Research Article

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The EU and environmental education: a multimodal ecological discourse analysis

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Abstract: In the last few years, the European Union (EU) has been creating a wide range of educational resources for teachers and students to encourage discussion in class on sensitive issues such as environmental protection and sustainability. Following the tradition of multimodal discourse analysis and research on ecolinguistics, this study aims to analyse the webpage "Environment, climate and energy", from the EU website *Learning Corner*, focussing on a sample of informative and didactic resources aimed at explaining the institution's environmental policies to younger generations. In particular, the analysis will try to detect the main verbal and visual discursive strategies employed by the EU in order to communicate the institutional discourse on environmental protection to the young and develop eco-friendly consciousness. Furthermore, the research will also take into account the intersemiotic relation of the collected data and see whether the EU employs any positive discursive features as alternatives to the mainstream environment discourses to promote sustainability and sensitize young citizens to it.

Keywords: eco-awareness in class; ecolinguistics; multimodal discourse analysis; the European Union

1 Introduction

The effects of climate change, such as extreme weather including heat waves and droughts, are significantly recurrent in Europe and worldwide. This affects not only biodiversity and different sectors of the economy but also people's health and well-being. Moreover, the COVID-19 pandemic has reminded us that our lives are entangled with that of the planet's ecosystems and demonstrated our unpreparedness to face global crises.

Over the past few years discourses and debates on the global environmental crisis have increasingly gained significance in any public sector (international forums and conferences, government ministries, parliamentary debates, TV shows). Besides, both international regulations (e.g. UN General Assembly resolution 76/300 2022, *The human right to a clean, healthy and sustainable environment*, among others) and scientific studies (Anton and Shelton 2011; Déjeant-Pons and Pallemaerts 2002; Duyck et al. 2020; Hancock 2021) have stressed the intrinsic interconnection between the environment and human rights claiming for easier access to information and wider citizens' participation in the decision making process. Consequently, it has become more and more important for international organisations such as the European Union (EU) to bridge the knowledge gap between experts and laypeople in order to enhance democracy in Europe, allowing citizens to participate in the decision-making process (Pennisi 2015; Polese and D'Avanzo 2012; Silletti 2018; Zollo 2019). Since environmental education has become fundamental in every society, by using different media, in particular websites, the EU has been designing several informative and educational resources for non-expert citizens, particularly the young generations, to sensitize them on current global challenges such as environmental sustainability. By collecting and analysing a sample of informative and didactic text-types of the webpage "Environment, climate and energy", from the EU website *Learning Corner*, the present study is aimed at addressing the two following research

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questions: what are the most significant multimodal discursive features in the collected data? Does the EU employ any positive discursive features as alternative to the mainstream environment discourses?

2 Eco-awareness in class

Human actions are having a great impact on our planet that some scientists (Crutzen 2002; Steffen et al. 2007, 2011; Williams et al. 2011; Zalasiewicz et al. 2011) maintain that the Earth has entered a new geologic age named Anthropocene. Since environmental protection has become a much discussed international issue, scholars (Dunlop et al. 2020; Jacobs 2018; Maley 2022; McGimpsey et al. 2023) suggest promoting green activism through education and "[l]anguage plays a crucial role in deciding on, planning and conducting activities in which people participate in protecting the environment" (Jacobs 2018: 381). Jacobs (2018) underlines the importance of critical pedagogy in order to challenge human thoughts and deeds which can damage the planet and critical thinking as an instrument to provide solutions to environmental problems. Both involve language and can be used in environmental education to develop activism among students and educators.

Referring to Naess (1989), Damico et al. (2020) stress out that the eco in ecolinguistics underlines ecosophy, that is a set of priorities and rules to guide human beings' actions. Everyone acts on an ecosophy but it is often implicit. So, the scholars provide a framework for educators to approach the topic of climate change and also promote climate justice literacy in class by encouraging students to identify beneficial stories-we-live-by. This can help both teachers and students explore their own ecosophies and develop more ecological commitments in line with their ecosophies.

