ensures access to information, public participation in decision-making, and access to justice in environmental matters, are fundamental to empower civil society and promote inclusive and democratic environmental governance (May & Daly, 2011).

This chapter explores how combining strategic climate litigation and citizen participation can constitute an effective pedagogical model for training future professionals committed to environmental ethics and responsible action (Escajedo San-Epifanio, 2020). Through a case study on climate litigation, it aims to illustrate how these tools can be integrated into higher education to develop critical and ethical competencies in students, preparing them to face the environmental challenges of the Anthropocene (Crutzen & Stoermer, 2021; Barber & May, 2023).

I. INTRODUCTION: FROM STRATEGIC CLIMATE LITIGATION TO CIVIC PARTICIPATION—RETHINKING THE ROLE OF EDUCATION IN ENVIRONMENTAL ACTION

The failure of governments to adequately address climate change has provoked a wave of strategic climate litigation across the globe (Setzer & Vanhala, 2019). These lawsuits—brought by citizens, youth groups, NGOs, and indigenous communities—aim to hold states and corporations accountable for insufficient climate action, and to enforce compliance with national constitutions and international climate obligations (Kotzé, 2016; Peters, 2006). Notably, courts have increasingly recognized the justiciability of climate issues, often linking them with fundamental rights to life, health, and intergenerational justice (Casey-Maslen, n.d.; Daly & May, 2018).

A landmark case in this evolving field was the 2021 ruling by the German Federal Constitutional Court (BVerfG, 2021), which found that Germany's Federal Climate Change Act violated the rights of future generations by deferring emissions reductions and thereby restricting their freedom to act in the future (Voigt, 2021). This judgment marked a turning point: it asserted not only the urgency of immediate state action, but also the principle that climate policy must be fair across generations (Martínez Blanco, 2021; Setzer & Vanhala, 2019).

Yet litigation alone cannot solve the climate crisis. Even successful court rulings often fail to catalyze the structural, political, and cultural shifts required for long-term transformation (Hickel, 2020; Moore, 2011). A broader, deeper response is needed—one that empowers citizens to take collective responsibility for ecological futures and participate meaningfully in shaping them (Barber & May, 2023; Vandenhoe, 2018).

This chapter proposes that education, particularly in universities, must play a central role in fostering the skills, knowledge, and values necessary for this expanded democratic engagement (Escajedo San-Epifanio, 2020). Students need not only technical understanding of climate science or legal precedents, but also the capacity to critically assess governance failures, explore ethical dimensions, and imagine alternative futures through democratic participation (Barber & May, 2023; Daly & May, 2018).

To frame this, it is crucial to understand the evolving architecture of international climate governance. The Kyoto Protocol (1997) represented a top-down, binding approach, primarily focused on emissions reduction obligations for developed countries (Bodansky, 2010). However, its limitations—in enforcement, equity, and global consensus—led to a shift toward the Paris Agreement (2015) (Bodansky, 2016; Keohane & Victor, 2016). The Paris framework embraces a bottom-up architecture based on nationally determined contributions (NDCs), but it has been criticized for its lack of binding enforcement mechanisms and its reliance on political will (Rajamani & Bodansky, 2019). This transformation reflects a broader crisis of multilateral environmental governance and raises pedagogically rich questions about state accountability, policy ambition, and democratic legitimacy (Bodansky, 2016).

The chapter draws on a recent climate litigation case to offer students an opportunity to reflect on these dilemmas (Hoge Raad, 2020; *Juliana v. United States*, 2015). Through guided analysis and participatory activities, students are invited to explore not just the legal

mechanisms involved, but also the limits and possibilities of civic action in the aftermath of such rulings (Fridays for Future, n.d.; Sußner, 2023). Can litigation trigger deeper democratic transformation? What forms of post-litigation engagement—from citizen assemblies to community-led initiatives—might sustain political momentum and societal learning?

This pedagogical intervention includes downloadable classroom materials: a teaching guide with background information and references, and student worksheets designed to provoke ethical deliberation and creative problem-solving (Escajedo San-Epifanio, 2020). The objective is to help students connect the legal and political dimensions of climate action, and to cultivate in them a sense of ethical responsibility, democratic agency, and collective possibility—critical qualities for navigating the Anthropocene (Barber & May, 2023; Crutzen & Stoermer, 2021).

II. THE TRANSITION FROM THE KYOTO PROTOCOL TO THE PARIS AGREEMENT

II.1. From Rio to Kyoto: The Origins of International Climate Commitments

The Kyoto Protocol, adopted in 1997 and entering into force in 2005, was the first major international treaty to set binding limits on greenhouse gas (GHG) emissions (United Nations, 1992; Bodansky, 2010). It was developed under the framework of the United Nations Framework Convention on Climate Change (UNFCCC), an agreement signed at the Rio Earth Summit in 1992, which aimed to stabilize atmospheric GHG concentrations “at a level that would prevent dangerous anthropogenic interference with the climate system” (Brundtland, 1987; United Nations, 1992).

The Kyoto Protocol operationalized this goal by requiring developed countries (Annex I countries)—those historically responsible for the largest share of emissions—to reduce their emissions by an average of 5.2% below 1990 levels during the first commitment period (2008-2012) (Bodansky, 2010). The principle behind Kyoto was “common but differentiated responsibilities” (CBDR): while climate change is a global problem, wealthier nations bear greater responsibility for its causes and therefore should lead in mitigation efforts (Bodansky, 2010; Leff, 2000).

II.2. Challenges and Failures of the Kyoto Protocol

While ambitious in its conception, the Kyoto Protocol faced serious political and practical obstacles. The United States, which was then the world’s largest emitter, signed but never ratified the treaty, arguing that it unfairly excluded major developing countries like China and India from binding obligations (Bodansky, 2010). This weakened the agreement’s legitimacy and global impact from the start.

Moreover, some countries struggled to meet their targets, and the enforcement mechanisms were relatively weak. The flexibility mechanisms—such as carbon trading and the Clean Development Mechanism (CDM)—were meant to make compliance easier, but in practice led to market inefficiencies and accusations of “carbon colonialism” (Lohmann, 2006).

Another major challenge was the division between developed and developing countries, which became increasingly difficult to sustain as emerging economies like China, Brazil, and India grew rapidly and contributed more to global emissions (Victor, 2011). By the end of the first commitment period, global emissions had continued to rise, and the Kyoto Protocol had clearly failed to achieve the deep structural changes needed to avoid dangerous climate change (Victor, 2011; Moore, 2011).

II.3. The Paris Agreement: A New Framework with New Limitations

The Paris Agreement, adopted in 2015 at COP21, was a response to these failures. Unlike Kyoto, it is universally applicable: all countries—developed and developing—are now expected to contribute to climate mitigation through nationally determined contributions (NDCs) (United Nations, 2015; Rajamani & Bodansky, 2019). The goal is to limit global warming to well below 2°C, and ideally to 1.5°C, compared to pre-industrial levels (Rajamani & Bodansky, 2019).

A major innovation of the Paris Agreement is its bottom-up approach. Instead of imposing binding targets from above, each country sets its own emission reduction plan, which is then reviewed and revised every five years in a process known as the “ratchet mechanism” (Rajamani & Bodansky, 2019). The Agreement also includes commitments on adaptation, climate finance, and support for vulnerable countries (Rajamani & Bodansky, 2019).

