THE ECOLOGY OF LANGUAGE AS AN OPTIMAL LEARNING MODEL

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Abstract: This paper puts forward an optimal educational model by integrating English learning and the language of ecology and mapping the former in terms of the terminology proposed by the latter as a source domain. According to the current paradigm shift in linguistic studies, languages, as well as language learning, are perceived in relation to ecological perspectives in an integrated global context. The objective of language teaching from this perspective lays emphasis on personal development and ecological awareness, rather than mere formal knowledge accumulation. The learning environment is extended beyond the class of students, who are granted the opportunity to feel connected on a larger scale in the grand scheme of life. Paradigmatically, the class of students may be seen as an ecosystem, ESP (English for Specific Purposes) becomes a special niche of language teaching, learning may be seen as a form of nutrition (and consequently must be truly nourishing instead of empty food), learning facilitators are called upon to create affordances for learning instead of causing interruptions in the homeostasis displayed by any living system (e.g. a class of students). By the same token, the list of eco-metaphors is further expanded as the paper explores a corpus of eco-related vocabulary that may be transferred to the educational domain and viewed in direct connection to learning a foreign language with more meaning than the words carry in themselves alone.

Keywords: Conceptual metaphor; Ecolinguistics; ESP (English for Specific Purposes); ecological awareness, language learning.

Introduction

The expanding area of ESP (English for Specific Purposes) emphasizes content-based teaching and learning, as it employs study materials related to the students’ field of interest correlated to foreign language education. Central to ESP is the commitment to rely on scientific content typical of a given area of knowledge, in our case, English for Life Sciences, Farming, Environmental Engineering, and other areas of study essentially related to ecology. Therefore, communication from the ecological perspective consists not only of teaching/learning communicative language skills, but also entails developing social attitudes related to eco-awareness. This hopefully leads to an integrated perception of language learning, perceived holistically within the web of life processes. This new paradigmatic approach uncovers an understanding of learning as a way of co-creating and participating in personal growth mechanisms together with learners, through meaningful interaction. It relies on the acquisition of a prerequisite key vocabulary, the fundamental concepts
students need to grasp, as well as the perspective on what is being discussed by means of language.

As Frățilă (2006: 149) points out, we live in two interrelated worlds: the world of nature and the reality of language, which is hardly a set of symbols objectively mapped onto the previous one. Thus, the words which we use to decode perceived realities are related to the latter, but dependent on our own worldviews, value systems, and modes of interpretation. As a result, the world of language and the natural world constantly influence one another in a process of interrelated correspondences (Frățilă, 2006: 149). It is our task as educators to assist learners in decoding cultural realities written over the natural world and to help them develop awareness of language as a social and cultural construct, functioning as a medium for communicating worldviews. For these reasons, the topic of culturally-mediated valorization of nature lends itself to an interpretation and application to the language learning environment, as proposed by research in language ecology, which has also migrated towards teaching / learning. In the process of language acquisition, the learning facilitator (the teacher) performs a transfer of some essential concepts from the source domain of ecology to the language (ESP – in our special case) classroom. This endeavor relies on a proper understanding of the core notions supplied by the language of ecology – interaction, cooperation, ecosystem, niche, affordance, homeostasis, evolution and dynamic or complex systems theory. These key notions borrowed from ecology constitute a framework for the eco approach, while providing a new appraisal of the nature of language learning and their commonly shared features. Some of the most significant educational consequences of this approach entail sustaining the diversity, continuous adjustment, and dynamic evolution towards growth of life processes as they manifest themselves in the learning community.

Material and method

The paper draws on an ecolinguistics approach to teaching and learning English as a foreign language, focusing on specific language which underlies learning as a fundamental life process. The research is based on a corpus of words transferred from the scientific field of ecology and re-read metaphorically within the educational system. This approach is also based on conceptual metaphor theory, which affords a resourceful framework and a rich terrain for reinterpretations and reconsiderations of traditional meanings. The items of eco-language discussed in what follows are analyzed with the purpose of transferring significant meaning encapsulated in concepts related to ecology onto the field of language learning, with the added benefit of finding new insights and enhancing eco-awareness.

