Introduction

Ecological Communication for Raising Awareness and Ecoliteracy for Taking Action

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Interweaving perspectives on the lifescape

This volume offers interweaving and complementary perspectives of verbal and non-verbal communication to make sense of the ecological crisis and promote positive change for restoring a respectful, caring and healthy relation with ecosystems and their delicate, endangered balance. Drawing on ecolinguistics, ecoliteracy and multimodal studies, the contributions in this volume offer multifaceted views of awareness raising and action-taking for the care of the lifescape, namely the complex, delicate and rich systemic relation between all living beings and the con-vironment we belong to (Fill 2001; this volume), that 'home' that is instantiated by the prefix 'eco-' in ecology, ecolinguistics, ecoliteracy and, we also propose in this volume, ecomultimodality.

The plan for this book initiated at a time when social movements such as #FridaysForFuture were gaining influence and strength for effective action worldwide; from 2020, the overpowering urgency of the Covid-19 pandemic overshadowed all other events in the mediasphere and in our lives, while global and local inequalities and sociopolitical tensions have never ceased to exist, as present-day rampant warfare, injustice, poverty and displacing of refugees demonstrate. This volume has the aim of contributing to refocusing attention on the profound impact communication has on events, perceptions and value systems in relation with the greatest impending global issue we are collectively and globally facing, the environmental crisis, and the actions we need to undertake in order to meet the challenges of change (also post-pandemic) to avert this human-inflicted calamity (Figueres and Rivett-Carnac 2021; Lopez 2021; Staid 2022; Milstein, Thomas, Hoffmann and Carr 2023). These situations and their complex outcomes are related to our individual and collective beliefs, values and behaviours

vis-à-vis ourselves as humans and the ecosystems that sustain multispecies life on the planet. Systems (ecological, social, cultural, etc.) in their complexity are supported and instantiated by language and other semiotic resources in situated practice (Jewitt, Bezemer and O'Halloran 2016). Communication (verbal and non-verbal) gives shape, texture, potential and relevance to events, participants, features and relations; and it can also background, obfuscate or erase situations, actors, connections and causality relations.

In this volume, communicative situations, events and their discourse practices are viewed as an integral part of the ecosystems: through them we construe ourselves as humans in relation with the more-than-human world and as part of the 'lifescapes' we belong to. We use the overarching term 'communication' to address the interplay and co-deployment of a variety of modes in situated discourse practices in which linguistic features are intrinsically related and intertwined with other semiotic modes (still and moving images, graphic features, sounds, music, gestures, facial expressions, proxemics, space layout, etc.). This volume takes its moves from ecolinguistics and the focus on verbal discourse in context, and explores other interconnected areas such as ecoliteracy and ecomultimodality in order to analyse and interpret socioculturally situated discourses and texts in present-day society through an ecological lens. Verbal discourse is the focus of all contributions, while most contributions also include the analysis and discussion of other semiotic repertoires which contribute to meaning through the co-deployment of modes in interaction (Parts II and III).

Thus, the perspectives offered in this book create interwoven networks that investigate discourses, question conventions and rethink the way we experience, endorse, convey, assess, resist and reframe socioculturally construed events, norms and texts. This draws on the wide-ranging and interdisciplinary field of Critical Discourse Studies (among many other seminal studies: Fairclough 2003, 2010, 2014 [1989]; van Dijk 2009; Wodak and Meyer 2016; Wodak 2013; Stibbe 2014). Wodak defines this area of research (in the quote, CDA is the acronym for Critical Discourse Analysis) as follows:

> In general, CDA is characterised by a number of principles [. . .]: for example, all approaches are problem oriented, and thus necessarily interdisciplinary and eclectic. Moreover, CDA is characterised by the common interests in demystifying ideologies and power through the systematic and retroductable investigation of semiotic data (written, spoken or visual). CDA researchers also attempt to make their own positions and interests explicit while retaining their respective scientific methodologies and while remaining self-reflective of their own research process. (Wodak 2013: xxi)

In 2004, Martin theorized and promoted Positive Discourse Analysis (adopted by many scholars: among them, Macgilchrist 2007; Bartlett 2012; Stibbe 2018) which posited the need to go beyond critiquing by focusing on positive discourses; this stems from the agenda of Critical Discourse Studies which also includes offering alternative views through the study of language and communication.