However, this flexibility comes with trade-offs. The NDCs are not legally binding, and there are no enforcement mechanisms if countries fail to meet their targets. The success of the Paris Agreement therefore depends heavily on political will, public pressure, and transparent reporting mechanisms—not on coercive international law (Bodansky, 2016; Keohane & Victor, 2016).

Despite its limitations, the Paris Agreement is seen as a significant step forward in achieving broader international consensus and providing a framework for more inclusive and iterative climate governance (Bodansky, 2016; Rajamani & Bodansky, 2019). It shifts the focus from top-down compliance to global cooperation, transparency, and accountability (Bodansky, 2016).

III. PUBLIC MOBILIZATION FOR CLIMATE JUSTICE: INTERGENERATIONAL EQUITY AND DEMOCRATIC ACCOUNTABILITY

In the context of the Paris Agreement, which primarily relies on voluntary national commitments, citizen mobilization has become a critical mechanism for advocating for more ambitious climate action (Fridays for Future, n.d.; Sußner, 2023). Movements such as Fridays for Future, initiated by Greta Thunberg in 2018, have galvanized millions globally, emphasizing the urgency of addressing climate change and the moral imperative to protect the rights of future generations (Fridays for Future, n.d.; Martínez Blanco, 2021).

A significant development in this regard is the German Constitutional Court’s 2021 ruling, which acknowledged that insufficient climate action today infringes upon the

fundamental rights of future generations (German Federal Constitutional Court, 2021; Martínez Blanco, 2021). The Court emphasized that one generation should not deplete the carbon budget, leaving subsequent generations with an unfair burden of mitigation efforts (Martínez Blanco, 2021; Voigt, 2021). This landmark decision underscores the legal recognition of intergenerational equity and the necessity for policies that ensure a sustainable and just future for all (Martínez Blanco, 2021; Daly & May, 2018).

These civic actions and legal precedents highlight the growing demand for policies that not only address the immediate impacts of climate change but also uphold the rights and dignity of future generations (Hickel, 2020; Barber & May, 2023). They call for a paradigm shift towards a more inclusive and forward-thinking approach to climate governance, one that integrates ethical considerations and democratic participation at its core (Kotzé, 2016; Vandenhole, 2018).

IV. THE POLITICAL FUNCTION OF STRATEGIC LITIGATION IN DEMOCRACIES: FROM CIVIL RIGHTS TO CLIMATE JUSTICE

Strategic litigation, also known as impact litigation, is a legal strategy employed by marginalized or politically powerless groups to challenge laws, policies, or practices that infringe upon their rights (Botha, 2003; Peters, 2006). Unlike traditional litigation, which is typically initiated to resolve a specific dispute, strategic litigation aims to achieve broader social or political objectives (Peters, 2006; Ginsburg, 2016). The goal is often not just to win a case for an individual or group, but to set a legal precedent or to force systemic change that addresses broader societal issues (Peters, 2006; Botha, 2003).

Historically, strategic litigation has been a powerful tool for minorities and civil society groups to challenge entrenched power structures and advance their rights (*Brown v. Board of Education*, 1954; Botha, 2003). The civil rights movement in the United States, for example, is one of the most notable instances where strategic litigation played a central role in securing legal and social change (*Brown v. Board of Education*, 1954; Peters, 2006). Landmark cases, such as *Moore v. Regents of the University of California* (1990), highlighted ethical concerns and prompted changes in medical law and bioethics standards (*Moore v. Regents of the University of California*, 1990; Daly & May, 2018).

V. STRATEGIC CLIMATE LITIGATION: A GROWING POLITICAL FORCE

In recent years, strategic litigation has become an increasingly important tool in the global fight against climate change (Setzer & Vanhala, 2019; Kotzé, 2016). As governments fail to meet the demands for comprehensive climate action, strategic litigation has emerged as a mechanism to force policy and legislative changes through the judicial system (Voigt, 2021; Sußner, 2023). Climate litigation typically involves cases brought by individuals, communities, or organizations challenging government policies, corporate actions, or failures to adequately address climate change (Hoge Raad, 2020; *Juliana v. United States*, 2015). The goal is often to hold governments accountable for failing to fulfill their international climate obligations, protect citizens' rights, or take effective action to mitigate environmental harm (Pedersen, 2019; Kotzé, 2016).

One key example of strategic climate litigation is the case of Urgenda Foundation v. State of the Netherlands (2015). In this case, the Urgenda Foundation, along with 900 citizens, sued the Dutch government for failing to meet its climate obligations under the European Union's carbon reduction targets (Hoge Raad, 2020). The court ruled in favor of the plaintiffs, ordering the Dutch government to reduce its greenhouse gas emissions by 25% by 2020 compared to 1990 levels, arguing that the failure to act posed a threat to the fundamental rights of the citizens, especially their right to life and health (Casey-Maslen, n.d.; Pedersen, 2019). This landmark case has been hailed as a victory for climate justice and a demonstration of how the judiciary can step in when legislative or executive branches fail to protect the environment (Setzer & Vanhala, 2019).

In addition to the Urgenda case, a growing number of countries are witnessing strategic climate litigation aimed at compelling governments to take action on climate change (Sußner, 2023). In 2020, the Swiss Federal Court ruled in a case brought by the Swiss Youth for Climate group, which challenged the Swiss government's insufficient climate policies (European Court of Human Rights, 2024; Sußner, 2023). This legal victory underscored the increasing role of young people in using legal means to demand stronger climate policies, signaling a trend of youth-led climate litigation that aligns with a broader push for justice for future generations (Fridays for Future, n.d.; Martínez Blanco, 2021). Similarly, cases like *Juliana v. United States* (2015), where 21 youth plaintiffs sued the U.S. government for failing to protect the atmosphere for future generations, are examples of how strategic litigation can address environmental issues while invoking the rights of younger and future generations (*Juliana v. United States*, 2015; Martínez Blanco, 2021).

Strategic climate litigation represents a crucial component of a larger movement that seeks to hold governments accountable and demand a fairer, more sustainable future (Setzer & Vanhala, 2019; Barber & May, 2023). While litigation alone cannot solve the climate crisis, it plays a vital role in shaping public discourse, influencing policy decisions, and creating legal precedents that may push governments and corporations to prioritize climate action (Kotzé, 2016; Voigt, 2021). As climate change continues to threaten the world's ecosystems, strategic litigation will likely remain an essential tool in the global fight for climate justice (Barber & May, 2023; Vandenhole, 2018).

VI. ADOPTING ACTION AFTER STRATEGIC LITIGATION: ENGAGING IN PARTICIPATORY DEMOCRACY FOR LASTING CLIMATE CHANGE

While strategic litigation has played a critical role in holding governments and corporations accountable for their climate-related failures, it is not a sufficient solution on its own to address the climate crisis (Barber & May, 2023; Daly & May, 2018). To ensure that the momentum from legal challenges translates into meaningful, long-lasting action, it is necessary to complement litigation with participatory democratic mechanisms (Vandenhole, 2018; Kotzé, 2016). These mechanisms empower citizens and communities to actively engage in climate decision-making, ensuring that policies reflect diverse voices, especially those of marginalized groups, and uphold both present and future generations' rights to a livable environment (Fridays for Future, n.d.; Martínez Blanco, 2021). Through participatory processes, communities not only contribute to shaping policy but also reinforce a collective commitment to urgent and effective climate action (Kotzé, 2016; Barber & May, 2023).

