

Environmental discourse on social media

Exploring engagement in X/Twitter for environmental purposes

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The multifaceted character of environmental discourse becomes evident on social media, where non-governmental organisations (NGOs) engage in public environmental discourses. Focused on X/Twitter for environmental purposes, this paper investigates engagement as an interpersonal phenomenon comprising two dimensions: self-presentation and audience projection. It qualitatively and quantitatively analyses 100 X/Twitter posts from WWF and Greenpeace (50 per account) with the tool NVivo 14. Findings reveal how the NGOs rely on verbal (self-mentions, lexical items) and non-verbal resources (emoji and multimedia elements) to present themselves to their audience, whilst exploiting verbal resources (second-person pronouns and directives) to construct their audience. Results underscore how NGOs leverage X/Twitter to assert their own legitimacy and that of their audience as integral members of the environmentalist community.

Keywords: engagement, interpersonality, social media, Twitter, X

1. Introduction

With the outburst of environmental threats affecting our contemporary society, discussions on environmental issues have become central in socio-political debate. Global environmental discourses have thus emerged, encompassing diverse social, political, academic and mediatic perspectives on the development of environmental phenomena (Dryzek 2022). Such environmental discourses present a dialogic and multidisciplinary character as they are negotiated in the information exchange between expert and non-expert communities when addressing the environmental crisis.

Environmental Non-Governmental Organizations (NGOs) play a fundamental role in shaping how environmental matters are approached and the discourse enacted through them (Balassiano and Chandler 2010). Recent work has explored the discursive reality constructed by environmental NGOs through their linguistic choices on website-situated communication. For example, Partelow, Winkler and Thaler (2020) quantitatively analysed the lexico-grammatical features in environmental NGO mission statements to elaborate a classification of the four major discourses articulated in their global environmental policies. Ritter and Thaler (2022) qualitatively refined this categorization exploring the surrounding socio-political scenarios for each discourse type. The focus on environmental NGOs discourse has also contemplated their participation in social media (SM) as spaces with an enhanced potential for content visibility which “enable activist and protest movements to ‘self-mediate’ and to distribute movement goals or frames more easily” (Cammaerts 2015, 5).

1.1 Social media engagement

Coined as an umbrella term, social media (SM) comprise all “communication platforms which combine a number of technological affordances which support the sharing of textual, visual, and/or audio information as well as different frameworks for interaction” (Bou-Franch and Garcés-Conejos 2019, 1). This definition foregrounds two fundamental aspects of SM: their digitally-mediated, yet primarily user-generated content, and (2) their interactive dynamics. Concerning content, SM present highly accessible affordances which are intuitively used by diversified audiences given their lack of technological complexity (Seargeant and Tagg 2014). This accessibility enhances the free production of user-generated content in a multiplicity of forms, thereby facilitating interaction and the establishment of interpersonal relations among users with shared interests (boyd and Ellison 2007).

Two dimensions of SM deemed as necessary to explore its interactive dynamics are the audience and user engagement. Regarding audience, its significance arises from the recognition of online interactions as primarily manifested through one-to-many or many-to-many relations cutting across various contexts and audiences (Cammaerts 2015). boyd (2010) conceptualizes such disseminating potential as a matter of reachability and scalability, that is, the possibility of a message to reach an indefinite number of users when uploaded to different platforms. boyd (2010) also explains that online audiences must be conceived as dynamic and nonspecific given their potential to be visible and invisible to content creators, the absence of spatio-temporal boundaries in online interaction and the increasingly blurred line between the private and public spheres.

The complexity of defining online audiences justifies the centrality of the second dimension of SM: user engagement. This concept has been predominantly approached from the perspective of Information Technology as related to user-experience in web-based communication. It refers to user-machine interaction by comprising “the quality of the user experience that emphasises the positive aspects of [such] interaction, and in particular the phenomena associated with being captivated by a web application, and so being motivated to use it” (Lehmann et al. 2012, 164). User engagement therefore stands as a category of user experience which depends on platform-specific factors, including the novelty of content, the aesthetics of content, and users’ interest in the information provided (O’Brien and Toms 2008). When applied to SM, the notion of engagement extends from the enjoyment of a positive experience thanks to technical affordances to users’ sense of fulfilment from engaging in online interactions with other users (Dubey et al. 2024). It thus enacts as a user-to-user interactive phenomenon which comprises all the psychological states by which users know how to behave in socially acceptable manners (Ray, Kim and Morris 2014) to establish productive affiliative bonds (Zappavigna 2011, 2014). As Di Gangi and Wasko (2016) explain, engagement on SM encompasses users’ self-recognition as relevant in the SM community and the sense of fulfilment of their individual social needs thanks to SM participation.

Based on the user-to-user interaction approach to SM engagement, this study conceives engagement on X/Twitter for environmental purposes (TWEP) as a two-sided interpersonal phenomenon which concerns users’ self-depiction as representatives of the environmental community and their discursive construction of their X/Twitter audience as equally relevant members of the community. Under the premise that SM facilitate “recruitment, public engagement, and campaign organization” (Murthy 2018, 2), this paper aims to gain insights into the connection between engagement and TWEP, looking into the interpersonal quality of the environmental discourse of environmental NGOs on social networks. The focus is specifically placed on the linguistic, non-linguistic, and technical resources used by NGOs in their posts to project themselves and their audience through discourse. The following research questions guide this aim:

1. Which verbal and non-verbal resources do the environmental NGOs employ in the caption and multimedia of their X/Twitter posts to construct their self-image (NGO’s self-presentation)?
2. Which verbal and non-verbal resources are used in the caption and multimedia of the X/Twitter content of environmental NGOs to involve the audience into their environmental discourse (audience projection)?