Micalay-Hurtado and Poole (2022) combine Critical Language Awareness (CLA) and ecolinguistics to elaborate an eco-critical pedagogy within English language teaching (ELT) classrooms. Language teaching can contribute to engaging students in becoming responsible citizens and engage in actions aimed at facing the climate crisis and find solutions for making the world a better place.

Given the urgency of climate change and its consequences for future generations, pedagogical practices must be implemented to develop ecological sustainability, justice and well-being. Through a sustainable pedagogy, teachers can help learners understand those unsustainable discourses embedded in texts that spread environmental destruction and identify the linguistic patterns through which the normalized destructive messages can be challenged and replaced by beneficial ones. Beneficial discourses are aligned with the ecosophy and thus encourage more ecologically beneficial behaviour. Following Stibbe (2021: 33), it is necessary to promote discourses rather than individual texts. "[W]hat is promoted is a way of writing or speaking that tells a useful story. In other words, what is promoted is a specific cluster of linguistic features (pronoun use, grammatical structures, presuppositions, positioning of participants, etc.) which tells a particular story".

As role models for their students, teachers should make an effort to include eco-awareness in class, change mindsets and propose practical actions, and even think of ways of getting them out of classrooms. "Rather than students being involved in decontextualized, lower-order thinking and learning of basic knowledge and skills, students learn better and more deeply when their studies call for higher-order thinking and clearly connect with the world that students live in and that they and future generations will inhabit" (Maley 2022: 348).

3 Theoretical foundation: multimodal ecological discourse analysis

Nowadays most resources available online are multimodal. The ways diverse semiotic resources (words, images, colour, sound, typefaces, gestures, etc.) are deployed in communicative acts across different overlapping fields, such as education, science, advertising, and politics, has long fascinated scholars from different disciplines, including philosophy, media studies, semiotics, and sociology.

Multimodal discourse analysis (MDA) "explores the meaning-making potential of different communication modes and media and their actual use and dynamic interaction with each other and with the sociocultural context in which they operate" (Djonov and Zhao 2014: 1). In other words, MDA is the study of different semiotic modes in a

text or communicative event. It is "the combination of different semiotics modes – for example, language and music – in a communicative artifact or event" (van Leeuwen 2005: 281). A mode is a flexible concept, since new modes constantly emerge and existing ones sometimes undergo gradual modification in response to changing communicative needs. Given that modes are "inseparably integrated" (Lemke 2002: 303), MDA aims at investigating the ways diverse modes influence the meaning potentials of the other modes they are combined with.

Hodge and Kress (1988), in their book *Social Semiotics* underlined the complex interrelation of semiotic systems in social practice developing a social semiotics approach.

Social semiotics focuses on discourse and its context, in fact the focus is on "[…] the way people use semiotic 'resources' both to produce communicative artifacts and events and to interpret them – which is also a form of semiotic – in the context of specific social situations and practices" (van Leeuwen 2005: XI). Texts are embedded in the contexts in which they work. Context is not something extrinsic to text. The social semiotic approach is grounded in Halliday's model of the relationship between text/discourse and social context. According to Halliday (1978) language is only one of many interrelated semiotic systems. The meaning-making functions of all semiotic systems can be grouped in three metafunctions: ideational, interpersonal and textual. These are related to three situational variables typical of communication: *field*, *tenor* and *mode*. *Field* concerns the social activity; *tenor* is the type of relationship among the actors involved in the communication and *mode* is the medium and channel of communication. It is these variables and their relation to the three metafunctions that has provided Kress and van Leeuwen (2021) the theoretical basis to develop a 'grammar' for other semiotic modes, suggesting that also images can produce three types of meanings. "Images construct not only representations of *material reality* but also the interpersonal interaction of *social reality* (such as relations between viewers and what is viewed). In addition, images cohere into textual compositions in different ways and so realize *semiotic reality*" (Unsworth 2008: 3).

In the past few years ecolinguistics has become more and more central in linguistic research. The term ecolinguistics is attributed to Marcellesi (1975), but it was Halliday who in 1990 during a conference pointed out that environmental issues should be dealt with in applied linguistics and underlined the relation between language and ideologies such as growthism. Thus, Ecological Discourse Analysis (EDA) was born and started to investigate not only discourses that explicitly relate to the environment but also other discourses that affect people's behaviours and thoughts on the environment. Ecolinguists have examined ecological discourses from many perspectives and adopted different approaches, from Critical Discourse Analysis to the most recent Positive Discourse Analysis (Bartlett 2018; Hughes 2018; Stibbe 2018, 2021).