One key model for participatory democracy is deliberative democracy, which emphasizes structured, inclusive forums where citizens engage in reasoned, respectful dialogue to address critical issues (Daly & May, 2018; Vandenhole, 2018). Deliberative democracy provides a platform for diverse public engagement, fostering a space where people can discuss and decide on climate-related matters with the necessary depth and consideration. This process ensures that policies reflect a broad spectrum of perspectives, facilitating more democratic and just climate solutions (Barber & May, 2023). Citizens' assemblies, climate dialogues, and other participatory frameworks allow the public to directly influence policy choices, making them more legitimate and reflective of collective values (European Court of Human Rights, 2024; Sußner, 2023).

The French Citizens' Convention on Climate (2020) is one such example, where 150 randomly selected citizens were tasked with developing proposals to reduce carbon emissions in France (Rajamani & Bodansky, 2019). Their recommendations, though non-binding, were designed to inform government policy, creating a direct link between the public and legislative action (Rajamani & Bodansky, 2019). Similarly, environmental referendums, such as the Swiss climate referendum of 2021, have proven effective in allowing citizens to directly vote on climate policies (European Court of Human Rights, 2024). These mechanisms provide governments with a clear mandate from the public, pushing them to act on climate commitments that align with the values of their electorate (Vandenhole, 2018).

In addition to formalized channels, grassroots movements and activism remain integral to participatory democracy in the climate context (Fridays for Future, n.d.; Sußner, 2023). Movements like Fridays for Future, driven by young people, have ignited global calls for urgent climate action and have demonstrated how collective action can shift public discourse (Fridays for Future, n.d.; Martínez Blanco, 2021). The involvement of youth and grassroots groups underscores the importance of inclusive decision-making and illustrates how participatory democracy can influence national and international policy agendas (Kotzé, 2016; Barber & May, 2023).

Furthermore, effective participatory democracy in climate action must also address issues of intersectionality, ensuring that climate solutions are equitable and inclusive of all communities (Sußner, 2023; Vandenhole, 2018). Including marginalized groups such as Indigenous peoples, women, and low-income communities in decision-making ensures that climate policies do not perpetuate existing inequalities (Lafaille, 2018; Lafaille, 2019). Indigenous-led initiatives, particularly in regions like the Amazon, exemplify how local knowledge and leadership are vital in preserving ecosystems and driving sustainable climate practices (Lafaille, 2018; Lafaille, 2021). By integrating these voices, participatory democracy can create more holistic, just climate policies that consider the needs of vulnerable populations and the planet (Barber & May, 2023; Kotzé, 2016).

In summary, while strategic litigation plays an essential role in advancing climate justice, it must be complemented by robust participatory democracy to achieve lasting, transformative change (Barber & May, 2023; Daly & May, 2018). By fostering inclusive, democratic engagement, we can ensure that climate policies are just, equitable, and responsive to the needs of all communities (Kotzé, 2016; Vandenhole, 2018). As the climate crisis intensifies, expanding participatory democracy into climate governance is crucial for securing a sustainable and fair future for both people and the planet (Barber & May, 2023; Crutzen & Stoermer, 2021).

Activity block 1. EXPLORING STRATEGIC LITIGATION: FROM HISTORICAL STRUGGLES TO CLIMATE JUSTICE

Activity 1. Historical Case Study Investigation – Strategic Litigation Beyond Climate

Objective: Understand the use of strategic litigation to advance civil or ethical rights in historical contexts.

Instructions:

1. Divide into small groups and choose one historical case of strategic litigation outside climate law. Suggested examples:
 - Brown v. Board of Education (1954, U.S.) – racial desegregation in public schools.
 - Roe v. Wade (1973, U.S.) – reproductive rights.
 - Moore v. Regents of the University of California (1990, U.S.) – bioethics and consent in biomedical research.
2. Research the context, actors involved, legal arguments, and societal impact of the case.
3. Prepare a brief presentation (5-10 minutes) highlighting:
 - How the litigation aimed to create systemic change.
 - Successes and limitations of the strategy.
 - Ethical, political, or social consequences.

Activity 2. Comparative Analysis – Climate vs. Historical Strategic Litigation

Objective: Identify similarities and differences between climate litigation and other forms of strategic litigation.

Instructions:

1. Individually or in pairs, select a climate litigation case (e.g., Urgenda v. Netherlands, Juliana v. U.S., Swiss Youth for Climate case).
2. Compare it with one of the historical cases analyzed in Activity 1. Focus on:
 - Goals of the litigation (rights protection, systemic change, policy reform).
 - Role of affected communities or marginalized groups.
 - Interaction with broader civic mobilization.
 - Legal strategies and reliance on courts versus other political institutions.
3. Write a short report (1-2 pages) summarizing your findings, emphasizing lessons learned from historical litigation that could inform climate strategies.

Activity 3. Strategic Litigation in Practice – Designing a Civic Action Plan

Objective: Apply insights from historical and climate strategic litigation to propose actionable civic engagement strategies.

Instructions:

1. In groups, choose a contemporary climate or environmental justice issue in your country or region.
2. Develop a hypothetical strategic litigation plan to address it, considering:
 - Legal arguments based on fundamental rights.
 - Potential civic participation and community mobilization strategies.
 - Anticipated challenges and ways to overcome them.
3. Prepare a visual or written proposal (1-2 pages + optional diagram) to present to the class, showing how legal and civic strategies can complement each other for lasting impact.

Student Worksheet: STRATEGIC LITIGATION ACROSS CONTEXTS

Instructions:

These activities invite you to explore how strategic litigation has been used historically to advance fundamental rights, compare these cases with climate litigation, and design your own civic action strategy. Work individually or in groups as indicated. Use additional resources to support your analysis.

Activity 1. **Historical Case Study Investigation – Strategic Litigation Beyond Climate (Group Work)**

Objective: Examine the use of strategic litigation to advance civil or ethical rights in history.

Steps:

Choose a historical case of strategic litigation (e.g., *Brown v. Board of Education*; *Roe v. Wade*; *Moore v. Regents of the University of California*).

Research the following:

- Context and societal background.
- Actors and stakeholders.
- Legal arguments and strategies.
- Outcomes and broader impact.

Prepare a 5-10 minute presentation addressing:

- How litigation aimed to create systemic change.
- Successes and limitations of the strategy.
- Ethical, political, or social consequences.

Guiding Discussion Questions:

- Why was this litigation considered “strategic”?
- Which groups benefited most from the legal outcome, and who remained marginalized?
- Could this case have achieved change without going to court?
- How did the broader social or political context influence the litigation strategy?

Notes:

Case chosen: _____

Key actors: _____

Main legal arguments: _____

Outcome and impact: _____

Activity 2. Comparative Analysis – Climate vs. Historical Strategic Litigation (Individual or Pair Work)

Objective: Identify similarities and differences between historical strategic litigation and climate litigation.