1. The language of ecology as a framework for the ecology of language learning
The vocabulary under consideration helps build an ecological perspective on language education which ventures to depart from traditional formalisms, but focuses on the specificities of ESP (English for Specific Purposes). It seeks to implement an integrative web of communicative strategies with the aim of incorporating more than formal L2 and specialized terminology, striving to promote education for life and make learning a genuine life experience. The area of ESP is grounded on two fundamental aspects: the importance of subject matter in language teaching and the engagement in understanding scientific information in a foreign language. Both these aspects make content relevant to the students’ main interests, as they meaningfully engage the real world of scientific phenomena and pursue these explorations through the learning environment.

In our special (not just specific) context, ESP for students of Life Sciences, the English of ecology consisting of basic vocabulary to be acquired also becomes relevant from a higher conceptual point of view. Learners are equipped with real-life purpose with regard to building a responsible perspective on life and gaining personal meaning of some consequence. The language under discussion can be transferred to the community of learners from an ecolinguistics perspective, as the paper uncovers underlying correspondences. To draw the curtains, *ecology* is defined as 1. the study of the relationships between living organisms and their environment; 2. the set of relationships of a particular organism with its environment; 3. the study of the relationships between human groups and their physical environment (Collins, 2012). If transferred to our area of interest, the underlying conceptual metaphor would inform consideration of some additional implications the concept holds, with an emphasis on the collaborative aspect within the system, *i.e.* the community of learners. Moreover, the idea that the class of students represents an “ecosystem” has already been introduced along with the “classroom ecologies” metaphor by Creese and Martin (2003) to highlight interactive and collaborative patterns. The notion of *ecosystem* – meaning “a system involving the interactions between a community of living organisms in a particular area and its nonliving environment” (Collins, 2012) – also reflects the idea of an ecological microsystem in which interactions occur in a natural, organic and interconnected manner. Likewise, the class may be seen as a *biotope*, “a small area, such as the bark of a tree, that supports its own distinctive community” (Collins, 2012), with the corresponding shift to the learning community which is provided and supported by the academic setting. In the ecological approach to education, the main focus of language learning is predicated on interactions of all types and the correlated development of relationships, along with creating effective contexts from an ecological standpoint (Coromă & Popeți, 2016: 271).
From this perspective, a foremost structural aspect held in common by both ecology and pedagogy is the environment, i.e. “the aggregate of surrounding conditions or influences” affecting the development and growth of organism. In an ecolinguistic interpretation, delivering knowledge and facilitating learning within the class ecosystem entails taking into consideration such conditions and influences. As educators, we need to ponder on questions related to what exactly actually triggers learning progress and what conditions have to be met for a successful learner experience to occur. To accomplish an optimization of the teaching act and learning outcome, we need to find ways to optimize these influences consciously and to create the most suitable triggers and the most sustainable conditions for knowledge transfer and, further on, for communication. The principle of sustainability itself may be applied to language learning, given that we wish to formulate a vision of long-term progression in knowledge acquisition in optimal education conditions.

Following this line of thought, in terms of sustainability of learning, the key word conservation should be introduced and reflected upon. While it is generally understood as protection of natural resources, ecosystems, and habitats, it also includes the “preservation from injury, decay, waste, or loss” (Random, 2018) with auxiliary connotations in the negative spectrum. By transferring this notion conceptually to the area of education, what needs to be preserved from irretrievable loss is, on the one hand, the resource of knowledge, i.e. the information content of what is being learned. For this purpose, we need to implement specific activities in a loop which periodically revise and reinforce previously assimilated content in a sustainable manner, with a view for long-term assimilation. More importantly, on the other hand, educators need to strive against the loss of learners’ motivation and their irredeemable waste of a sense of meaning.

1.2. ESP as a niche within the community of transdisciplinary subjects

Looking more closely at the content of language curricula and what exactly drives the learners’ motivation, we tentatively propose the conceptualization of English for Special Purposes as a niche of English and language teaching in general. Its position and function as a subset in the community of languages (and other disciplines more extensively) has a very precise formula and occupies a specific (if not special) location that linguistic research has been charting for the past two decades. Accordingly, it plays a functional role in the larger community of subjects, where we are tempted to include interdisciplinary aspects, activities, and relationships to other spheres of knowledge. One aim of our research is to develop ESP as a novel, more ecologically sustainable paradigm of teaching and learning English, along the lines of the ecological framework. This approach implies bearing in mind the
specificity, but also the interrelatedness and transdisciplinary nature of this special “niche”.