Through different approaches and methodologies, ecolinguistics "can investigate the stories we live by – mental models that influence behaviour and lie at the heart of the ecological challenges we are facing" (Stibbe 2021: 1–2). Within ecolinguistics, positive discourse analysis (PDA), for instance, can help "identify the linguistic patterns from positive discourses that inspire respect and care for the natural world and make them available to those who want to adjust their language to better address ecological issues" (Stibbe 2018: 324). Analysing positive discourses can help identify linguistic patterns that can encourage human beings to care about and protect the environment. Stibbe (2014) suggests we should question the current stories that lead to environmental destruction and look for new stories that can offer positive alternatives. Although many studies on the relation between language and environment have been published (Chen 2016; Devauld and Green 2010; Fill and Mühlhäuser 2001; Fill and Penz 2018; Goatly 1996; Mühlhäusler 2001, 2003), ecolinguistics "is still limited to the discussion of the relation between language and ecology, often from a critical perspective, rather than designing alternative discourses aimed at promoting more environmentally-conscious practice" (Chen et al. 2021: 7). Chau and Jacobs (2022) have recently organized a special issue on the practical applications of ecolinguistics, offering a few examples of articles understandable to lay people and suggesting applicable methods able to support ecological changes. In addition, apart from climate change, other topics await investigation such as "language, war, and peace", "the negative effects of tourism" and "ecological changes brought about by digital technology" (Penz and Fill 2022) and ecolinguistics will extend and probably include other methodologies.

In recent years, some works (Fernández-Vázquez 2021; Stöckl and Molnar 2018; Zhdanava et al. 2021) have extended the ecolinguistic framework to other semiotic codes, conducting multimodal analyses. Since meaning is constructed and conveyed by the combination of different modes (words, images, colour, sound, among others),

multimodality plays a key function in environmental discourses. In line with this more recent strand of research, the present study adopts a multimodal ecological discourse analysis approach in order to identify the most recurrent discursive strategies used by the EU to develop an ecological consciousness among the young and promote the development of a new European identity based on sustainability. The following section will briefly describe the data collected from the webpage "Environment, climate and energy", within the EU website *Learning Corner*, the methodology adopted and the main objectives of the research.

4 Data and research methodology

The *Learning Corner* is the new EU website for students and teachers which offers a range of free and educational tools about the EU. All the materials are available in all EU languages and tailored for different age groups. For the present research a sample of informative and educational materials (booklets, videos, picture books, brochures and comics) addressed to young people of different age ranges were collected from the EU webpage "Environment, climate and energy".[1] Specifically, the following two data sets were created:

Data set 1 (up to 9)
- *Tom and Lila* (story book and teaching kit)
- *Zoe makes a splash!* (game)

Data set 2 (between 9 and 12; 12–15; and over 15)
- *The flight of the cranes* (1 brochure) – Ages 9 to 12
- *Our planet, our future* (1 brochure and website) – Ages 9 to 12; 12 to 15
- *Fighting climate change together* (17 videos) – Ages 12 to 15
- *DING DONG – Ready for the Green Challenge!* (presentation slides and 1 teaching kit) – Ages 12 to 15; over 15
- *EU Climate Action* (26 videos) – Ages 12 to 15; over 15
- *EU Energy Policy* (5 videos) – Ages 12 to 15; over 15
- *52 steps towards a greener city* (activity book) – Ages 12 to 15; over 15
- *EU for Paris agreement* (1 video) – Ages 12 to 15; over 15
- *EU Green Deal* (6 videos) – Ages 12 to 15; over 15
- *Climate Adaptation Strategy* (1 video) – Ages over 15
- *EU Invests in the Planet: Ten Initiatives for a Modern and Clean Economy* (1 brochure) – Ages over 15
- *Paneuropa* versus *Smog* (comics) – Ages over 15
- *10 Global Climate Facts* (1 video) – Ages over 15

Due to space constraints, in Section 5 only a sample of text-types will be examined. Specifically, the analysis will focus on the booklet *EU Invests in the Planet: Ten Initiatives for a Modern and Clean Economy* (ages over 15), the toolkit *DING DONG – Ready for the Green Challenge!* (ages 12 to 15; ages over 15), the video *Climate Adaptation Strategy* (ages over 15) and the brochure *Our planet, our future* (ages 9 to 12; ages 12 to 15).