Steps:

1. Select a climate litigation case (e.g., Urgenda v. Netherlands (2015), Juliana v. United States (2015), KlimaSeniorInnen v. Switzerland (European Court of Human Rights, 2024), Youth Climate Case v. Portugal (European Court of Human Rights, 2024), German Federal Constitutional Court ruling on climate (BVerfG, 2021).
2. Compare it with your historical case from Activity 1, focusing on:
 - Goals of the litigation.
 - Role of communities or marginalized groups.
 - Interaction with civic mobilization.
 - Legal strategies and institutional engagement.
3. Write a short report (1-2 pages) summarizing your analysis.

Notes:

Climate case chosen: _____

Similarities to historical case: _____

Differences from historical case: _____

Lessons for future strategies: _____

Activity 3. Strategic Litigation in Practice – Designing a Civic Action Plan (Group Work)

Objective: Apply insights from historical and climate litigation to propose an actionable civic strategy.

Steps:

1. Choose a contemporary climate or environmental justice issue.
2. Develop a hypothetical strategic litigation plan addressing it, considering.
3. Legal arguments based on fundamental rights.
4. Civic participation and community mobilization strategies.
5. Anticipated challenges and solutions.
6. Prepare a visual or written proposal (1-2 pages + optional diagram) to present in class.

Notes:

Chosen issue: _____

Legal strategy: _____

Community/civic actions: _____

Challenges and solutions: _____

Activity block 2. CLASSROOM ACTIVITY: INTERGENERATIONAL CLIMATE JUSTICE AND CIVIC RESPONSIBILITY

Target audience: Undergraduate students from any academic discipline

Duration: 90-120 minutes

Format: Small-group discussion and plenary debate

Learning outcomes:

- Understand the concept of intergenerational justice and its relevance to climate policy.
- Analyze the limitations of current international agreements (Kyoto, Paris).
- Explore the role of citizen engagement and legal mechanisms in climate governance.
- Develop ethical arguments and practical proposals for democratic participation.

Part 1. Contextual Briefing (15 minutes)

The teacher introduces:

- The transition from the Kyoto Protocol to the Paris Agreement.
- The German Constitutional Court ruling on the rights of future generations.
- The rise of global youth-led movements (e.g., Fridays for Future).

Optional material (downloadable handout):

- Timeline comparing Kyoto and Paris.
- Summary of the German ruling.
- Quotes from climate justice activists.

Part 2. Group Work – Ethical Deliberation (45 minutes)

Scenario:

The year is 2027. Your country has failed to meet its climate targets, and greenhouse gas emissions continue to rise. Recent extreme weather events—including record heatwaves, floods, and wildfires—have caused significant economic losses and affected vulnerable communities disproportionately. Despite being a signatory to the Paris Agreement, the government's policies remain insufficient to stay below the 1.5°C trajectory.

A coalition of citizens—including youth activists, scientists, and concerned families—is preparing a constitutional challenge. They argue that the state is violating the rights to life, health, and a safe environment—not only for current residents but also for future generations. The challenge raises difficult questions about national economic priorities, energy security, and legal accountability.

Instructions:

Each group plays the role of a different stakeholder:

- Climate youth activists.
- Government officials.
- Fossil fuel industry representatives.
- Constitutional lawyers.
- Members of an indigenous community.

Each group must:

- Identify their main interests and ethical arguments.
- Prepare a short intervention (3 min) on whether they support or oppose the challenge, and why.
- Suggest concrete actions that balance national interests and intergenerational justice.

Part 3. Plenary Assembly – Role-played Climate Hearing (30 minutes)

Students present their stakeholder positions in a mock public hearing. After the presentations, the class votes on whether the court should uphold the citizens' claim—and under what conditions.

Optional Homework / Reflection Assignment

Students write a 500-word individual reflection:

- What position did you personally agree with most?
- What did you learn about balancing ethical responsibility with political and legal constraints?
- How could your future profession contribute to intergenerational climate justice?

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The Biotech Game: A Negotiation Simulation on the International Governance of Biotechnology and a Science Diplomacy Deliverable

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Summary:

I. Introduction. II. Negotiation Simulation and Interdisciplinary Education. III. Negotiation Simulation as a Science Diplomacy Deliverable. IV. Relevance of Negotiation Simulation for Biotechnology. V.- Methodology. VI. Description of the Biotech Game. VI.1. Key Roles (Countries). VI.2. Key Roles (NGOs). VI.3. Phases of the Game. VI.4. Results. VII. Discussion. VII.1. Negotiation Simulations as a Science Diplomacy Lab. VII.2. Interdisciplinary Tools. VII.3. Course of Action for Bio-Diplomacy. VII.4. Future Direction. References.

I. INTRODUCTION

The international regulation of agricultural biotechnology, including gene-edited crops, involves a complex multistakeholder interaction comprising academia, industry, regulators, diplomats, policy makers, and civil society. However, at the practical level, the integration of scientific knowledge, policy perspectives, and diplomacy is less than optimal (Adeel and Jones, 2024; Jones *et al.*, 2022). There are several different conventions/protocols within the UN-based multilateral order regulating different aspects of biotechnologies. For instance, the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Kinderlerer, 2008) regulates the environment-related impacts, whereas the International Plant Protection Convention, overseen by the Food and Agriculture Organization of the UN, deals with plant health and handling the spread of plant pests (Stewart and Johanson, 1998). These Conventions/Protocols are rich interfaces of science-policy interaction and feature science advice structures, but the impact remains to be optimized.

One of the key international frameworks pertaining to the regulation of agricultural biotechnology (and gene-edited crops) is the Convention on Biological Diversity and the Cartagena Protocol on Biosafety. The Convention, which came into force in 2003, provides guidelines and regulatory templates for risk assessments and the handling of ‘Living Modified Organisms’ (LMOs), the term used in the Protocol to define genetically modified organisms (Eggers and Mackenzie, 2000).

The regulatory landscape encompasses a diverse array of stakeholders, each with its own unique perspectives on the commercial use of biotechnology products. Furthermore, the progress of agricultural biotechnology has involved assimilation of knowledge from various disciplines, emphasizing the notion that its interdisciplinary nature requires practitioners and regulators to possess some semblance of policy imperatives for a cohesive regulatory architecture. The situation is exacerbated by the fact that regulations are not able to keep pace with technological developments, creating institutional drift (Rabitz, 2019) and ambiguities for technology developers.

To effectively mobilize a common understanding of the nuances of international governance and regulation of agricultural biotechnology (including gene-edited crops), innovative engagement tools are required. Role-play simulations have emerged as a powerful educational tool to facilitate an understanding of complex processes, such as the international regulation of biotechnology, for interdisciplinary audiences. Role-play simulations link participants with realistic scenarios by assigning them roles such as policymakers, scientists, industry representatives, or members of civil society organizations (Blatner, 2009; Mühlen, 2015; Sterman *et al.*, 2015).

There is a long history of using role-play simulations and similar teaching methods to tackle public policy challenges, helping to advance interdisciplinary problem-solving and generate adaptive action (Brewer, 1978; Haug *et al.*, 2011; Mayer, 2009).

II. NEGOTIATION SIMULATION AND INTERDISCIPLINARY EDUCATION

Negotiation simulations are a significant pedagogical tool in the interdisciplinary education toolkit, enabling the bridging of theory and practice. Through the involvement

of participants from various disciplines, skills including communication, problem-solving, and adaptability, can be developed which are instrumental in addressing complex real-world problems (Muukkonen & Kajamaa, 2024).