A common key feature of the contributions in the present volume is the focus on the potential of communication as positive ecological action in society and education since 'learning is the inevitable outcome of any and every engagement with the (socially made) world' (Bezemer and Kress 2016: 37). Learning is change, and change is needed to face the climate crisis we are experiencing. Positive action starts from self and collective reflections on the complexity (and contradictions) of 'ecological communication' and acts upon them. In this volume, 'ecological communication' means both communication about ecological issues (which include communication itself) and the ecology of communication, that is, a reflective, critical and positive view of how verbal and non-verbal communication instantiates our world view and influences our values and behaviour towards it. The themes dealt with in the volume investigate diverse communicative contexts that have contributed to the present Anthropocene crisis or increased its scope at global level through injustice and exploitation grounded on the value principle of continuous 'growth' (Halliday 2001 [1990]; Shiva 2015; Eisler and Fry 2019; Figueres and Rivett-Carnac 2021; Staid 2022).

Notions about human-influenced climate change were already known at the beginning of the twentieth century, as a recently gone viral post[1] reminded us. The post contains a picture of a 1912 newspaper article entitled 'Coal consumption affecting climate', which is in turn based on the report 'Remarkable Weather of 1911: The Effect of the Combustion of Coal on the Climate – What Scientists Predict for the Future' (Molena 1912). This text discusses early data of human-generated impact on climate, celebrating it as an accomplishment of the human mind rather than questioning it as a cause for concern. On the one hand, it underlines that coal consumption 'tends to make the air a more effective *blanket* for the earth and to raise its temperature' and that the effects of this trend 'may be considerable in a few centuries' (Molena 1912: 341; (emphasis is ours)). On the other, it glorifies the ability of human inventions to 'reach beyond the near at hand and the immediate present and modify the cosmic processes themselves' and stresses that the human-caused addition of carbon dioxide to the atmosphere of our planet will allow 'men in generations to come [to] enjoy milder breezes and live under sunnier skies' (Molena 1912: 342). This text represents

a telling example of what Halliday (2001 [1990]: 196) called 'growthism': a strongly anthropocentric mentality celebratory of humans' domination over the environment based on such ideas as the continuous growth and accumulation in every aspect of human life, and a top-down approach to the relationship with the ecosystems humans are but a part of. The very idea that humans are to 'protect' earth's ecosystems – or lifescapes (see definition later) – stems from this approach and is a sign of the widely shared anthropocentric narrative that puts humans at the centre of the human–nonhuman relation. This narrative is grounded in the notion that humans are the actors and main agents in this relation, and it is thus up to them to be the 'protectors' of nature; in fact, humans should simply respect ecosystems and coexist with other living beings without actively harming them: humans find themselves in need to actively 'protect earth's ecosystems' now, because they damaged them in the first place. In other words, rather than viewing the planet as con-vironment (see later in the text), this system of beliefs, attitudes and behaviours construes it as the background to human existence and activity. In turn, this kind of anthropocentric mentality is entrenched in deep-seated Western cultural and religious beliefs which celebrate humans as the most prized among divine creations and assign to every other aspect of life on earth an ancillary status, as exemplified by the central role that the notion of 'The Great Chain of Being' held in Western thought for centuries (Nee 2005). Many cultures and religions, other than the dominant ones in Western affluent societies, have been and are still based on very different views on the relation between human and other-than-human. Native tribes in what are now the United States, for instance, did not conceive the land as an individual commodity, and this became transparent when the first contracts for their land enclosure in reservations were written after the colonization of their territory by the Europeans.[2] By the same token, several cultures (based on religions such as Hinduism and Buddhism, among others) revolve around the idea that all living and non-living creatures on earth are interconnected, and humans need to live in harmony with nature rather than lording over it. This explains, at least in part, why very little has been done since the publication of Molena's article (1912) in order to prevent human activities from further negatively impacting on the atmosphere, while much has been done to add to the damage. Among the twenty countries with the highest yearly CO_2 emissions in the world, many are Western affluent countries which have done little to nothing to curb their carbon footprints since 1990 (UNEP 2021). At the same time, massive extensions of territories from the southern and eastern areas of the globe (such as India, Mexico and China) have experienced a surge in industrial, technological and economic development from the last

decades of the twentieth century. The general result is that CO_2 emissions have globally ramped up in the past thirty years.[3]

Against this backdrop, all the voices in this volume envisage global and local transformative actions as urgent and possible and give complementary and alternative insights into how communication and citizenship education can contribute to respecting and preserving the living ecosystems adopting principles of deep ecology as posited by Næss: 'Ecologically responsible policies are concerned only in part with pollution and resource depletion. There are deeper concerns which touch upon principles of diversity, complexity, autonomy, decentralization, symbiosis, egalitarianism, and classlessness' (Næss 1973: 95; Næss 1995, 2021).