If we extend the meaning of this concept in relation to language learning, given the restrictive connotation of a niche as the narrow position a species occupies in a community, this can be interpreted in a twofold manner. Thus, the niche can be, strictly speaking, the classroom environment mediated by language. On the other hand, this aspect will be in turn manifested and re-enacted outside the classroom, in countless situations which require using the language to communicate with others. In this larger context, it can be suggested that extending the niche of a language user means providing learners with a potentially improved position in an interactional community, which is not merely limited to the learning environment per se. The concept of niche is defined by Gibson as “a set of affordances” presented by the environment or “a setting of environmental features that are suitable for an animal, into which it fits metaphorically” (Gibson, 1986: 129). Thus, the affordances or resources an environment typically provides are closely interrelated to the type of species present and to particular needs being met.

1.3. Language learning as co-creation of meaning

The particular understanding of the niche occupied by the ESP learning community as discussed above is closely associated with the concept of affordance, which has been borrowed from the language of ecology in order to draw correlations in pursuit of an eco-perspective on learning. One of the most recurrent and successful borrowings in the field of ecolinguistics, affordance was defined by Gibson (1986: 127) in terms of what the environment offers or furnishes, which essentially “implies the complementarity of the animal and the environment.” The same aspects are prevalent in van Lier’s (2000: 252) interpretation of an affordance as a “relationship between an organism and a particular feature of its environment”, having in view that “what becomes an affordance depends on what the organism does, what it wants, and what is useful for it” (ibid.). An accurate understanding of the concept of affordance from the ecolinguistic perspective revolves around relations, interaction, and opportunities. As formulated by van Lier (2004: 91-92), an affordance should best be understood as “action in potential and it emerges as we interact with the physical and social world”. The fact that we often have different perceptions of the same reality indicates that affordances are not to be taken passively as properties of the environment. What is emphasized here, on the contrary, is precisely the interaction between communicators and the environment in which communication, i.e. co-creation of meaning, occurs. These ideas have carried significant sway over our current understanding of language learning, based on the emergent nature of communicative affordances and mediated by the mutual reinforcement of interpretation and agency, which become prerequisites for the
construction of meaning (van Lier, 2004: 92). Thus, affordances are potential enablements according to which a variety of meanings may be mapped onto the surrounding world, depending on individual ability, competence, choice, and motivation, among other factors at work.

If transferred to language and communication, affordances become the contexts in which language is used, together with the users’ predictions and perceived consequences of choosing certain formulations over others (Forrester in van Lier, 2004: 91). Meaning is to be co-constructed upon interaction with others and the world, as “the learner is immersed in an environment full of potential meanings”, which become “available gradually as the learner acts within and with the environment” (van Lier, 2000: 246). Thus, more meaning emerges as learners respond to opportunities for interaction and they are willing to negotiate, constantly reorganize their (self)perceptions and adapt to the changing circumstances, instead of getting caught up inside a paradigm of thinking or in the constraints of their particular niche. Finally, learners are prompted to seek opportunities to extend their particular “niche” (ESP) by using constructs such as movies, documentaries, etc., which help them take advantage of cultural affordances to maximize their learning.

Another significant concept pertaining to the language of ecology which can be applied to the teaching/learning context is homeostasis – the tendency of a system (i.e. a class in our interpretation) to maintain internal stability, owing to the coordinated response of its parts to any stimulus or disruptive situation. On the one hand, the “coordinated response” can be read as teamwork and peer-to-peer learning within the natural community of students, while “internal stability” may refer to their interconnectedness in achieving coherent group results, assisting one another’s learning process, achieving group tasks, and reaching common grounds or solutions. On the other hand, it may be considered that the “disruptive situation” could also be the teacher’s over-interference within the group ecosystem, not just the occasional random disturbance caused by students. Furthermore, if the “parts” of the ecosystem are represented by the students themselves, we may envisage a homeostatic paradigm of learning with all its organic processes and mechanisms, given the organic interaction between all the members of that community.