The analysis will try to detect the main verbal and visual discursive strategies employed by the EU in order to communicate the institutional discourse on environmental protection to the young and develop eco-friendly consciousness. The multimodal analysis will focus on Kress and van Leeuwen's metafunctions: representational (ideational), interactive (interpersonal) and compositional (textual). The representational structures build verbally and visually the objects, participants of events and their circumstances. This metafunction is visually realized by a grammar of transitivity. This includes narrative and conceptual processes. Therefore, participants are connected by actions and vectors or are depicted as timeless entities. The interactive verbal and visual resources build the relationships among participants. It can be realized through the gaze of the represented participants in an image, who can directly or indirectly address viewers ('demand' or 'offer' image), social distance (how close to the viewer a person is represented in an image), and angle of interaction (camera angle

1 https://learning-corner.learning.europa.eu/learning-materials_en?f%5B0%5D=topics_topics%3A11.

reproduces how we look at and interact with people). Then, modality refers to the way people communicate as how 'true' or 'real' a representation should be taken. And the compositional meanings are related to information distribution among texts and images. It comprises information value (how elements are placed in relation to each other and to the viewer), salience (how certain elements are arranged to draw attention), and framing (how elements are represented as separate units or as related). The sampling will be investigated in Section 5 in accordance with the analytical tools developed by Kress and van Leeuwen's framework by discussing key concepts such as gaze, social distance, salience, and modality. Furthermore, an analysis from an ecolinguistics perspective will allow to see whether the EU uses positive discursive patterns to offer an alternative to common destructive discourses on ecology.

5 Analysis

A multimodal discourse analysis of the selected text-types in this section allows us to detect the way the EU multimodally communicates environmental issues to young people and whether the institution provides positive discursive features as alternative to the mainstream environment discourses, which tend to underline people's inappropriate behaviours and the catastrophic effects on the natural world.

EU Invests in the Planet: Ten Initiatives for a Modern and Clean Economy[2] is a 40-page booklet published by the European Commission in 2018 with the principal objective to inform European citizens on the environmental activities of the EU. Given the length of this text, the analysis here will focus on the cover page, the foreword and chapter 1 "Ten Initiatives for a Modern and Clean Economy".

The headline of the booklet presents the verb 'to invest', belonging to the semantic field of economics, which is here used metaphorically: the EU has decided to spend time, energy, effort, and even money on the Earth. The two positive evaluative adjectives 'modern and clean' convey an optimistic message of a better future reinforced by the stylized representation of a modern and sustainable city on the cover page of the booklet (Figure 1). The lack of realistic details and high abstraction of the different elements (skyscrapers, planes, solar panels, wind turbines and trees) make it a low modality image, allowing each viewer/citizen to imagine different possible scenarios for their own cities' future and progress.

The booklet starts with a speech by Jean-Claude Juncker, President of the European Commission. The text is full of inclusive 'we' so that the readers can feel part of the European community and work harder to protect the planet, especially the young, who are explicitly mentioned in the last paragraph ('young Europeans'). The repetition of the verb 'invest' and the noun 'investment' and the parallelism 'Europe is investing', repeated four times, underline the concept already expressed in the headline. Then, the use of vehicle metaphors ('The time has now come to set all the wheels in motion; Time to move up a gear') conveys an idea of movement and progress inviting European citizens to act now, as pointed out in the last sentence 'So now is the time for us all to come together and act for our planet. Tomorrow will be too late', which resonates as a promotional slogan. The President's signature at the bottom of the page followed by the indication of their role as President of the European Commission legitimizes the speaker through functionalization and formal nomination (van Leeuwen 1996).