Negotiation simulation is also an approach that encourages interaction between academic disciplines, particularly by bringing together science and engineering scholars with social science and policy scholars (Ehrlich, 2011; Susskind and Corburn, 2000). By adopting a role, participants are challenged to assimilate policy information. Through this process, the simulation creates an experiential learning environment that relates to both content-based and process-based knowledge. Such exercises also aid in skill building for interdisciplinary experiences through the evaluation of diverse perspectives, multiple consequences, and scenario forecasting (McLaughlin *et al.*, 2002). Experiential learning theory, as articulated by Kolb (1984), posits that deep learning arises from the transformation of experience through reflection. Role-play and simulations embody this principle by placing learners in decision-making roles where they must act, reflect, and adapt.

Simulations provide a platform for building knowledge on addressing real-world challenges (Warrilow, 2017). Science plays an important role in international negotiations, an aspect which has been clearly demonstrated in academic research (Pielke Jr, 2007). However, this perspective can be cumbersome to convey in a classroom setting. It has been shown that incorporating scenario-based education into the regular curriculum, especially in STEM education, can enable the development of competencies to apply theoretical principles in a policy context (Lawless *et al.*, 2018). There is also a shift from lecture-based teaching approaches towards ‘learner-centred environment’ (Miseyanni *et al.* 2018).

Negotiation simulations enable students to explore and understand power dynamics in interdisciplinary collaborations, making them better equipped to manage conflicts and build consensus (Schnurr *et al.*, 2014). By replicating organizational scenarios, simulations prepare students for the complexities of real-world professional environments. They help simulate the collective decision-making process, which is crucial for interprofessional success (Elendu *et al.*, 2024).

The increasing heterogeneity of policy-related games and negotiation simulations is indicative of the growing interest in promoting new educational tools to improve learning outcomes across various settings (Gerlak *et al.*, 2018). Role-play simulations are an iteration of negotiation simulations, in which participants assume specific roles, often similar to real-world settings, and take on stakeholder positions to replicate real-life policy-making processes (Rumore *et al.*, 2016). These approaches have been used in policy debates to find potential solutions to socio-ecological disputes and have received increasing attention in the last two decades (Andreotti *et al.*, 2020; Song *et al.*, 2021; Villamor *et al.*, 2014).

III. NEGOTIATION SIMULATION AS A SCIENCE DIPLOMACY DELIVERABLE

Over the last two decades, the concept of science diplomacy has gained traction in international and interdisciplinary discourse (Flink and Rüffin, 2019). At its best, the concept aims for a ‘solutionist’ approach, seeking to build bridges between academic and policy stakeholders by educating and sensitizing them to develop a common understanding of global challenges (Ruffini, 2017).

Science diplomacy is a rapidly growing field of research and practice, reinforcing the intersection of science, technology, and international affairs to address global challenges (Gluckman *et al.*, 2017). The current landscape of science diplomacy education is fragmented, with a focus on specialized training, academic courses, or workshops offered at educational and international scientific institutions. Nonetheless, a central theme is ensuring skill transferability between academic actors (scientists) and policy actors (diplomats).

Scientists and diplomats make for an optimal interdisciplinary exchange as both could benefit from skill exchange. This is crucial since scientists and diplomats are generally siloed; it is necessary to bridge the divide by developing common capacity (Su *et al.*, 2024). It has been demonstrated that one approach to train scientists and diplomats together is through experiential learning methods, including negotiation simulations, to comprehend the intersection between science and policy in the real world (Stokes and Selin, 2016).

Mauduit and Gual Soler (2020) have also reinforced, in their proposal for a science diplomacy curriculum, that practical science diplomacy skills, including negotiation, cross-cultural education, and science communication, can be developed through negotiation simulations. This allows participants to identify points of convergence and divergence between science and policy.

On a related note, it is pertinent to note that deliberations and discourse surrounding new and emerging technologies is impacted by misinformation and a lack of effective science communication (Jiang and Feng, 2019). Deliverables of science diplomacy in the form of negotiation simulations and training are critically important in bringing together diverse stakeholders and facilitating engagement (Adeel, 2022).

Simulations offer valuable insights into the dynamics of multilateral negotiations, particularly in areas that require international agreements, such as biotechnology, marine biodiversity, and environmental treaties. These exercises foster a shared understanding and encourage collaborative problem-solving. Simulations demonstrate the interconnectedness of science and diplomacy, exemplified in cases like the ‘Mercury Game’, which explores science-policy interactions in environmental negotiations. Such tools help participants appreciate the policy implications of scientific research (Stokes & Selin, 2016).

Diplomatic simulations train participants in essential soft skills, including consensus-building, conflict resolution, and strategic planning. These competencies are crucial for addressing global issues through science diplomacy frameworks. Studies assessing the pedagogical value of simulations, such as those used in Arctic governance education, demonstrate their effectiveness in teaching students about the intersection of science and policy (Berkman *et al.*, 2017). Theoretical contributions highlight the role of negotiation as a foundational element of diplomacy. Simulations are instrumental in modelling the decision-making dilemmas faced by policymakers (Alarcón-López *et al.*, 2025).

Thus, in many ways, negotiation simulations can be the ‘labs’ for developing science diplomacy.

IV. RELEVANCE OF NEGOTIATION SIMULATION FOR BIOTECHNOLOGY

Biotechnology education can greatly benefit from negotiation simulations as a pedagogical tool due to the multistakeholder involvement and the fragmented regulatory nature of the field. Biotechnology discourse often grapples with contentious and heterogeneous socio-ethical issues. Negotiation simulations can immerse participants in scenarios that require them to balance innovation with regulatory concerns.

The biotechnology sector encompasses a diverse range of stakeholders, including scientists, policymakers, industry leaders, and public interest groups. Negotiation simulations mimic real-world scenarios in which participants must address competing priorities, such as public health versus economic gain (Sun and Theussen, 2023). Biotechnology is highly regulated, with differing legal requirements across countries. Simulations can teach students to navigate regulatory and policy paradigms by simulating interactions related to global governance aspects such as the Sustainable Development Goals (Haneklaus *et al.*, 2025).

The practice and regulatory paradigm of biotechnology involves several stakeholders with various aspects of epistemic authority as well as policy competence. In such a case, negotiation simulations provide an ideal template for not only imparting interdisciplinary education but also facilitating interactions between multi-varied competence stakeholders.

Furthermore, biotechnology challenges such as pandemics and vaccine equity are global in scope. Simulations provide insights into negotiating international agreements, such as equitable vaccine distribution. This has been demonstrated in a recent negotiation simulation related to the WHO Pandemic Agreement by Smith *et al.*, (2025).

Policy games are also useful for communicating complex aspects, such as intellectual property rights, another contentious domain from the commercial perspective of biotechnology. Simulations enable students to practice negotiating licensing agreements, patent rights, and royalty structures (Klaw, 2016; Liu *et al.*, 2021). Communicating complex biotechnology concepts to non-expert stakeholders is crucial. Simulations develop these skills, preparing students for public engagement and advocacy (Jasanoff, 2012).

There are at least nine different conventions/protocols within the UN-based multilateral order regulating different aspects of biotechnologies. For instance, the Cartagena Protocol on Biosafety to the Convention on Biological Diversity regulates environmental-related impacts, whereas the International Plant Protection Convention, overseen by the Food and Agriculture Organisation of the UN, deals with plant health and the control of the spread of plant pests. These Conventions/Protocols are rich interfaces for science-policy interaction and feature science advice structures, but their impact remains to be optimized (Adeel, 2022).