The volume builds on the overarching definition of ecolinguistics by Steffensen and Fill (2014: 21):

> Ecolinguistics is (1) the study of the processes and activities through which human beings – at individual, group, population and species levels – exploit their environment in order to create an extended, sense-saturated ecology that supports their existential trajectories, as well as (2) the study of the organismic, societal and ecosystemic limits of such processes and activities, i.e. the carrying capacities for upholding a sound and healthy existence for both human and non-human life on all levels.

As Alexander and Stibbe (2014) mention, ecolinguistics does not only include the investigation of texts and discourses specifically about the environment, but it also explores a variety of text typologies and interactions which represent and instantiate values, beliefs and behaviours that have an impact on our world and influence our actions. As Fill (2018: 5) mentions, Halliday was among the first to ask the question that is now central in ecolinguistics: 'Do linguistic patterns, literally, affect the survival of the human species as well as other species on Earth?' (see Halliday 2001 and his 1990 speech in which this issue was first raised; Steffensen and Fill 2014: 9; Goatly 2018; Stibbe 2018, 2021).

Döring (2018: 297) writes that 'language is not estimated to represent a self-contained element processing the outer world, but it is an integrated and socially interlinked entity'. As Fill and Mühlhäusler (2001b: 3) highlight, communication emphasizes the interconnectedness of social and natural aspects of the environment and its inhabitants. To underline that all living beings are an integral part of their ecosystems, Fill (2001; this volume) uses the term con-vironment, rather than 'environment'[4]: the latter evokes and etymologically derives from 'surroundings' and linguistically represents the natural world as surrounding

humans rather than including them (see OED online 2022). Steffensen and Fill (2014: 17) and Steffensen (2018) write that language is not just *about* nature but is *of* nature. Thus, this volume sets out to show the impact that language in situated communicative contexts and in relation with other semiotic systems can have in acting in, with and towards the living environment or, as Stibbe calls it, 'the ecosystems that life depends on' (Stibbe 2021: 42).

The prefix 'eco-' reminds us of housekeeping (Fill and Mühlhäusler 2001b: 3) since it draws its origins from 'oikos', in Ancient Greek 'house, dwelling place' (OED online 2022). Stibbe (2021: 8) views the 'eco' of ecolinguistics as referring 'to the life-sustaining interactions of humans with other humans, other organisms and the physical environment, with some kind of normative orientation to protecting the flourishing of life'. Along these lines, in this volume, ecolinguistics, ecoliteracy and ecomultimodality are understood as the study of 'situated' communication dealing with 'our home', where local events impact on the global and vice versa in the short- and the long-term, representing ecosystems in their complexity and including human communication and its contexts of action and interaction. Quoting Stibbe, '[t]he link between ecology and language is that how humans treat each other and the natural world is influenced by our thoughts, concepts, ideas, ideologies and worldviews, and these in turn are shaped through language' (Stibbe 2021: 1; see also Fill and Mühlhäusler 2001a; Steffensen and Fill 2014; Stibbe 2018; Fill and Penz 2018).

This volume encompasses also the multimodal perspective of situated communication to account for its semiotic complexity, since communicative events are never monomodal but relational interaction and co-deployment of various modes on the basis of sociocultural conventions and affordances. As Kress and van Leeuwen wrote (2001: 1): 'we see the multimodal resources which are available in a culture used to make meanings in any and every sign, at every level and in any mode.' Jewitt (2017b: 15) remarks:

> Multimodality [. . .] proceeds on the assumption that representation and communication always draw on a multiplicity of modes, all of which have the potential to contribute equally to meaning. The basis assumption that runs through multimodality is that meanings are made, distributed, received, interpreted and remade in interpretation through many representational and communicative modes – not just language – whether as speech or as writing.

Communication is therefore an orchestration of modes which orient the co-construction of meaning, and language, in its diverse realizations, is co-deployed with other semiotic systems according to conventions and available

repertoires. This profoundly influences our perception and interpretation of the world, including human and more-than-human identities.

Thus, in this volume we complement ecolinguistics with ecomultimodality which we define as the multimodal perspective applied to communication instantiating the lifescape(s) (see later in the text). What is not surprising is that the definition of ecolinguistics by Steffensen and Fill (2014) quoted earlier can also apply, and be extended, to multimodality, or, within our perspective, 'ecomultimodality'. Several seminal studies in ecolinguistics have already dealt with many aspects of multimodal communication: see, among others, some of the contributions included in Fill and Mühlhäusler (2001a) and Fill and Penz (2018), as well as other seminal works such as Stibbe (2012, 2021). Even the opening towards the analysis of modes (including language) for ecology is not new: see, among many others, Bortoluzzi (2009, 2010); Sedlaczek (2016, 2017); Hansen and Machin (2013); Hansen (2018); Caimotto (2020); Zurru (2021, 2022); and Dancygier (2023). The present volume gives explicit salience to this 'ecomultimodal turn' which, in fact, started a long time ago. The 'eco' prefix reminds us of our abode, the earth, the irreplaceable home we belong to, and is metonymically related to the multimodal affordances of space, sound, texture we inhabit, see, listen to and embody.