The chapter "Ten Initiatives for a Modern and Clean Economy" illustrates ten initiatives for a clean economy with an emphasis on the European Commission's actions and policies. The repetition of positive words such as 'clean energy', 'energy performance', 'energy efficiency', 'opportunity', 'development' creates a sense of innovation and immediacy. It implies the construction of a new Europe oriented towards transformation and modernization, but in a sustainable way. The initiatives mentioned are supported by the presence of several diagrams, graphs and statistics which confer legitimacy and objectivity to the Commission's new policies. Visually, this is reinforced in the subsection "Clean, Connected and Competitive Mobility" by the photos of some European leaders (Figure 2), such as Vice President Šefčovič and Commissioner Bulc, in medium-close shots while

2 The booklet is available at https://op.europa.eu/en/publication-detail/-/publication/4c7ab013-1dcd-11e8-ac73-01aa75ed71a1/language-en (accessed April 2023).

Figure 1: Cover of the booklet *EU Invests in the Planet: Ten Initiatives for a Modern and Clean Economy*.

Figure 2: European leaders visiting a production plant.

visiting some production plants, because it creates a sense of closeness to the European workers/citizens. The composition relates the representational and interactive meanings of the image to each other through information value, salience and framing. The central position of the represented participants is the crucial element of the composition and the hexagonal frames mark the boundaries between the verbal and visual texts.

The *DING DONG – Ready for the Green Challenge!*[3] campaign is an EU initiative that stimulates the young to build a sustainable and green future addressing five sustainability themes (housing/buildings, producing/consuming, conserving nature, moving/travelling, eating) and collaborating with fifteen local social media influencers. These influencers, in fact, visit several places all over Europe to explore inspiring green projects and meet the people who take concrete and systematic actions to protect the planet.

The headline of the teachers' toolkit *Ready for the green challenge!* has the function to arouse people's curiosity through the so-called disjunctive syntax (the lack of the auxiliary verb to be) and the use of the imperative to establish a personal relationship between the EU and readers in order to keep them engaged. Ellipsis is also present in other sections of the toolkit ('Teachers for future? An invitation', 'Eager to take on this role but not sure how? This toolkit can help!') and the direct address 'you' is widely used. It intends to establish a more personal relationship between the EU and the readership, trying to transcend the EU's institutional role as an international organization and consider the readership's individuality, as shown in sentences such as 'You as secondary school teachers (…)', 'How do we get there?', 'We have to live, consume and produce differently' and in the imperative verbs 'choose', 'discuss', 'select', 'brainstorm'.

As already said before, five themes are introduced and, after discussing the various problems related to them, students should provide solutions with the help of their teachers. All themes are presented using the same structure of direct questions ('What's the problem?', 'How does the EU address the problem?', 'How can students address the problem?'). This structure is strategic since the EU wants to allude to informality and intrigue the readers to find out the answers by keeping reading. Moreover, we find a lot of repetitions of nouns referring to nature with the adjective 'green' ('green challenges', 'green actions', 'greenhouse', 'green space', 'European Green Deal', 'green journeys') to emphasize the idea of ecological and sustainable commitment. It is also possible to identify elements of multimodal communicative interaction. For instance, anchorage (Barthes 1977, 1986), which requires a reciprocal relation between text and images contributing to better understand the overall message, is present in the representation of the five themes with the correspondent image, but also at the end of the text in which a finger points to the text *DING DONG – Ready for the green challenge* and invites people to visit the campaign's website and join the challenges as soon as possible (Figure 3). The inserted photos in the toolkit, some of which represent citizens doing ecological acts and applying the EU's suggestions in order to preserve the environment, are represented in high modality as naturalistic pictures (Figure 4). The photos were realized with full-colour saturation, totally modulated colour, very articulated and filled background, maximally deep perspective and the representation of lights and shades are with different degrees of brightness. Some of these photos are objective, so that they disregard the viewer and show what the viewer would see if he/she was looking at them in reality; others, conversely, use subjective photos, which means that the point of view is already built and selected for the viewer. Concerning the use of colour, it can be noticed that the green colour is widely used, mostly referred to specific words ('future', 'regions and cities', 'change makers' and 'DING DONG'). This colour,

Figure 3: *Ding Dong* toolkit.