One crucial missing link is a cross-treaty engagement mechanism to harmonize essential aspects, such as definitions related to new biotechnologies (gene-editing) and risk regulatory standards. There is also the issue of treaty conflict (Cartagena and WTO Phytosanitary Measures), leading to a regulatory deadlock (Zhao, 2020). Science diplomacy, through deliverables such as negotiation simulations, can be an enabler in this context by facilitating cross-stakeholder interactions and optimizing the utilization of available science advice mechanisms.

Plant-based gene-editing provides an ideal foil for negotiation/role-play simulation and policy games as it has all the necessary ingredients – diverse stakeholders, contentious

positions, and a fragmented regulatory landscape. Furthermore, little work has been done to develop negotiating simulations for agricultural biotechnology, and none for plant-based gene-editing (*at the time of running the first Biotech Game iteration in 2021*). Furthermore, there is a clear association between science diplomacy deliverables and science communication of agricultural biotechnology.

The Biotech Game role-plays the scenario of regulating plant-based gene editing within the context of the Cartagena Protocol on Biosafety, which plays a key role in the development of national regulatory architectures that relate to the use, development, and commercialization of biotechnology.

V. METHODOLOGY

Negotiation simulations rely on structured, immersive learning methodologies that combine role-playing, real-world scenario modelling, and iterative reflection to facilitate effective learning. This method is particularly effective in disciplines such as biotechnology, diplomacy, and international relations, where theoretical knowledge must be applied in dynamic, real-world contexts. Figure 1 shows a breakdown of the methodologies used in negotiation simulations.

Flowchart: Methodology in Negotiation Simulations

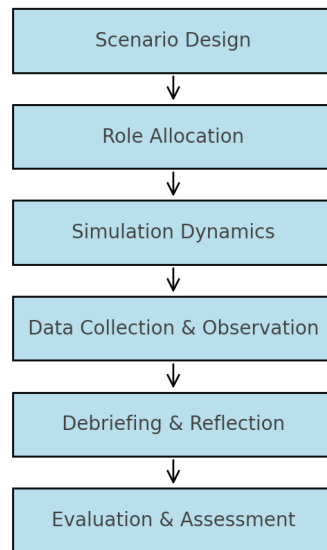


FIGURE 1

Flowchart depicting various stages in the development of a negotiation simulation

The design of the simulation involves curating relevant content, whether real or inspired by real or fictitious scenarios, which aligns with specific learning objectives. Such scenarios encompass attributes including a triad of dilemmas – policy, regulatory, and

ethical, as well as managing stakeholder interests. Further complexity can be added through incorporating factors such as geopolitical realities and economic constraints.

Beyond the philosophy of negotiation simulations, a significant factor is the allocation of roles, which should be diverse enough to address the policy question at hand comprehensively. The briefing material is also developed to convey stakeholder position and power dynamics. Addition of power dynamics helps to ground the role-play activity in real-world setting constraints. Key iterative stages of any simulation/role play include opening statements, problem framing, bargaining and decision making. Dynamic elements, such as evolving scenarios or unexpected challenges, are introduced to test adaptability (Raiffa, Richardson & Metcalfe, 2002).

VI. DESCRIPTION OF THE BIOTECH GAME

The Biotech Negotiation Simulation (or, simply, The Biotech Game) is a multiparty role-play designed to help participants actively learn about science-policy interactions in the context of global environmental treaty-making challenges.

The centerpiece of this negotiation simulation is the Cartagena Protocol on Biosafety to the Convention on Biological Diversity. The Game explores the complex interplay between science, policy, and politics, and is suitable for audiences with diverse scientific and policy backgrounds at various educational levels. For scientists and science/engineering participants, it introduces global biotechnology policy-making and illustrates ways to ensure that science is taken seriously in political decision-making. For those with policy backgrounds, including students of international relations and science policy, the simulation examines the key role scientific and technical information plays in policy-making.

The format of this session is designed to mimic the COP-MOP, which is the meeting of the Parties to the Protocol. The Conference of the Parties serves as the meeting of the Parties to the Protocol (COP-MOP), which currently meets every two years in conjunction with the regular meetings of the Conference of the Parties (COP) to the Convention on Biological Diversity. To date, the COP-MOP has held nine meetings.

Under the COP-MOP, the participants would discuss the following issue over a course of 2-3 hours:

—How should we regulate the products of New Breeding Technologies such as gene-editing technology?

As a resource, the relevant section of the Cartagena Protocol is provided. At the end of the discussion/negotiation, participating countries can vote on the following options:

1. Retain the current regulations (No change—all gene-edited products regulated as GMOs)
2. Amend the current regulations and exempt genome/gene editing (all variants) from regulation (De-regulate SDN-1 gene editing only)
3. Amend the current regulations, by introducing some, but not all of the variants in Option 2. (De-regulate SDN-1 and SDN-2 gene editing)

The majority of participants represent countries that are key stakeholders in global biotechnology policy. Each country's position is based on its political, economic, and scientific priorities, as well as its stance on the regulation of genetically modified organisms (GMOs) and gene-editing technologies. For the simulation, the following countries/ organizations/ institutions are role-played:

VI.1. Key Roles (Countries)

a) Brazil:

- Prioritizes agricultural exports, with a focus on maintaining access to international markets.
- Balances innovation in biotechnology with environmental concerns, particularly biodiversity protection under the Cartagena Protocol.

b) Canada:

- Supports biotechnology as a driver of innovation in agriculture and industry.
- Advocates for a science-based regulatory approach, emphasizing flexibility to accommodate advances in gene-editing technologies.

c) European Union (EU):

- Favors stringent regulations, emphasizing consumer safety and environmental protection.
- Advocates for the precautionary principle, requiring robust evidence before deregulating any gene-editing technologies.

d) United States:

- Supports deregulation of gene-editing technologies like SDN-1 and SDN-2 to promote innovation and market competitiveness.
- Focuses on science-based policies and reducing regulatory barriers to facilitate international trade.

e) Australia:

- Aligns with other agricultural exporters such as Canada and the United States, supporting science-driven regulations.
- Prioritizes balancing economic growth through biotechnology with environmental safeguards.

f) United Kingdom:

- Strives for leadership in biotechnology innovation post-Brexit.
- Promotes a moderate approach, supporting deregulation of less risky technologies (e.g., SDN-1).

g) New Zealand:

- Advocates for stringent environmental protections and supports the precautionary principle.
- Focuses on maintaining its GMO-free branding for exports.

h) South Africa:

- Balances the need for agricultural innovation to address food security with concerns about biodiversity.
- Seeks to align with other developing countries while engaging with major biotechnology exporters.

NGOs represent non-state stakeholders who bring ethical, environmental, and industry-specific perspectives to the negotiations. Their primary role is advisory, and they do not vote during the final decision-making phase.

VI.2. Key Roles (NGOs)

a) Global Industry Coalition:

- Represents biotechnology companies and industry associations.
- Advocates for deregulation of gene-editing technologies to accelerate innovation and reduce costs for developers.
- Opposes policies that could impose additional regulatory burdens or hinder trade.

b) German Federation of Scientists:

- Focuses on the ethical implications of gene-editing.
- Advocates for stringent regulations to ensure safety and prevent unintended consequences.
- Promotes public engagement and transparency in biotechnology policy-making

Participants are designated different roles and provided with a confidential country/institution position which will serve as their template for discussion. (*The position documents*

provided are actual details provided to negotiating teams, and reflect the quality of the information that different national/NGO negotiators have at their disposal).