In our view, multimodality for ecological communication remains a wide-ranging field still to be explored which offers the potential of cross-fertilization between the principles of deep ecology and different strands and developments of multimodality (see Jewitt 2017a, 2017b). We only mention here the issue of 'design' as developed by Kress and van Leeuwen (2001: 5 *et passim*): 'Designs are means to realise discourses in the context of a given communication situation. [. . .T]hey realise the communication situation which changes socially constructed knowledge into social (inter-) action' (see also Kress and Selander 2012). This brings us beyond critiquing and raising awareness towards 'social action'. Focusing on the notion of 'design', Adami, Diamantopoulou and Lim (2022: 8) underline 'its potential for changing paradigms in our respective fields, challenging how we conceive learning and communication and, more generally, the agents of semiotic knowledge production towards social change'. In their view, the perspective of design promotes transformative social change recognising 'the agentive, creative and transformative roles of sign-makers and meaning-makers in learning and teaching'.

The perspective of transformative discoursal roles through awareness raising, co-construction of meaning and the relevance of agentivity contributes to action-taking through language and multimodal communication for the lifescapes we

are part of. In education and pedagogy, the recent decades have seen a progressive move from the emphasis on verbal literacy (oracy, reading and writing) towards the more complex set of evolving and intertwining 'literacies' combining critical reflection and active use of affordances encompassing those potentially found in still and moving images, sound and music, movement in space, gestures, graphic features, which nowadays intermesh embodied, contextual and digital features (see Vasta and Baldry 2020). Multiliteracies pedagogies view the participants as actively involved in their individual and collective change through the process of learning: 'meaning making is an active, transformative process', whereby 'all forms of representation, including language, should be regarded as dynamic processes of transformation rather than processes of reproduction' (Cope and Kalantzis 2009: 175). Discovery and transformative action through learning brings us to the next step: ecoliteracy as viewed and enacted through language, multimodal discourse and multiliteracies.

In the present volume, ecoliteracy is based on the perspective initiated by Orr (1992) and continued by Capra (1997) who coined the term 'ecoliteracy' in his seminal book *The Web of Life*. Capra connected the educational fields of humanities and scientific disciplines by establishing a profound contact between these traditions and showing how they can cross-fertilise and expand perspectives in wider educational areas.

McBride et al. (2013) identify and compare three main strands of education and the environment: environmental literacy, ecological literacy and ecoliteracy. They identify 'environmental literacy' as focused on scientific disciplines and comprising 'an awareness of and concern about the environment and its associated problems, as well as the knowledge, skills, and motivations to work toward solutions of current problems and the prevention of new ones' (McBride et al. 2013: 3). 'Ecological literacy' focuses 'on the key ecological knowledge necessary for informed decision-making, acquired through scientific inquiry and systems thinking' (McBride et al. 2013: 3). Ecoliteracy (addressed in Part III in this volume) is a third strand inspired by the groundbreaking work by Orr (1992) and Capra (1997): it encompasses the perspectives of hard and applied sciences, social and cultural humanities to offer a broad transdisciplinary view of knowledge and education. McBride et al. (2013: 14) summarise Capra's view of ecoliteracy

as an understanding of the principles of the organization of ecosystems and the application of those principles for creating sustainable human communities and societies. [. . .] An ecoliterate person is prepared to be an effective member of

sustainable society, with well-rounded abilities of head, heart, hands, and spirit, comprising an organic understanding of the world and participatory action within and with the environment. (see Capra 1997, 2013)

In 1995 the Center for Ecoliteracy was co-founded by Fritjof Capra, Peter Buckley and Zenobia Barlow in Berkeley, California. Its mission is 'cultivating education for the sustainability of people and the planet'. Over the years, 'the Center for Ecoliteracy has identified vital practices' that integrate emotional, social and ecological intelligence in order to strengthen and extend our 'capacity to live sustainably' (Goleman, Bennett and Barlow 2012: 30–1). In the volume *Ecoliterate*, Goleman, Bennett and Barlow (2012: 21) write: '"Ecoliterate" is our shorthand for the end goal, while "socially and emotionally engaged ecoliteracy" is the process that we have identified for getting there.'