3 The teacher's toolkit is available at: https://learning-corner.learning.europa.eu/learning-materials/ready-green-challenge_en (accessed April 2023).

Figure 4: *Ding Dong* toolkit.

typically associated with nature, is a semiotic resource whose meaning is conveyed by the different words that point out the interdependence between improving our future and respecting nature in order to save our 'regions and cities'. Likewise, it is important to highlight the styles of the typefaces employed for most headlines. They are in bold to better underline the concepts, thanks to the solid presence that characterize them. Moreover, other words or concepts such as 'educate', 'encourage young people to take green action', 'organise green challenges' or also data such as '10 % of global CO_2 emissions' are in bold typeface to foreground the most important goals and priorities of the project.

On 24 February 2021 the European Commission adopted a new strategy on adaptation to climate change. It aims to improve knowledge of the impacts of climate change and find concrete solutions in order to build a more climate-resilient society. Its main objectives are to make adaptation "smarter, swifter and more systemic" (European Commission. COM/2021/82 final) through global engagement.

The video *Climate Adaptation Strategy*[4] is addressed to students 15 years and above and focuses on 'climate change adaptation'. While the focus of the video *Green Deal Proposal*[5] is on 'climate change mitigation', consisting in promoting policies that can limit the effects of global warming, the video on climate adaptation underlines the shift from understanding the problem of climate change to finding solutions, moving from planning to implementation. The video starts with a problem-solution model of persuasion introduced by the voiceover: 'Even if we could cut all greenhouse gas emissions today, the effects of climate change are already here, so we need to do much more to adapt to the consequences. The new EU Adaptation Strategy will help us get there'. This is reinforced visually by threatening images of natural disasters (wildfire, drought, flood, melting glaciers). Then these images of catastrophes are followed by images of sustainable alternatives (green buildings, solar panels, wind turbines). The second part of the message underlines the EU objectives and actions. As it can be seen in excerpt 1, the use of the inclusive pronoun 'we', binomials ('science and nature'; 'adapt and learn'), bicolon – an expression containing two parallel phrases – ('improve our infrastructure, invest more in solution'), tricolon – three parallel items – ('people, livelihoods and nature'), and the imperative verb 'help' reinforces the EU message to set out a new pathway where adaptation becomes a key component of the long-term global response to environmental crisis.

Excerpt 1

By preparing for climate change we can become more resistant to extreme weather. We need to improve our infrastructure, invest more in solutions from science and nature. Help other countries to adapt and learn from them too. We want to do more to protect people, livelihoods and nature in Europe and around the world reducing risks for our planet and for future generations.

4 The video is available at https://audiovisual.ec.europa.eu/en/video/I-201845?lg=INT&sublg=en (accessed April 2023).

5 The video is available at https://learning-corner.learning.europa.eu/learning-materials/eu-green-deal_en (accessed April 2023).

Figure 5: Frames from *Climate Adaptation Strategy* video.

The presence of multi-ethnic people underlines the fact that the EU not only promotes local, national and international actions in Europe but also prioritizes approaches to adaptation worldwide and calls for more international cooperation. It is no coincidence, in fact, that at the end of the video (Figure 5) we see multi-ethnic children, maybe growing up in developing countries, who are shown as "demand images" (Kress and van Leeuwen 2021). The represented participants are looking at us. It seems that these children are interacting with us and asking for our help. In addition, the angle of these frames is horizontal and frontal, so that there is no social distance between the children from other continents and European citizens, but we are also part of their world and totally involved.

Similarly, positive discourses can be also detected in the last three sections (*Making a difference*, *Fighting climate change around the world*, *Over to you!*) of the brochure *Our planet, our future*.[6] The main themes introduced are: environment policy, protection of the environment and environmental degradation. After being aware of the threats caused by global warming, the brochure invites the young generations to make a difference and start campaigning for climate action and it implicitly seems to suggest a new professional figure in society, the 'climate change expert'.