2. Corpus and methods

2.1 Corpus

The corpus was extracted from the official X/Twitter accounts of two NGOs: World Wildlife Fund or WWF (@WWF) and Greenpeace International (@Greenpeace). The accounts were found using the Google searches “Environmental Non-Government Organisations” and “Environmental Non-Government Organisations on Twitter”. Three criteria needed to be met: (i) content predominantly published in English, (ii) daily posts, and (iii) high popularity rate based on followers (over 1 million).

The dataset for the study consists of a total of 100 posts, with 50 posts per account. Posts were manually retrieved in two formats: (i) as a JPG file with the screenshot tool of the computer, and (ii) as a Word file by copy-pasting the textual caption on a single document per account. Multimedia content was also downloaded. Images were retrieved with the X/Twitter downloading tool and videos with the online tool SSS Twitter (<https://sstwiter.com/>). The selected posts present similar characteristics as regards the proportion of added multimedia elements and the total token and character count. The dataset does not include ‘replies’ to other users given the disparity in reply frequency found in both accounts, with WWF presenting twice the number of replies than the Greenpeace account in the timespan considered. Given the focus on discourse choices made within NGOs’ posts, retweets were not considered.

Starting on February 16th, 2021, the posts were downloaded backwards in time until the set number (50 per account) was reached. Despite its relatively small size, the sample considered provides enough analytical insights for a mixed-method exploratory study with a predominantly qualitative approach such as the one presented in this paper. The limited size of posts — with maximum 280 characters each — certainly has an impact on the statistical significance obtained in terms of frequency of use for some of the features observed (*see 2.2. Methods and methodological framework*); therefore, quantitative data included here must be handled with care. The qualitative exploration of these features was deemed necessary to present an accurate analysis of the object of study.

2.2 Methods and methodological framework

A data-driven approximation through manual reading was carried out with the whole sample to identify a preliminary analytical taxonomy for X/Twitter engagement resources. This taxonomy was refined in a second analytical step which involved the revisitation of multiple frameworks explained in this section and the

qualitative analysis of the selected posts with the CAQDAS tool NVivo 14. With this tool, the final analytical categories and their corresponding quantitative data were obtained.

To explore the interpersonal quality of engagement in TWEP, this study considers two dimensions, NGO's self-presentation and audience projection, which have been approached through verbal and non-verbal elements, interpreted here as the instantiations of each dimension. For the study of NGO's self-presentation, three features were identified: the use of self-mentions, the construction of a semantically coherent environmental discourse, and the introduction of emotional language in verbal and visual forms. To approach audience projection, reader pronouns and directives were considered as its instantiating features. The analysis of these discursive features draws on a multifaceted analytical framework which operates at two levels, including the adoption of a metadiscursive, pragmatic and multimodal perspective to interpret the features as marks of engagement, and the multimodal approach to X/Twitter posts as single units of meaning.

This study adopts a metadiscursive, pragmatically-informed approach to the interpersonal exploration engagement on TWEP. Specifically, it draws on Hyland's interactional dimension of metadiscourse, as it "concerns the ways writers conduct interaction by intruding and commenting on their message" (2005a,49). Similarly, it considers Hyland's (2005b) stance and engagement framework, for its contribution in the reconceptualization of reader-writer relation in academic writing. This latter framework distinguishes between stance, as they way in which writers "express a textual 'voice' or community recognized personality", and engagement, as the ways "writers relate to their readers with respect to the positions advanced in the text" (Hyland 2005b, 176). These two metadiscursive frameworks particularly inform the interpretation of both user-related features (self-mentions and emotional language) and the audience-oriented features (reader pronouns and directives).

The multimodal perspective adopted in this paper responds to the intersemiotically enhanced nature of SM communication. To account for it, this study considers Maier and Engberg's (2014) framework for the analysis of text-image interplay to explore caption-multimedia relations. Drawing on the ideational, interpersonal and textual metafunctions dictated in systemic functional grammar (Halliday 1985) and their adaptation to the study of visual grammar (Kress and Van Leeuwen 2020), Maier and Engberg (2014) analyse text-image relations at the ideational dimension, i.e., considering their relevance in the expression and representation of content, experience and ideas. These relations are (1) concurrence, which includes relations of elaboration both between text and image and between images, (2) complementarity, referring to relations of extension, either by augmentation or contrast, and (3) connection, which comprise temporal, spatial

and causal enhancement. These notions are upheld for the interpretation of self-presentation resources, specifically those related to the construction of a semantically coherent environmental discourse and the introduction of emotional language.

3. Results and discussion

In this section, I discuss the features identified in the analysis of the corpus, including linguistic-discursive and visual features determined as qualitatively relevant to understand the dimensions of NGO's self-presentation and audience projection, and thus, approach the two-sided interpersonal nature of engagement on X/Twitter for environmental purposes.

3.1 Self-presentation of environmental organisations on X/Twitter

As explained above, the focus on self-presentation draws upon an interpersonal approach to social media and social networking communication which underscores the centrality of self-presentation construction in exploring online engagement.

The first resource identified as a self-presentation marker is the use of self-mentions, which have been widely explored as means for authorial self-presentation in writing (Ivanič 1998; Tang and John 1999; Hyland 2002). From the perspective of metadiscourse, self-mentions qualify “the degree of explicit author presence in the text measured by the frequency of first-person pronouns and possessive adjectives (I, me, mine, exclusive we, our, ours)” (Hyland 2005a, 53). In the dataset considered here, no instances of first-person singular forms were observed, a finding which is coherent with the corporate nature of the organisational accounts under study. As regards plural forms, a higher number of plural self-mentions was found in the WWF subcorpus (31.29 per 1000 words) than in the Greenpeace subcorpus (15.03). Table 1 represents the grammatical forms of self-mentions in the corpus, their frequency of use per 1000 words, and the total number of occurrences identified in the dataset.