Their work is based on the recognition of systemic networks of relations: 'The complexity of the web of connections that characterize our global society has created a vast collective blind spot about the effects of human behavior on natural systems' (2012: 21). They believe that 'ecological intelligence' is collective and based on 'nurturing communities'.

In this systemic vision of ecoliteracy, research studies in science, technology, social science and humanities converge and inform action on education and through education. Along these lines, Stibbe (2009) offers a multifaceted, interdisciplinary and transdisciplinary perspective on sustainability literacy. In the introductory chapter of the volume, Stibbe and Luna (2009) remark:

> The ability to take steps towards building a more sustainable self and society requires far more than knowledge about sustainability – it requires sustainability literacy. This book uses the term sustainability literacy to indicate the skills, attitudes, competencies, dispositions and values that are necessary for surviving and thriving in the declining conditions of the world in ways which slow down that decline as far as possible. Gaining practical skills requires a form of learning which goes beyond memorising and repeating facts. It requires active learning, a broad term used to refer to self-reflection, self-directed enquiry, learning by doing, engagement with real life issues, and learning within communities of practice. (Stibbe and Luna 2009: 10–11)

Communication (verbal and non-verbal) is also action through and on learning since it influences the perception of and the impact on ecosystems. Van Lier states that '[i]n addition to the multisensory nature of language perception, we must tie perception to the realm of action. [. . .L]anguage perception occurs in a context of activity and interactivity' (van Lier 2008: 55). Thus, the reflection on

ecological communication has the power of raising awareness, and ecoliteracy (encompassing verbal and non-verbal aspects) has the aim to promote a more positive relation of respect and care for the lifescape(s). Learning is viewed as an embodied experience that involves all human participants throughout their life in natural and sociocultural contexts: discoursal, multimodal and multiliteracies studies meet ecoliteracy to promote individual and collective action at the cognitive, emotional, practical, embodied level. The inevitability of linguistic anthropocentrism (Heuberger 2018; Steffensen 2018) can be thus balanced and complemented by the reflection on an orchestration of modes in local and global communication which includes and recognizes ecosystems as life-sustaining (lifescapes).

The contributions in this volume deconstruct what appears to be 'normalized' texts and representations, reveal neglect and backgrounding, give salience to respectful, equalitarian and fruitful communicative solutions for taking action in constantly changing scenarios while endorsing positive awareness raising about the major emergency the world is experiencing. Each contribution presents and discusses both theoretical and practical aspects of ecological communication: (1) reflecting on how we humans position and represent ourselves and our behaviour in relation with the ecosystem we are part of (lifescapes); (2) taking positive action through communication: how communicative strategies can challenge anti-ecological discourse, and can imagine and co-construct the future of our ecosystems, looking at the past and moving beyond the present.

To overcome the limits posed by language itself in order to perceive and represent the earth's ecosystems as a 'living entity' (see Halliday 2001; Mühlhäusler 2001), this volume investigates ecological communication in a variety of contexts to reveal, instantiate and offer 'embodied' evidence of the relevance of 'lifescape(s)'. The term 'lifescape' is intended not as limited to encompass 'living creatures' but includes the immersive complex ecosystems existing globally and locally on earth. 'Lifescape' is based on Fill's concept of 'con-vironment': human animals are part of nature, and we act on our common home through our sociocultural constructs which include communication. The term 'lifescape' is inspired by the 'Gaia' hypothesis developed as early as 1972 by Lovelock (1972). Lovelock and Margulis (1974: 3) posited the hypothesis 'that the total ensemble of living organisms which constitute the biosphere can act as a single entity' and is 'an active adaptive control system able to maintain the Earth in homeostasis'. Through the term 'lifescape(s)' we want to echo the knowledge and the wisdom of native peoples who perceive themselves in profound connection with the natural world (Fabiano and Mangiameli 2019;

Borgnino 2022). We were also inspired by the work and writing of Vandana Shiva against 'fragmentation and separation', for a holistic sense-making of the world we inhabit: 'Life and its vitality in nature and society is based on cycles of renewal and regeneration of mutuality, respect and human solidarity. The relationship between soil and society is a relationship based on reciprocity, on the Law of Return, of giving back' (Shiva 2015: 5).