VI.3. Phases of the Game

1. Chair's Welcome and Opening Statements:

- The chair introduces the purpose of the meeting and outlines the structure of the negotiations.
- Participants deliver 2-3-minute opening statements reflecting their country's or NGO's position on gene-editing regulation.

2. Formal Negotiations:

- Participants discuss key issues, focusing on their preferred regulatory options:
 1. Retain current regulations (all gene-edited products regulated as GMOs).
 2. Amend regulations to exempt SDN-1 products.
 3. Amend regulations to partially deregulate SDN-1 and SDN-2 products.
- Negotiations emphasize the use of scientific data and the identification of information gaps.

3. Breakout Discussions:

- Participants engage in informal, smaller-group discussions for 20-30 minutes.
- These sessions facilitate deal-making and the exploration of potential compromises.

4. Final Negotiations:

- Participants reconvene to seek consensus on all issues.
- Outcomes may include formal agreements or acknowledgement of unresolved differences.

5. Debriefing:

- The simulation concludes with a discussion of participants' experiences, the decision-making process, and reflections on how their views have evolved.

The spectrum of role-playing countries, as well as NGOs, is designed to incorporate all spectrums of views related to the regulations of agricultural biotechnology, and ranges from liberal to permissive to stringent regulatory architectures.

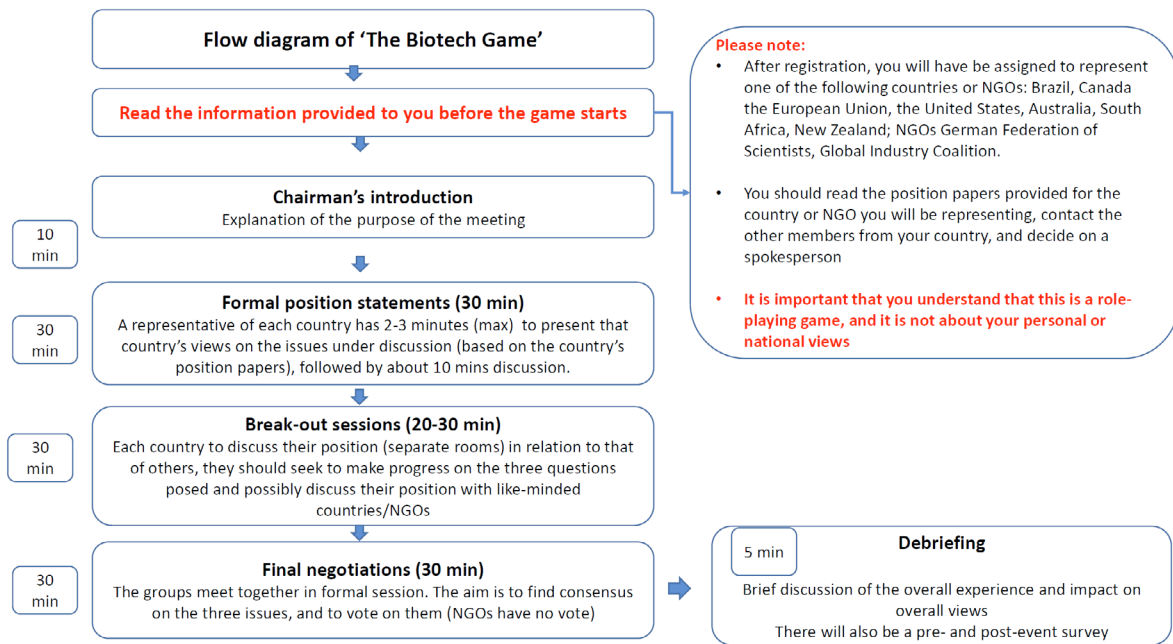


FIGURE 2
Flowchart depicting the various stages of the Biotech Game

VI.4. Results (Quantitative & Qualitative Analysis)

Over the course of three years, (2019 – 2022), eight major iterations of the simulation were run across diverse institutional settings, reaching a combined participant pool of over 360 individuals (n = 363) from Asia, Europe, and Australia.

The analysis includes data acquired primarily from surveys focusing on learning outcomes related to subject knowledge, science diplomacy awareness and skill development in the negotiation, communication and networking.

TABLE 1
Summarises the key iterations of the Biotech Game, reflecting its multi-institutional diffusion and evolving pedagogical scope

Host Institution / Event	Context / Audience	Year	Format	Participants (N)
Murdoch University	Science Diplomacy Workshop	2019	In-person	30
Australian National University	Science Diplomacy Workshop	2020	In-person	26
Foreign Service Academy, Islamabad	Incoming Diplomats (Ministry of Foreign Affairs, Pakistan)	2020-2021	In-person	46 (26 + 20)
Genes & Machines Bootcamp	Policy Bootcamp on Science and Diplomacy	2020	Virtual	22
Learners Republic Policy Fellowship	Science Diplomacy Cohort	2021-2022	Virtual	30

Host Institution / Event	Context / Audience	Year	Format	Participants (N)
International Service for the Acquisition of Agri-biotech Applications	International virtual sessions (biosafety, regulation, communication)	2021	Virtual	77
ISAAA / Asian Short Course on Agri-biotechnology, biosafety regulation, and communication (2021)	Educational	2021	Virtual	60
ISAAA / Asian Short Course on Agri-biotechnology, biosafety regulation, and communication (2022)	Educational	2022	Virtual	12
International Workshop on Policy Considerations for Gene Editing – Asian & Australian Perspectives	Science policy discussions on regulations	2022	In-person	30

As is quite clear from the tabulated data, an effort was made to engage diverse stakeholders, ranging from academia to policy actors. In context of the COVID-19 pandemic, a virtual format was also used.

Survey responses (n = 363) indicate consistently high self-assessed learning outcomes across all knowledge categories (Table 2).

The data show very strong perceived learning effects, particularly in the domain of international biotechnology law and governance, which achieved the highest agreement score (M = 4.74). Across cohorts, the most substantial gains were in communication and networking, whereas negotiation and diplomacy scored equally (M = 4.57).

TABLE 2
Mean Knowledge Gains (Likert Scale, 1-5)

Survey Statement (n= 363)	Average level of agreement (out of 5)
My knowledge on Biotechnology and its new applications (genome editing) increased during the workshop	4.57
I learned about how science and diplomacy are responding to the challenges we currently face for agricultural biotechnology	4.48
My knowledge of the 'Cartagena protocol' and international law on biotechnology increased during the workshop	4.74
Skill Development	
Negotiation	4.57
Diplomacy	4.57
Communication	4.7
Networking	4.67

Furthermore, correlation analysis between skill and knowledge domains (Pearson r) revealed significant positive relationships:

- Knowledge of biotechnology ↔ negotiation skill: $r = 0.78$ ($p < 0.01$)
- Understanding of science–diplomacy linkages ↔ communication skill: $r = 0.73$ ($p < 0.01$)

This correlation suggests that as participants gain a deeper understanding of the nuances of the regulatory architecture related to agricultural biotechnology, they also appear to become more effective negotiators and communicators.