As shown in Table 1, the analysis revealed a distinction between the inclusive and exclusive function of first-person referential forms, both subcorpora displaying a higher frequency in inclusive forms. The sense of inclusivity marked by first-person plural forms has been classified as a type of engagement marker (Hyland 2005b), whose use has been pragmatically explored as a strategy to reduce the distance between the writer and the reader (Brown and Levinson 1987; Kuo 1999). The NGOs' reliance on inclusivity markers might connect to their self-

Table 1. Self-mentions. Frequency of use per 1000 words (number of occurrences in brackets)

	First-person plural forms	Inclusive ‘we’	Exclusive ‘we’
Greenpeace	15.03 (21)	13.60 (19)	1.43 (2)
We	10.02 (14)	9.39 (13)	0.71 (1)
Us	2.14 (3)	1.43 (2)	0.71 (1)
Our	2.86 (4)	2.86 (4)	0.00 (0)
WWF	31.98 (46)	23.64 (34)	8.34 (12)
We	17.38 (25)	13.90 (20)	3.47 (5)
Us	5.56 (8)	1.39 (2)	4.17 (6)
Our	9.04 (13)	8.34 (12)	0.69 (1)
Total corpus	23.63 (67)	18.34 (52)	4.93 (14)

presentation as members of society, as both the NGOs and society at large stand as the textual referents. Posts 1 and 2 exemplify this collective function of inclusive forms, enhanced by their co-text filled with lexical items alluding to a sense of human cooperation (e.g., together); lexico-semantic choices will be explored later in this section.

(1) #ToHellWithShell

We can stop oil giants when *we* work together!

Recently, Indigenous communities from South Africa’s Wild Coast attained a landmark legal victory against energy and petroleum giant @Shell
#MAPA #OceansOverOil #StopShell

(Post shared by Greenpeace International)

(2) Love *our* ocean? Then let’s work together to #StopPlasticPollution!

✅ The EU has taken action by banning 10 common plastic items

👩‍🦰 YOU can do your part by demanding a #PlasticTreaty from governments👉

go.panda.org/plastics 🌟#TheRaceisOn to be #NaturePositive by 2030

(Post shared by WWF)

Regarding exclusive forms, a qualitative approximation was made to the instances identified to gain insights into their function as regards self-presentation and engagement on X/Twitter for environmental purposes. The analysis revealed that all instances were surrounded by a co-text where the accounts referred to their campaigns organised to address specific environmental issues and related consequences. Example (3), for instance, shows a project fostered by WWF to address the decrease in tiger population numbers, to which the audience is invited to join and “help” following the hyperlink inserted. In Example (4), Greenpeace presents its initiative to collectively address climate anxiety by asking the audience to share

their personal experiences in the link attached, which directs them to the official site of the organisation.

- (3) Sadly, they are. Tigers have lost 85% of their homelands. 🌳
But there's hope. *We're* on a mission to double global tiger numbers — and you can help *us*: <https://lp.panda.org/year-of-the-tiger> (Post shared by WWF)
- (4) How have you been impacted by the climate crisis and by climate anxiety, and what gives you hope to keep fighting?
Share your story with *us*: bit.ly/3GDgDgSFa
(Post shared by Greenpeace International)

The correlation between exclusive personal pronouns and own environmental initiatives identified in this sample may foreground a self-promotional intention on TWEP posts, potentially envisioned as a way of transmitting a sense of organisational unity within the NGOs and enhance their projection as trustworthy entities.

The second resource identified for self-presentation is the construction of a semantically coherent environmentalist position. As NGOs committed to addressing environment-related concerns, WWF and Greenpeace strategically exploit their X/Twitter profiles to share their insights about and propose solutions to the environmental crisis. Three semantic macro-categories were identified as predominant in both subcorpora, taking into consideration lexical items (namely nouns, adjectives, adverbs, and verbs): (1) environmental issues, including lexical items that refer to climate change, (2) ecosystems and nature, referring to items related to fauna and flora, and (3) togetherness and human cooperation, as the elements denoting a sense of social involvement in the environmental crisis. Table 2 shows the percentage and absolute number of posts in which these issues were addressed (*see Appendix 1* for the complete list of lexical items by semantic categorisation). Note that one post might address multiple topics, so lexical items from the three semantic macro-categories might be annotated within a single post.

Table 2. Semantic fields. Percentage based on the number of posts which contain lexical items for each category. Absolute number of posts in brackets

	Greenpeace	WWF	Total corpus
Ecosystems and nature	36% (18)	76% (38)	56% (56)
Environmental issues	86% (43)	56% (28)	71% (71)
Human cooperation	28% (14)	34% (17)	31% (31)




Table 2 shows the prevalence of ‘environmental issues’ as the prevailing field in the whole corpus, present in 71% of the posts analysed (in 86% of Greenpeace’s texts and 76% of WWF’s). This use of environment-related lexis is coherent with

the results obtained in previous research on the jargon of global environmental discourses (Partelow, Winkler and Thaler 2020). The incorporation of prevalent environmental discourse in their X/Twitter posts might unveil the NGOs' awareness concerning the productivity of drawing on "structured, symbolic discourses to suggest [...] group membership" (Hyland 2012, 310).

Despite being less relevant (31% of the posts), human cooperation lexis was also noted as relevant for self-presentation and engagement on TWEP given its appeal to togetherness and social responsibility. In deploying these elements, the NGO accounts contribute to their projection as members of society by emphasising their active role in the environmental crisis and stressing the audience's responsibility to join them as a global force. As noted in the discussion of inclusive markers, this is reinforced by the combination of human cooperation lexis (e.g., 'help' and 'together' in Examples (5) and (6)) with discursive features which reduce the interpersonal distance between the NGOs and their X/Twitter audience.