Through imagination and creativity, literary voices are capable to reaching and bridging the gap created by Western linguistic and sociocultural conventions between humans and the more-than-human world (see Riem and Hughes-d'Aeth 2022; Zapf 2016). Nan Shepherd's *The Living Mountain* (2011; written during the Second World War and first published in 1977) is profoundly inspirational in this sense. Shepherd's words are guided by her deep connection with the con-vironment she feels part of: air, rock, water, animal, plant and human body blend into an encompassing awe-inspiring vision. Shepherd's view can be related to Næss's (1995, 2021) principles of deep ecology and the realization of a profound and radical respect for the ecosystems that sustain us within an ecocentric (ecology-centred, rather than an anthropocentric) world view. The biosphere and its network of life (Capra 1997, 2007) become the main focus of concern for humans narrating lifescapes as the realm of 'cobecoming': van Dooren, Kirksey and Münster (2016: 2) write that '[t]his cobecoming involves the exchange and emergence of meanings, immersion in webs of signification that might be linguistic, gestural, biochemical, and more'.

The notion of 'lifescape(s)' incapsulates the value system we advocate for in the present volume as care, respect, equality, justice, attentiveness and responsibility for the earth system in its multiple perspectives and strands.

The tapestry of the volume

The volume is organized in three interrelated parts: their different strands of issues, methodological solutions and reflections form patterns across the sections and chapters creating a rich interconnecting tapestry. The contributions offer insights across topics, methodologies and research interests which complement one another, highlight innovative approaches and demonstrate how verbal and non-verbal communication is an integral part of lifescapes and our actions.

Part I, Context Setting, opens the whole volume with two contributions that set the context of ecological communication and offer theoretical and methodological advances through the investigation of 'tension' as a

communicative phenomenon (Fill, Chapter 1), the exploration of corpus-assisted ecolinguistics as a powerful and innovative research area, and corpus-aided eco-pedagogy for language education (Poole, Chapter 2). In **Chapter 1**, 'Tension in Ecological Communication', **Alwin Frank Fill** offers a theoretical framework of 'tension' that connects several linguistic and communicative phenomena: he shows how ecological communication has both the potential to identify problems and can also contribute to solving them through revealing and defusing communicative 'tension' among humans and between humans and the con-vironment. Fill uses the term 'con-vironment' to re-conceptualize the notion of 'environment' as togetherness, whereby all elements and processes are closely interrelated in a web of mutual connection informed and supported by verbal and non-verbal communication. This contribution anticipates many of the themes of the volume, reaches out to the research area of Part II (which focuses on multimodal studies) and lays the foundations of its ethical principles: 'tension' can potentially become open conflict but it can be also defused through humour, argumentation and respect, thus demonstrating the power of communication as action and in action. A reflection on 'tension', writes Fill, 'should make us think and act more moderately, so that the present values and resources are retained, but perhaps distributed more equally – a development through which peace is promoted' (see also the book *Linguistics for Peace*, Fill 2022).

In **Chapter 2**, **Robert Poole** offers insights into the advances of corpus-assisted ecolinguistics and eco-pedagogy (see also Poole 2022). Poole interrogates and compares diachronically data sets from the Corpus of Contemporary American English to reveal and discuss the evolving representation of the terms *hurricane/s* and *wildfire/s* in US American discourse from 1990 to 2019. The comparison of adjectives and collocates of the two terms demonstrates the increased severity and strength of the two phenomena over the three decades. This study shows the methodological potentialities of corpus-assisted analysis in its diachronic perspective, as it gives evidence for 'the dynamic nature of meaning and representation' and provides 'an impetus in the potential cultivation of more ecologically sustainable language use' (Poole, this volume). Through the evidence of language use, corpus-assisted ecolinguistics can challenge popular notions or beliefs of language use and contribute to promoting 'emergent more sustainable construals'. The chapter also explores the advantages of 'corpus-assisted eco-pedagogy' for education, thus anticipating the main theme of Part III (ecoliteracy). As shown in this study, corpus-assisted eco-pedagogy can raise students' awareness on prevailing language uses, reflect on how these influence

and potentially inform our behaviour and give students agency through ecolinguistics discovery learning.

Part II, Multimodal Discourses for Ecological Action, expands the field of ecolinguistics to include multimodal discourse, and investigates the influence and impact of a variety of discourses and texts in relation with the construal of ourselves as part of the lifescape. The potential themes and methodologies of this wide-ranging research field are countless. This part of the volume offers some insights into a variety of areas (mobility discourse, creative art installations, visual and verbal metaphors, media and social media communication, etc.) and shows how multimodal communication instantiates and influences the action we take on the ecosystems. Ecolinguistics has frequently explored multimodal contexts of verbal interaction, but the emphasis (as the name itself suggests) has been on language. In this volume we give relevance to communication as multimodal interaction in context; thus we propose the term 'ecomultimodality' to give relevance to this 'multimodal turn' in (ecolinguistic) research studies.