The text is full of intertextual elements such as reported speeches and quotations by politicians such as Miguel Arias Cañete, EU Commissioner for Climate Action and Energy, a climate scientist named Jolena Cook, who explains the risks of global warming and the actions that people can take in their everyday life to reduce their impact on the environment, and the actor Leonardo di Caprio who has shared his concern about the effects of climate change in different public events. The brochure includes an extract (see excerpt 2) from his talk addressing world leaders at the Paris Agreement signing ceremony in New York in 2016:

Excerpt 2
Our planet cannot be saved unless we leave fossil fuels in the ground where they belong. An upheaval and massive change is required, now. One that leads to a new collective consciousness. A new collective evolution of the human race, inspired and enabled by a sense of urgency from all of you. We all know that reversing the course of climate change will not be easy, but the tools are in our hands – if we apply them before it is too late.

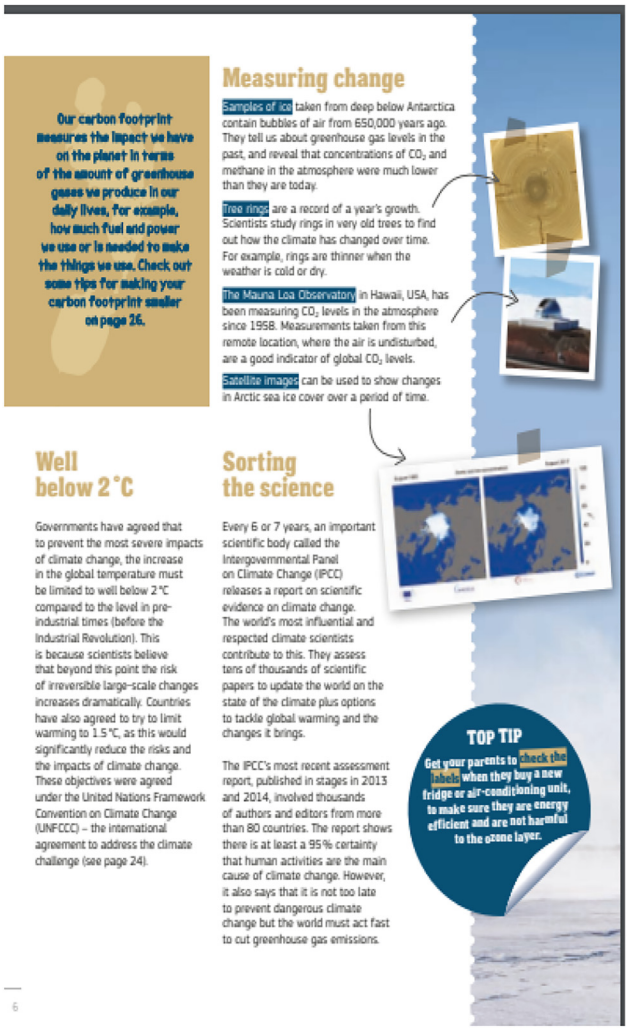
This text includes positive linguistic patterns such as 'collective consciousness', 'collective evolution' or 'inspired and enabled'. It can be noted the use of nominalization, which is an important transitivity feature where verbal

6 The brochure is available at https://op.europa.eu/en/publication-detail/-/publication/6af369ed-6221-11e8-ab9c-01aa75ed71a1 (accessed April 2023).

Figure 6: Cover of the brochure *Our planet, our future*.

processes are converted into nouns and any indicator of agency is removed. In the sentence ‘An upheaval and massive change is required, now’ the main action is expressed through the noun ‘change’, while eliding those involved in the process. But by putting the noun ‘change’ in sentence-initial position, as the subject of the sentence, it is underlined what the speaker believes to be important information and the addition of the evaluative adjectives ‘upheaval and massive’ makes it more difficult for the reader to contest this meaning. So, this type of grammatical operation has the effect of transforming the sentence into a rather fixed expression with a non-negotiable meaning (Simpson et al. 2018). Interestingly, the common metaphorical fixed-phrase ‘fighting climate change’, which can denote conflicts and tensions, has been substituted with the more peaceful expression ‘reversing the course of climate change’. Consequently, being environmental activists does not mean to become fighters which implicitly recalls a battle with winners and losers, but it means to find the right compromise between civilization and nature, progress and natural protection. From a multimodal perspective the cover (Figure 6) presents a centre-margin composition where in the middle we see some hands holding metaphorically the planet conveying a message of togetherness reinforced linguistically by the repetition of the personal pronoun ‘our’ and the adverb ‘together’.