- (5) 🚩 Forests and ecosystems are being destroyed at an alarming rate, leaving millions of animals to die in fires set to clear land for production.
Tell @EmmanuelMacron to fight for a STRONG WU law to protect forests, people & nature
👉 [Bit.ly/3ofVf7C](https://bit.ly/3ofVf7C)
#Together4Forests (Post shared by Greenpeace International)
- (6) We still have time to mimic this success in other parts of the world and help secure a future for tigers. But we must do it *together*—and fast. 🕒
Will you *help* us make it happen? (Post shared by WWF)

Table 2 also points to a difference in thematic focus between two organisations, as the WWF sample contains more posts (76%) within the ecosystems and nature field, and Greenpeace's more texts within the environmental issues field mentioned above. Such difference seems to respond to the differing approach to the environmental crisis adopted by each NGO, wherein Greenpeace claims to be a network of campaign organisations concerned with global environmental problems, and WWF presents itself as specifically concerned with the protection of endangered species, nature, and local communities. The semantic lens through which the WWF approaches the environmental crisis helps them to claim a distinctive position within the environmental community, defining its own action niche within biodiversity protection environmentalist movements. Examples (7) and (8) below illustrate this distinctive approach to environmentalism through lexis, as both NGOs address the same issue, the plastic crisis, but rely on different lexical choices for it:

- (7) Catch @Greenpeaceafric *Plastic Project Lead* @erastus_wayne and *Plastic Project Communications Manager* @HellenDena in a Twitter Spaces discussion on the Global #PlasticsTreaty
 Friday, 18 February 2022
 13:00 SAST
 Follow the link below to set a reminder
 #BreakFreeFromPlastic (Post shared by Greenpeace International)
- (8)  New WWF research sheds light on the #PlasticCrisis and how it affects *bio-diversity, ecosystems* and eventually the *food* we consume 🐞
 We CAN #StopPlasticPollution with a #PlasticTreaty — it's not too late
https://wwf.panda.org/act/plastic_pollution_treaty/
 #UNEA #AllEyesOnUNEA (Post shared by WWF)

The three predominant semantic fields outlined above were not only delimited considering lexical elements, but also looking into the reliance on visual resources under the assumption that meaning making involves the interaction between diverse semiotic resources (Jewitt 2016). This led to the identification of emojis, images and videos as semantic cues for the construction of environmental discourse, all of which qualify under Herring and Dainas's concept of 'graphicons', i.e., "graphical devices found on contemporary social media platforms" (2017, 2185).

As regards emojis, two categories were identified in the data based on their semiotic relation with their linguistic co-text: (1) conceptual emojis, i.e., emojis contributing to the conveyance of conceptual meaning, and (2) attitudinal emojis, i.e., emojis contributing to the transmission of attitudinal meaning. The focus is now established on conceptual emoji as resources for self-presentation through topicality (see Table 3 for quantitative data on the frequency of use of conceptual emojis at token and post level). Attitudinal emojis will be approached later in connection with emotional language as a self-presentation resource.

As observed in Table 3, conceptual emojis were more predominant in WWF, as they appear in 54% of the posts, in comparison to 8% in Greenpeace's dataset. Looking specifically at the ideational relation between conceptual emojis and their linguistic environment, a correlation was found in the WWF sample between the meanings conveyed with emojis and the discursive semantic fields presented above. Based on this, 62.79% of the conceptual emojis from the WWF dataset operate as a visual representation of the lexical items classified in the field of 'ecosystems and nature' (Example (9) with the tree and tiger emojis), 13.95% to 'human cooperation' (Example (10) with the alarm emoji), and 11.63% to 'environmental issues' (Example (11) with the plastic cup and paper bags emojis). In

As regards images and videos, these were unified into a single category: multimedia products. In sum, 73% of the total corpus presented multimedia elements, with 74% in the Greenpeace subcorpus and 73% in the WWF dataset. The interplay between media and caption was explored in terms of the ideational metafunction, adopting Maier and Engberg's (2014) framework. The analysis revealed a prevalence of caption-multimedia relations of concurrence through elaboration (in 51% of the total corpus), specifically of elaboration through specification (in 23.29% of the posts with multimedia) and similarity (in 52.05%). The introduction of multimedia to specify or synthesise the same environment-related topic as the caption might contribute to strengthen the semiotic coherence of a post, whilst making it more semiotically rich, and potentially, more engaging. Post (12) below provides an example of concurrence through specification, as the image of a turtle trapped in a plastic net visually illustrates how plastic debris is "responsible for harming 66% of marine mammal species". All multimedia included were endowed with high modality (Kress and Van Leeuwen 2020) or realism, which might stress the veracity of the denouncing arguments given by the NGOs, and consequently, reinforce the self-projection of the WWF and Greenpeace as genuinely concerned with environmental problems.

(12)

WWF @WWF · 21 ene. ...
Abandoned fishing gear is the deadliest form of plastic debris for marine mammal species.