In **Chapter 3**, 'Discourses of Cycling Advocacy and Power Amidst Wars, Petro-Masculinity and Climate Inaction', **M. Cristina Caimotto** looks at active mobility discourses as key aspect in our lives in relation with climate change, pollution, health issues and 'fossil fuel lifestyle'. Her contribution establishes a clear connection between ecolinguistics and mobility justice: 'automentality' is shown to be a pervasive hegemonic discourse that instantiates and perpetuates inequality, promotes pollution, exploitation and, ultimately, social conflict and 'fossil wars' (see also Caimotto 2020). Caimotto analyses verbal and visual discourses that promote active mobility through everyday cycling; she shows how some of these policymaking discourses would need to be reframed to prevent reproducing the problematic consumeristic mindset that has brought us to 'environmental hypocognition'. Caimotto powerfully advocates for a reframing of the stories we live by regarding cycling and mobility in order to better promote positive change in life quality and equality.

Elisabetta Zurru also reflects on the notion of environmental hypocognition and frames in 'Communicating the Urgency of the Climate Emergency through Verbal and Non-Verbal Metaphors'. **Chapter 4** investigates the communicated urgency of acting against climate change through verbal and non-verbal instantiations of the powerful metaphor of the TICKING CLOCK. By combining ecolinguistics and studies on verbal, conceptual, visual and multimodal metaphors, the author analyses case studies drawn from artivism, news reports and social media, in order to explore the communicative purposes and potential effectiveness of the TICKING CLOCK metaphor in the current debate on the

environmental crisis. Drawing the conclusion from the data analysed that the TICKING CLOCK metaphor seems to be mainly used to frame the environmental crisis within an apocalyptic narrative, the study suggests a reframing of the metaphor itself as a means to move away from doomsday scenarios and towards a communication able to frame in more encouraging terms the need to act swiftly to counteract anthropocenic climate change.

Human artefacts as contemporary artistic installations are the focus of **Emilio Amideo**'s study 'Unreliable Narratives and Social-Ecological Memory in Kara Walker's *A Subtlety*'. In **Chapter 5**, Amideo adopts Multimodal Critical Discourse Analysis to present and discuss the emergence of a social-ecological memory in Kara Walker's monumental installation *A Subtlety* (2014, USA). He writes that 'recognizing the political imbrication of history, race, and gender with the environment (not only in terms of representation but also in terms of materiality), points to a different understanding of the human relationship with the "con-vironment"' (Fill 2001; this volume). The orchestration of different semiotic modes in the installations (images, videos, sounds, music, materials, written and spoken language, etc.) encourages the audience to reflect on social-ecological memory and the impact of colonial and neocolonial practices and mindset on ecological matters, while actively interacting with the installations.

In **Chapter 6**, '(Un)welcome Waters for Multispecies Hospitality in the Anthropocene', **Gavin Lamb** takes two highly mediatized events (which happened in August 2022) involving the relation between humans and pinnipeds in two distant parts of the globe (monk seals in Hawai'i and a walrus in Norway) to investigate and critique discourses of hospitality. Analysing media and social media texts, Lamb discusses the positioning of participants as '(human) "hosts" and (un)welcome guests'. The study shows the necessity to interrogate the underlying 'appropriative' and hegemonic human world views as instantiated in discourses about encounters between humans and wildlife in Anthropocene.

In **Chapter 7** 'Identity Representation of Plants in Relation to Humans and the Lifescape', **Maria Bortoluzzi** looks at the representation of plants as a crucial and often neglected part of ecosystems which tends to be portrayed and perceived through the lens of human-animal identities. The chapter analyses written multimodal institutional reports and two short videos which recognize the value of plants and promote environmental protection; their aim is investigating the representation of plants in relation with the ecosystems they contribute to creating and maintaining for themselves and animals. The study discusses

some discoursal and social roles of plant identities as instantiated in the data and shows the need for further studies to identify frameworks of analysis which can better capture the roles of plants in human discourses. These living beings are often misrepresented as passive and inactive due to the underlying bias of human communication (and cognition) on 'animal' and 'human' characteristics and values.

Part III, Ecoliteracy for Citizenship Education, is closely related to Part II in terms of its focus on multimodal communication and interaction. Here, however, the perspective shifts to educational aspects related to ecological communication and ecoliteracy for citizenship education. Ecoliteracy (see Section 0.1) is viewed as one of the most powerful sets of learning actions that can be adopted to restore and heal the human relationship with and within the lifescape. Ecoliteracy is intended as a catalyst for transformative and creative changes in society through different sociocultural target groups (the studies focus on adults, young adults and children).