From the **debriefing sessions**, the following aspects were evident:

- The participants generally demonstrated a better understanding of biosafety jargon, including in the context of the Cartagena Protocol, during the closing plenary session compared to the start.
- The role switching was a key attribute in developing perspectives related to science and diplomacy. Some participants found it difficult to role-switch or move beyond their perceived understanding of the issue. This fostered empathy and understanding of the complexity of the policy-making and negotiation processes.
- Participants understood the importance of science communication in the process, with many sharing that they improved their ability to articulate complex scientific processes (such as gene-editing) as a means to improve policy discussions.
- Participants also drew on key aspects such as the capacity asymmetry in terms of the regulatory architecture of different countries and the need for developing international collaboration under the Cartagena Protocol.

VII. DISCUSSION

The study explored the use of role-play negotiation simulations around the Cartagena Protocol to improve learning outcomes related to understanding regulatory decision-making for gene-edited plants.

VII.1. Negotiation Simulations as a Science Diplomacy Lab

The results from the various iterations of the Biotech Game clearly indicate gains across knowledge and skill competences. This substantiates the claim that negotiation simulations and role-play games can reliably develop science diplomacy competencies by merging realistic decision contexts with policy questions. In the Biotech Game, the role-play of the COP–MOP under the Cartagena Protocol provides a realistic anchor in which participants can deliberate on a key policy question—how to regulate gene-edited crops. The Game has all the key ingredients for a science diplomacy setting—a multilateral treaty and a technical subject requiring inputs from experts. This is in line with earlier study done by Stokes and Selin (2016).

Furthermore, the context aligns well with the Science Diplomacy triptych framework—science in diplomacy, diplomacy for science, and science for diplomacy. In the Biotech Game, participants learn about biosafety governance and practice advising under uncertainty— all key aspects of science diplomacy. This also aligns with the use of negotiation simulation as a science diplomacy curriculum/knowledge toolkit, as explained by Mauduit and Gual Soler (2020).

VII.2. Interdisciplinary Tools

As has been shared earlier, governance of agricultural biotechnology is steeped in complex scientific policies. The lag between technology evolution and regulatory architecture compounds the effect. The prevalent regulatory heterogeneity and moral plurality further add to the governance challenge. The Biotech Game also attempts to examine the aspect that divergent approaches to regulating gene-edited crops, particularly in light of the definitional framing of the Cartagena Protocol, produce issues that cannot be resolved solely by technical perspectives.

The Biotech Game illustrates that by learning the technical and policy vocabularies and identifying compromise formulas, participants can realize the need for informed and interdisciplinary dialogue as they way forward for global biotechnology governance.

From a pedagogical point of view, the scenario authenticity with regulatory triggers (vis-à-vis gene editing) is consistent with earlier findings that volatility and uncertainty drive the transfer of negotiation learning.

The Biotech Game has also facilitated conceptual, procedural, and epistemic development, an intended outcome of negotiation simulations and role-play. The conceptual knowledge part stemmed from information related to the Cartagena Protocol, enabling participants to learn about various regulatory triggers. In addition to knowledge about the Protocol, the procedural setting of the COP-MOP, and how multilateral negotiations unfold in real life, allowed participants, especially scientists, to understand at which juncture technical information and scientific advice would be most useful.

VII.3. Course of Action for Bio-Diplomacy

From a biotechnology diplomacy perspective, three practice-related conclusions emerge from the Biotech Game. The nature of the role play allows scientists to articulate risk in policy concerns, and policy background participants (such as diplomats) reasons based on scientific knowledge. This is indicative of the interdisciplinary fluency and bilingual capacity that science diplomacy demands. (Turekian and Gluckman, 2024).

Secondly, the role-play through the segments, including the informal discussions to manage conflicting negotiating positions, creates an environment that fosters trust and helps develop a consensus. Stokes and Selin (2016) have described such role-play simulations as trust accelerators.

Considering that, under the aegis of the Cartagena Protocol, there has yet to be a decision on gene-edited plants, the Biotech Game provides a policy innovation environment

that allows participants to discuss possible regulatory futures. This aligns well with anticipatory science diplomacy, an emerging paradigm that explores technology and policy across time horizons with the objective of de-risking (Porsdam, H., & Porsdam, S., 2024).

Biotech negotiations are not only about facts; they are also about who gets to define credible science (epistemic legitimacy), which ethical frameworks are privileged (normative authority), and whose voices shape the procedures (procedural justice). The Biotech Game made these layers visible. Within the conduct of the Game, the role of NGOs also became important as they could serve as evidence bridges for delegations. Negotiators had to reconcile innovation with risk to reach a consensus decision.

Another key lesson for bio-diplomacy is building towards anticipatory science diplomacy and temporal literacy. The scenario in the Biotech Game builds on the use of foresight to prototype governance for emerging biotechnologies, such as gene editing. The Biotech Game cultivated temporal literacy: the ability to negotiate across time horizons by linking near-term safeguards to long-term societal trajectories. Similar gains have been observed in climate negotiations when role-play is coupled to dynamic models (Sterman *et al.*, 2015; Rooney-Varga *et al.*, 2018).

VII.4. Future Direction

In light of the study, the following are key courses of action and recommendations for future direction:

The study has demonstrated the potential of role-play and negotiation simulation in enhancing literacy about the regulatory ecosystem of biotechnology. There is a need to popularize this as a pedagogical tool in biotech education as well as to promote in interdisciplinary fields of study such as Science Communication.

More interfaces are required of knowledge and policy actors (scientists and diplomats) in the context of multilateral discussions under the Cartagena Protocol. It is essential that the Treaty Secretariat effectively incorporates science diplomacy as a field of expertise when negotiating binding rules related to biotechnology.

Anticipatory science diplomacy can be used to transform the Biotech Game into a multilayered simulation examining a range of scenarios, from plant-based gene editing to the deployment of gene drives.

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In the *Anthropocene*—an era defined by profound human-driven transformations of Earth's systems—higher education faces an urgent challenge: to cultivate ethical awareness, critical reflection, and responsible action alongside the production and transmission of knowledge.

This volume brings together an international group of European scholars who, through a transdisciplinary lens, explore innovative ways of integrating ethics, sustainability, and civic engagement into university teaching. Combining theoretical insight with classroom-based practice, the chapters draw on fields ranging from constitutional law and environmental humanities to food ethics, education, and political theory.

Through climate litigation case studies, role-playing exercises, bioethics debates, literary analysis, and participatory tools such as Democs Cards, the book illustrates how ethics education can become a transformative force in preparing students to navigate—and act within—a world shaped by climate crises, social inequalities, and democratic challenges.

The book has been made possible thanks to the support of the EU-FRAMES TransRESEARCH Group, dedicated to the study of innovative regulatory frameworks in the European Union and to the structural and dynamic tensions of its multilevel governance model from legal-constitutional, socio-economic, and political perspectives. It also connects with the VegEquity project (Spanish Ministry of Science, Innovation and Universities) and the *Urban Erika* research group on Food and Society, focused on food sovereignty, sustainability, and justice.

Through interdisciplinary and experiential approaches, this volume encourages learners to confront complexity, question assumptions, and imagine alternatives—affirming that education is not only about understanding the world, but about equipping future generations to change it.