True	89,2 %
False	10,8 %

1.236 votos · Resultados finales

5 35 96

WWF @WWF · 21 ene. ...
Underneath our oceans & out of sight, 'ghost gear' is the deadliest form of plastic debris, responsible for harming 66% of marine mammal species 🐢 Help our marine wildlife swim free in the ocean 🌊. Get govts to #StopPlasticPollution with a #PlasticTreatygo.panda.org/plastics

© naturepl.com / Jordi Chiaz / WWF

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Together with concurrence, 28% of the total corpus contains multimedia content in a complementary relation of extension through augmentation to caption content. This is found more often in Greenpeace's posts (40.54% of the posts with multimedia content) than in WWF's (with only 18%). In the case of Greenpeace, most multimedia elements (75.65%) are embedded in a hyperlink included in the caption. The exploration of the relation between these posts and the hyperlinked texts revealed that most of Greenpeace's posts are aimed at giving visibility to the issues addressed in the linked articles so that X/Twitter captions serve as a general comment on or summary of the hyperlinked information. In their original context, the images stand in a relation of similarity with the text as both convey the same idea or situation. For example, in post (13) the article linked deals with a series of protests against the legal protection of corporations with anti-environmentalist policies, so the picture immortalises the protesting act. In the post, however, no information about the protests is provided, so it becomes a critical comment aligned with the denunciation in the image. When recontextualised in X/Twitter, the hyperlinked image receives an enhanced level of specificity as it portrays a particular event contrasting with the generality of the caption. In any case, when deciding to consciously maintain the image visible, Greenpeace endows their posts with greater visual dynamism whilst managing to provide a more realistic account of the issue addressed in the caption.

(13)



Greenpeace @Greenpeace · 16 feb.

Corporations should not be allowed to weaponise our legal system against the ordinary citizen and activists in order to intimidate and silence them.

#PeopleOverProfit



cer.org.za

A momentous legal victory for environmental activism and free speech ... CAPE TOWN. On Tuesday, the South African High Court held that a series of defamation lawsuits brought by Australian mining company ...



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45



112



The last resource identified for self-presentation is the reliance on lexicogrammatical and visual elements which imbue the posts with a subjective, evaluative undertone. The use of evaluative, emotional discourse has been approached here in connection with engagement given its function as a marker of authorial positioning (Hyland 2005b; Villares 2023) and dialogicity (Bondi 2022). Lexicogrammatical elements (adjectives, adverbs, verbs and nouns) were classified based on their negative and positive balance with regard to their co-text. *See Appendix 2* for the list of lexical items identified in each subcorpora, and Table 4 for data on frequency of use based on positive and negative balance.

Table 4. Emotional lexis. Frequency of lexical items with a positive and negative balance (number of occurrences in brackets)

	Greenpeace	WWF	Total corpus
Negative verbal tokens	46.52(65)	24.33(35)	35.37(100)
Adjectives	12.16(17)	6.95(10)	9.52(27)
Adverbs	0.71(1)	2.78(4)	1.76(5)
Verbs	7.87(11)	4.86(7)	6.34(18)
Nouns	25.76(36)	9.73(14)	17.63(50)
Positive verbal tokens	22.90(32)	24.33(35)	23.63(67)
Adjectives	12.88(18)	18.77(27)	15.87(45)
Adverbs	0(0)	1.39(2)	0.70(2)
Verbs	0(0)	0(0)	0(0)
Nouns	10.02(14)	4.17(6)	7.05(20)

The difference in the absolute frequency of positive and negative elements between the subcorpora was assessed in terms of statistical significance with a chi-square test. The calculated chi-square value obtained (19.01) is significantly higher than the critical value (3.841) reached for the contingency table elaborated for the positive-negative and Greenpeace-WWF variables. Thus, the difference in frequency of use of positive and negative elements between the two subcorpora was marked as significant, with Greenpeace presenting a higher frequency of elements with a negative balance with respect to WWF, and WWF a higher positive balance with respect to Greenpeace (*see Table 4*). This difference in positive-negative lexis in the whole corpus might reveal two distinctive approaches to the environmental crisis. To assess this, individual chi square tests were carried out to test the statistical significance of negative and positive elements within each subcorpora.

The chi-squared value obtained (11.22) for Greenpeace was greater than the critical value (3.841), thereby marking the higher frequency of negative elements as significant. This is coherent with the results obtained for the general corpus,

overall denoting a tendency to address the environmental crisis through the reference to the negative phenomena associated with it. The qualitative interpretation of the co-text in which negative elements are used in the Greenpeace corpus unveils the reliance on lexico-grammatical elements connoting feelings of threat and danger, as well as the reference to environmentally harmful practices. Example (14) illustrates the combination of negatively connoted lexis to stress the severity of the deforestation of the Amazon rainforest:

- (14) The Amazon rainforest is *under attack* but this widespread *destruction* is not a coincidence. It's a *calculated* effort by Bolsonaro's *antienvironmental* government. We cannot allow this to go on.
<https://gizmodo.com/a-staggering-amount-of-amazon-rainforest-disappeared-la-1848534817>
(Post shared by Greenpeace International)

The prevalence of negative elements suggests an interest from the organisation to discursively depict a world in crisis that needs urgent global intervention. This finding aligns with the results obtained regarding lexical choices, according to which a high percentage of posts (86%) from the Greenpeace sample presented items from the field of 'environmental issues'.

A higher positive balance for WWF was noted when compared with the Greenpeace subcorpus. However, after delving into the difference between positive and negative elements within WWF's posts with a chi-square test, no statistical significance between them was identified, as the same number of instances per category was found. Yet, the qualitative observation of the linguistic environment of emotional lexis did uncover potential differences in the associations derived from the introduction of positive and negative elements.