The opening contribution of this section offers the theoretical contextualization for the notion of 'ecoliteracy' and related areas of educational investigation. In 'Promoting Ecoliteracy in Essayistic Media Texts through the Case of *The Anthropocene Reviewed*' (**Chapter 8**), **Andrea Sabine Sedlaczek** theoretically analyses and then methodologically expands on the scope and practice of ecoliteracy for adult and young adult learners. Drawing on the holistic semiotic theory by C. S. Peirce, Sedlaczek adopts an ecosemiotic perspective to ecoliteracy and applies it as a theoretical and methodological framework for her ecolinguistic multimodal and Critical Discourse Analysis. The study focuses on two essayistic media texts – the podcast and book project *The Anthropocene Reviewed* – and shows how, by co-deploying multimodal resources, they combine different generic patterns such as narration, argumentation, explication and description. Sedlaczek's primary purpose is to demonstrate 'the potential of a concept of ecoliteracy that goes beyond ecological awareness and a narrow view of field-specific skills', towards 'a more dynamic and holistic perspective on (eco)literacy practices'. This perspective aims at positively influencing individual and collective values and behaviours towards the environment.

In **Chapter 9**, 'Picturebook Mediation for Children's Ecoliteracy in English L2', **Elisa Bertoldi** shows that caring attitudes and behaviours towards different features of the lifescape can be potentially fostered in children through storytelling events. Her data were gathered during the events Telling and Listening to Ecosustainable Stories (TALES) organized in collaboration

with the local Natural History Museum in her university town and the local university course of primary teacher education (Udine, Italy). During the events, ecological communication became alive for children through informative (non-fiction) stories told in English as L2 in informal read-aloud events. By adopting a multimodal perspective on interaction, the study looks at the process of picturebook mediation by volunteer storytellers: the analysis focuses on multimodal aspects that allow storytellers to give salience to natural elements during read-aloud sessions and promote respect for nature and ecosustainable ways of living.

Ecoliteracy for adults and children is also the focus of **Chapter 10**, 'Communicating In and About the Ocean through SCUBA Interaction and Ocean Picturebooks', by **Grit Alter**. The study consists of two complementary sections. In the first, the author shows how limited communicative repertoires taking place in the extreme conditions of underwater interactions (SCUBA diving sessions) can become an exemplary case study for multimodal ecoliteracy. The second part of the chapter uses the multimodal text *The Brilliant Deep* (Messner 2018), a children picturebook on coral restoration, to show how the intricate interplay of verbal and visual text can raise children's awareness about the critical condition of the ocean and what scientists are doing to improve it. Alter demonstrates how communicating *in* and *about* the ocean can contribute to ecoliteracy for children and adults.

In **Chapter 11,** 'Positive Multimodal Analysis of EU Learning Materials to Promote Ecoliteracy for Young People' **Sole Alba Zollo** combines the frameworks of social-semiotic multimodal analysis and Positive Discourse Analysis to investigate how groups of university students respond to online resources of the European Union (EU) created to sensitize young citizens towards environmental sustainability. The context of the study is a class of undergraduate university students; after discussing and identifying with them the most significant verbal and visual strategies promoting positive ecological discourses, Zollo conducts an empirical study to observe the students' response to the EU resources and their ability to propose alternative local actions and sustainable events through text typologies similar to those analysed. The task gives agency to the students to imagine future good practices for their communities through learning by design.

The different threads of the volume converge as a tapestry of communication for ecological commitment to the lifescape(s) through ecosystemic relations of justice and mutual care. New research perspectives suggested by the contributions conclude the volume opening it towards future studies.[5]

Notes

1 https://twitter.com/Mykejv1137/status/1553824690317283333?s=20&t =w8AEGPo8YWvidYHKbl_USQ.
2 https://americanindian.si.edu/nk360/manhattan/different-views-land/different -views-land.cshtml.
3 https://ieep.eu/news/more-than-half-of-all-co2-emissions-since-1751-emitted-in -the-last-30-years
4 'environment, n'. OED Online. December 2022:

> '**Etymology:** Originally < Middle French *environnement* (French *environnement*: see below) action of surrounding something (1487; earlier in senses "proximity" (first half of the 12th cent. in Anglo-Norman as *avirounement*) and "surroundings, periphery" (*c*1200 in Anglo-Norman as *envirunement*)) < *environner*, *envirunner* environ *v.* + *-ment* -ment *suffix*.'

5 This contribution was jointly written and edited by both authors.

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