Throughout the whole brochure multimodal cohesion is realized through composition, colour and information links. For instance, in Figure 7 cohesion is expressed by the use of the same typefaces and colour to define the titles of each section. Moreover, in the section “Measuring change” a more reader-friendly flow of information is guaranteed by the spatial arrangements of the paragraphs and some cohesive ties such as the highlighted noun phrases at the beginning of each paragraph and the arrows, which connect the paragraphs to the corresponding images.



Our carbon footprint measures the impact we have on the planet in terms of the amount of greenhouse gases we produce in our daily lives, for example, how much fuel and power we use or is needed to make the things we use. Check out some tips for making your carbon footprint smaller on page 26.

Measuring change

Samples of ice taken from deep below Antarctica contain bubbles of air from 650,000 years ago. They tell us about greenhouse gas levels in the past, and reveal that concentrations of CO_2 and methane in the atmosphere were much lower than they are today.

Tree rings are a record of a year's growth. Scientists study rings in very old trees to find out how the climate has changed over time. For example, rings are thinner when the weather is cold or dry.

The Mauna Loa Observatory in Hawaii, USA, has been measuring CO_2 levels in the atmosphere since 1958. Measurements taken from this remote location, where the air is undisturbed, are a good indicator of global CO_2 levels.

Satellite images can be used to show changes in Arctic sea ice cover over a period of time.

Well below 2 °C

Governments have agreed that to prevent the most severe impacts of climate change, the increase in the global temperature must be limited to well below 2 °C compared to the level in pre-industrial times (before the Industrial Revolution). This is because scientists believe that beyond this point the risk of irreversible large-scale changes increases dramatically. Countries have also agreed to try to limit warming to 1.5 °C, as this would significantly reduce the risks and the impacts of climate change. These objectives were agreed under the United Nations Framework Convention on Climate Change (UNFCCC) – the international agreement to address the climate challenge (see page 24).

Sorting the science

Every 6 or 7 years, an important scientific body called the Intergovernmental Panel on Climate Change (IPCC) releases a report on scientific evidence on climate change. The world's most influential and respected climate scientists contribute to this. They assess tens of thousands of scientific papers to update the world on the state of the climate plus options to tackle global warming and the changes it brings.

The IPCC's most recent assessment report, published in stages in 2013 and 2014, involved thousands of authors and editors from more than 80 countries. The report shows there is at least a 95% certainty that human activities are the main cause of climate change. However, it also says that it is not too late to prevent dangerous climate change but the world must act fast to cut greenhouse gas emissions.

TOP TIP

Get your parents to check the labels when they buy a new fridge or air-conditioning unit, to make sure they are energy efficient and are not harmful to the ozone layer.

6

Figure 7: A page from the brochure *Our planet, our future*.

6 Conclusions

As multimodal discourse analysis focuses on the combination of different modes in a text or communicative event (van Leeuwen 2005), the combination of ecolinguistics and social semiotics was fundamental to examine a sample of multimodal genres retrieved from the EU webpage "Environment, climate and energy" in order to identify the key discursive features that should raise awareness on ecology and encourage ecological actions among the younger generations. The analysis showed that, rather than emphasizing problems and leaving the public hopeless, the EU often employs positive multimodal features to sensitize the younger generations to environmental issues inviting them to work together for a better world.

This preliminary analysis could be the starting point for further research on environment and education from a multimodal ecological discourse analysis perspective. In order to explore eco-awareness in class and verify whether the EU more positive discourses on ecology are favourably received by students, empirical studies could be useful to encourage the younger generations towards ecological critical thinking and also enable them to design ecological actions. Experimental class projects could help the young to become aware of their potential as ecological activists and how they could support supranational institutions such as the EU to mitigate catastrophic consequences through counter-discursive strategies going against the mainstream environment discourse, which tends to emphasize the negative consequences of human beings' attitude towards nature and tries to raise awareness through 'moral panic'.

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