In the case of negatively charged lexis, a correlation was observed in the introduction of negative elements and reader-oriented verbal resources, which include second-person forms and directives. As will be explained later in Section 3.2. *Audience projection in X/Twitter for environmental purposes*, reader-oriented verbal resources are employed by the NGOs to incorporate the audience into their environmental discourse. In this sense, WWF was found to combine negative depictions of environment-related issues with direct addresses to the reader (as reflected in 57.89% of the posts with negative elements). This might denote an interest from WWF to evoke a sense of social responsibility in their audience by first describing an environmental issue, and then, providing them with a possibility to actively contribute to address it:

- (15) 🦋 This is for all of you who love nature and a good run! Wetlands are critical to efforts to rein in #climateChange but we are *losing* them faster than forests. You can help joining the first #WorldWetlandsRun (Feb 2–5)
Register at worldwetlandsrun.com
(Post shared by WWF)

Regarding positively connoted lexis, the qualitative analysis of its co-text revealed a tendency to include positive elements in posts where verbal and visual items from the ‘ecosystems and nature’ field and diverse forms of the inclusive ‘we’ are used (as observed in 87.5% of the posts with positively connoting lexis):

- (16) Filled with all things that *sustain* and *protect* us, our planet is *perfect* for us 🌍
#SwipeRight on Earth and show it *love* today and forever — because every person that *cared* can make the world of difference to our shared home 💕
#ValentinesDay (Post shared by WWF)

This correlation may disclose an interest in projecting a hopeful vision of collective action as the solution to the environmental crisis; an interpretation which is coherent with the idea that WWF alludes to social responsibility to foster a shared identity with their audience as members of the global community.

As has been advanced, visual resources have also been considered to explore emotional language as a mark of self-presentation in Greenpeace’s and WWF’s posts. The focus is now established on the introduction emojis as cues for emotional and evaluative discourse, given the recognised potential of this type of graphicons (Herring and Dainas 2017) to convey attitudinal values (Loggi and Zappavigna 2023; Luzón 2023; Zappavigna and Loggi 2024). Although they are not particularly abundant in the total corpus (only in 14% of the posts), emojis are approached here as relevant for self-presentation because they reflect the NGOs’ deliberate effort to “align with the interlocutor” (Sampietro 2016, 109). All emojis qualify as attitudinal emojis (Loggi and Zappavigna 2023) as they take the form of facial expressions (😬😭😞😏😟😔), emblematic gestures (👉👏) or ideational entities (❤️💕💚💔💙), all of which convey positive or negative polarity. Of the posts featuring attitudinal emojis, 85.7% are found in the WWF subcorpus, which underscores WWF’s effort to be perceived as part of the social community of its audience. Concerning their negative-positive balance, facial expression emojis were found to denote negative meanings, signalling negative attitudinal aspects with no explicit verbal coding (see Example (17)). Emojis signalling emblematic gestures or ideational entities were observed to denote positive meanings (see Examples (18) and (19)); except for the broken heart emoji (💔) only found once in the WWF subcorpus:

- (17) Tigers are pretty amazing animals, with unique quirks and personalities. But did you know tigers are actually under threat?
– I didn’t 😞
– I do 😊 (Post shared by WWF)

- (18) 🌊🌊🌊 @greenpeacefr
 Our oceans are in crisis and time is running out. If governments are serious about ocean protection, there’s no more time for double-speak.
 We need a strong Global Ocean Treaty NOW!
 #OneOceanSummit #DontLookDown #ProtectTheOceans
 [Quote tweet: from an activist campaigner working alongside Greenpeace France: @greenpeacefr] (Post shared by Greenpeace International)
- (19) The answer is 10%! After the Bikin National Park in Russia was declared as a UNESCO World Heritage Site, in 2015, the tiger population rose in the region 🐅🌿
 RT to raise awareness for the tigers❤️🐅
 @wwfRU @wwf_tigers #Tiger #YearOfTheTiger (Post shared by WWF)

3.2 Audience projection in X/Twitter for environmental purposes

The second dimension devised to explore X/Twitter engagement as an interpersonal phenomenon is audience projection in discourse, approached here through the study of reader-oriented verbal resources. Reader-oriented resources foreground the dialogic nature of engagement on TWEP as they evidence readers’ active role in the co-construction of environmentalist discourse. Two types of dialogic reader-oriented markers were found in the corpus: second-person forms and directives. Table 5 shows quantitative data on their use by token frequency and post summed occurrences. Despite their low frequency, these markers are considered relevant for exploring of X/Twitter engagement given their indexed interpersonal quality.

Table 5. Verbal resources for audience projection. Frequency of use (total occurrences in brackets) and number of posts with, at least, one instance of the reader-oriented resources

	Greenpeace posts frequency/ 1000 words	Greenpeace posts occurrences	WWF posts frequency/ 1000 words	WWF posts occurrences
2nd.person forms	4.29(6)	4	17.38(25)	18
Subject pronoun	3.57(5)	4	11.82(17)	14
Object pronoun	0(0)	0	0.69(1)	1
Possessive det.	0.71(1)	1	4.86(7)	6
Directives	18.61(26)	20	19.49(28)	17

Second-person forms have been widely explored as engagement markers (Hyland 2005a, 2005b; Pérez-Llantada 2024). Table 5 points to a higher frequency of reader-oriented forms in WWF's corpus (17.38) than Greenpeace's posts (4.29). This difference in number was marked as significant after the application of a chi-square test whose chi-square value (11.64) resulted as higher than the critical value (3.841) obtained. Acknowledged to "offer the most explicit ways of achieving proximity by bringing readers into a discourse" (Hyland 2010, 125), the use of second person pronouns might unveil a greater preoccupation on the part of WWF to bring themselves closer to their intended audience, a particularly relevant issue in the context of X/Twitter communication where the audience stands as a diffuse and multiple concept (boyd 2010). This finding is coherent with the higher frequency of inclusive 'we' identified in this account in comparison to Greenpeace. In revealing "how writers view [...] their relationship with the community they belong to" (Kuo 1999, 123), the combined use of different reader pronouns may both contribute to WWF's self-presentation as a member of society and foster a sense of collective responsibility in their audience as equally affected by environment-related issues. For instance, Example (20) includes both the pronoun 'you' as part of a rhetorical question, i.e., another resource for engagement (Hyland 2002), and the inclusive 'we' to encourage collective action in helping to repopulate the number of tigers in Malaysia.

- (20) Did *you* know that there are less than 200 tigers left in Malaysia today? That's less than HALF the number we saw just a little over a decade ago.
But things are starting to turn around in the country — & we can all help keep this amazing cat thriving: <https://lp.panda.org/year-of-the-tiger>
(Post shared by WWF)

The second resource are directives (*see Table 5* for frequency data), i.e., engagement markers aimed to "instruct the reader to perform an action or to see things in a way determined by the writer" (Hyland 2005b, 184). No statistical significance was found in the frequency of use of directives between each subcorpora; measured with a chi-square test, whose chi-square value (0.1493) turned out much lower than the critical value (3.841) established for the distribution table on directives. Nonetheless, a distinction in form was noted in the qualitative analysis of the recorded instances. While in the Greenpeace subcorpus directives were exclusively given as imperative forms, the posts from WWF alternated imperatives with verbs of obligation (namely, 'must') addressed to the audience. Specifically, modal verbs of obligation appear in combination with the inclusive 'we', which further evidences the reiterant effort from WWF to position themselves as equal to their audience:

- (21) It's clear *we must champion* projects which see the survival of this species.
When we save tigers, everything thrives. Animals, forests and people.
(Post shared by WWF)

The use of directives is here approached as a cue for action-oriented dialogicity (Bondi 2018, 2022), as they encourage the reader to become actively involved in the environmentalist causes denounced. In both accounts, the call for active participation is materialised in direct encouragement for the audience to join the campaigns organised by the NGOs through the webpage linked in the post:

- (22) Turkey is not a plastic dump!
Waste colonialism must end.
This is yet another reason why we need a strong and legally binding global
#PlasticTreaty.
Join the movement
👉 greenpeace.org/PlasticTreaty
#UNEA #BreakFreeFromPlastic #BuKiminÇöpü
(Post shared by Greenpeace International)

- (23) Here are 3 ways you can help make an immediate impact to solve the plastic crisis!
Our leaders must also step up — *join* us in calling for a #PlasticTreaty to #Stop-PlasticPollution👉
go.panda.org/plastics (Post shared by WWF)

or in a direct request for the audience to get better informed about environmental problems and share their personal views as a reply to the NGOs' posts:

- (24) People and organisations all over Argentina said ENOUGH and worked together to halt seismic exploration in the Argentine Sea by oil companies!
Learn more👇
<https://www.greenpeace.org/international/story/52326/greenpeace-argentina-saved-argentine-sea-oil-companies/>
(Post shared by Greenpeace International)
- (25) How have you been impacted by the climate crisis and by climate anxiety, and what gives you hope to keep fighting?
Share your story with us: bit.ly/3GDgDgSFa
(Post shared by Greenpeace International)
- (26) Well done! You've completed our #PlasticWaste quiz! How did you do? *Let* us know in the comments👉
You can take action on plastics today!
Find out how at go.panda.org/plastics #QuizTime (Post shared by WWF)

Overall, the resources for explicitly referencing the audience outlined here contribute to engaging the intended audience by making them feel directly addressed by the critical arguments expressed by the organisations. Such a sense of agency is emphasised through the NGOs' projection of a clear pro-environmentalist position in which the (social) role of the NGOs and their X/Twitter audience is discursively equated. Thus, it is through the combination of verbal and non-verbal elements that engagement on X/Twitter is tackled as an interpersonal phenomenon, accounting both for the NGOs' self-presentation and for the audience-oriented linguistic cues used in the posts of the organisations.

4. Final remarks

This paper has investigated social networking engagement on X/Twitter for environmental purposes as an interpersonal phenomenon wherein organisational accounts project themselves and their audience through discourse. Specifically, it has provided insights into how NGOs rely on verbal and visual resources (namely first-person plural forms, lexical and visual semantic choices, and emotionally loaded discourse features) to present themselves as informed, legitimate members of the environmentalist community, whilst also enhancing their presentation as members of society. Similarly, it has shed light on the verbal resources (i.e., second-person forms and directives) employed by non-profit organisations to project their audience as equal members of the environmentalist community. The results show that, despite addressing related environmental issues, WWF and Greenpeace leverage discursual and medium-based resources to shape their distinct approaches to the environmental crisis. This is particularly evident in the WWF's enhanced tendency to discursively reduce the distance with their intended audience by projecting themselves and their readers as equal members of society.

The analysis has also contributed to approaching pro-environmentalist communication on X/Twitter as a collection of multimodally enhanced practices. This has unveiled the need to tailor an analytical framework suitable for the multimodal conceptualisation of engagement in microblogging communication.

For this purpose, the study has proposed the semiotic interpretation of caption-multimedia meaning-making, as adapted from Maier and Engberg's (2014) analysis of text-image relations. This approach has proved to be an effective means to explore the interrelated and multidimensional use of verbal and non-verbal engagement markers at different levels of analytical delicacy.

The study has several limitations, primarily related to the corpus size and analytical methodology. The limited size of the corpus inevitably restricts the value of the quantitative data provided, diminishing the relevance, from a statistical per-

spective, of some of the qualitative insights offered. Subsequent research with a larger dataset from each profile, or even an extended number of accounts, would provide a more comprehensive perspective on X/Twitter engagement as an interpersonal phenomenon. Besides, the focus established exclusively on discursive manifestations neglects the understanding of engagement as an audience-oriented phenomenon, excluding audience response as a valuable source of interpretative data. Future investigations would greatly benefit from the incorporation of impact measurement tools (e.g., engagement metrics on likes, shares or follower feedback) and ethnographically-informed methods (interviews and surveys with audience users), as these would help to evaluate the effectiveness of the discursive choices explored here.

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Appendix 1. List of lexical items classified for the Greenpeace and WWF subcopora.

Greenpeace subcorpus		
Ecosystems & nature	Environmental Issues	Human cooperation
Amazon	anti-environmental	action
animals	agenda	activist
biodiversity	agribusiness	agreement

Greenpeace subcorpus

Ecosystems & nature	Environmental Issues	Human cooperation
coast	animals	citizen
energy	burning	collective
environment	climate	community
ecosystems	climate anxiety	duty
fish	climate experts	fraternity
fires	climate leaders	join
forest	climate change	victory
food	climate crisis	responsibility
global ocean treaty	calculated effort	support
grain	cost	together
land	crisis	#PeopleOverProfit
legumes	deforestation	#Together4Forests
meat	degradation	
nature	destruction	
ocean	energy	
palm plantation	environment	
planet	exploration licensing	
petroleum	exploits	
fruits	fire	
vegetation	food security	
tree	fossil fuel	
world	global climate	
#NatureEmergency	green recovery	
#OceansNotOil	heat deaths	
#OceansOverOil	heat wave	
#OneOceanSummit	industrial pollution	
#ProtectTheOceans	industries	
#SaveCongoRainforest	IPCC	
#Together4Forests	intergovernmental panel on climate change	
	legally binding	
	livestock	
	oil	
	oil companies	
	oil industry	
	oil production	
	palm plantation	
	plastic	
	plastic dump	

Greenpeace subcorpus

Ecosystems & nature	Environmental Issues	Human cooperation
	plastic-free	
	plastic pollution	
	plastic waste	
	processed foods	
	processed meat	
	risk	
	seismic exploration	
	storage	
	supply chains	
	tax	
	tailpipe emissions	
	vessel	
	waste	
	zero-emission	
	#ActOnClimate	
	#BanFossilAds	
	#BreakFreeFromPlastic	
	#ClimateChange	
	#ClimateCrisis	
	#ClimateEmergency	
	#ClimateReport	
	#FossilFuelRevolution	
	#LessHeat	
	#LessMeat	
	#NatureEmergency	
	#OceansNotOil	
	#OneOceanSummit	
	#PlasticTreaty	
	#PlasticsTreaty	
	#ProtectTheOceans	
	#RealZero	
	#SaveCongoRainforest	
	#detoxicity	
	#greenwashing	
	#PlanBased	

WWF Subcorpus

Ecosystems and nature	Environmental issues	Human cooperation
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animal	anti-poaching	act
biodiversity BikinNationalPark	bottles	action
cat	bushmeat	all
cubs	crisis	collaborative
desert	danger	efforts
dragon	debris	help
earth	ecotourism	home
ecotourism	endangered	join
ecosystems	extinction	shared
endangered	garbage	support
food	landfill	together
forest	legally binding	#TogetherWeCan
gorillas	logging	
habitats	microplastics	
homeland	Pacific Garbage Patch	
hunter	plastic	
land	plastic smart	
mammal	polluting	
marine	poaching	
monkey	recycled	
nature	threat	
ocean	threatening	
paw	toxins	
planet	trade	
prey	unsustainable	
programme	waste	
rainforests	#Biodiversity	
river	#NoPlasticInNature	
road	#Plastic bottles	
rooster	#PlasticCrisis	
species	#PlasticPollution	
streets	#PlasticTreaty	
tiger	#PlasticWaste	
water	#StopPlasticPollution	
Wetlands		
wildlife		
world		
#Biodiversity		

WWF Subcorpus		
Ecosystems and nature	Environmental issues	Human cooperation
#Forest		
#NaturePositive		
#NoPlasticInNature		
#Rainforest		
#Tiger		
#WorldWetlandsRun		
#YearOfTheTiger		

Appendix 2. List of lexical items with a positive and negative balance in the Greenpeace and WWF subcorpora

Greenpeace subcorpus		WWF subcorpus	
Lexis with positive balance	Lexis with negative balance	Lexis with positive balance	Lexis with negative balance
adaptation	abandon	amazing	bad
beautiful	aggressive	beautiful	crisis
fruitful	alarming	better	danger
free	alone	bold	deadliest
great	anxious	breath-taking	destroyed
high time	anxiety	clever	extinction
high-value	attack	collaborative	fragile
historic	bias	effort	harming
hope	burning	fab	hate
important	calculated	good	illicit
inspiration	challenge	healthy	instability
landmark	colonialism	hope	lose
legacy	cost	iconic	loss
opportunity	crisis	important	losing
promises	death	love	nowhere
relevant	devastating	loving	risk
remarkable	difficult	perfect	sadly
responsibility	die	pretty	serious
strong	discrimination	smart	shockingly
	destruction	strong	thin
	destroy	success	threat
	destructive	support	threatening

Greenpeace subcorpus		WWF subcorpus	
Lexis with positive balance	Lexis with negative balance	Lexis with positive balance	Lexis with negative balance
	dump	unique	unsustainable
	extreme	well	weak
	excuses	#NaturePositive	worryingly
	harmful		worse
	ill-equipped		waste
	impact		
	inevitable		
	intimidate		
	misogyny		
	mockery		
	miss		
	outrageous		
	poison		
	risk		
	run out		
	sadly		
	slavery		
	slow-onset		
	threat		
	uncharted		
	urgency		
	vulnerability		
	violent		
	waste colonialism		
	waste games		
	weaponize		
	weakens		
	wreckage		
	#ToHellWithShell		

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