With respect to the learning process, homeostasis can optimally be reached when the state of equilibrium is achieved together with the learners and not enforced upon them, by maintaining properly adjusted learning conditions. The role of the educator is simply that of a mediator or facilitator of learning, while the students themselves develop their own learning skills actively and interactively once they grow aware of the cognitive process they are undergoing for their own benefit. It follows, in terms of assimilation, that learning can largely be seen as accumulation of resources, and thereby, as a fundamental process of life. Much like the absorption and incorporation of nutrients in living
systems is followed by their transformation into whatever it is the organism requires, the inclusion of new learning experience or information into the students’ existing cognitive structure further entails enriching the existing configuration they display. If these processes are considered in the light of the complexity of dynamic systems and evolution theory, the interconnections between students and the social world present affordances for permanent adaptation and the construction of learner awareness.

2. Language Acquisition as a Dynamic/Complex System

The examination of second language acquisition as a complex system was put forward by Larsen-Freeman (1997) and van Lier (2000), which has led to a rapid development of the ecological paradigm of learning. In terms of complexity and dynamic system theory, on the one hand, the nature of language matches the requirements for being considered a dynamic system. On the other hand, the qualities displayed by a community of language learners also match the requisites for being considered from the perspective of dynamic system theory. For these reasons, the latter may function as a reference frame for the understanding of ecolinguistic communication. This aspect has proved to be underdeveloped in our case, as shown by studies on our groups of ESP students, who, upon initial assessment, typically display low keenness regarding communicative and interactive activities and, consequently, rather underdeveloped communicative skills (Coroamă, 2016: 14-15). Therefore, the activities we propose involve role taking, prompting contact between participants in communicative exchange, discussing and expressing opinions in pairs / groups, and engaging the interlocutor in a dynamic, spontaneous environment.

From the perspective of complexity theory, language displays the characteristics of dynamic systems, if considered as a set of interacting variables which undergo change over time. Moreover, language learning can be considered a complex dynamic process, given that it displays the basic features of dynamic systems: interconnectedness and interaction between subsystems, dependence on conditions or controlling factors, variation among individuals and dynamic development over time (Larsen-Freeman, 2000). The complexity theory approach to language explores all aspects of learning, centered on the learner, in terms of their interrelationships and external connectivity in order to describe growth and complexification. Thus, the perspective on L2 learning has shifted from positing language as a system of formal structures (linguistic items and grammar rules) towards language as a semiotic practice carrying meaning to be communicated between users and between them and the social environment. From this standpoint, cognitive and affective processes at work in the learners’ growth process are considered interrelated factors operating along with language acquisition. In the same line
of thought, the ecological mindset takes into account “the deep script of human interaction with the learning process, not in isolation, but within the broader context of students’ concerns, attitudes and perceptions” (Tudor, 2003: 10), which makes language a complex multimodal system.

At this point, it is expedient to introduce the web or net conceptual metaphor into the discussion of dynamic complexity and multimodality. The theory of dynamic systems may be associated with the web concept, which encapsulates the interconnectedness any complexity is bound to entail. Moving beyond conventional hierarchical conceptualizations (such as the steps on a ladder or the layers of a pyramid structure), the web is interlaced in the progressing artefact of the learner’s self-construction, throughout the unfolding of the process which is the configuration of one’s optimal development. Thus, a complexity prospect on the language classroom reveals deep connectedness between any action in language teaching/learning and a web of multiple psycholinguistic levels underlying educational development (van Lier, 2000).

Another related aspect the ecological approach must take into consideration is the connected brain-body-world concept put forward in holistic paradigms of thought. As a consequence, language learning is a complex adaptive and nonlinear process, where multiple aspects are to be coordinated as they emerge from interactions along with learners’ self-regulation, supported by facilitators of the learning experience.

Conclusions

The paper has introduced and discussed the language of ecology, which has been transferred conceptually to the area of ESP learning with the purpose of positing an optimal model of the English class. It is thus a contribution to the proper understanding of learning as personal growth in terms of an ecologically-aware community of learners. The main points of the research suggest that discussing areas like ecology and learning in correlation to each other has a potentiating effect in that the former exerts meaningful affordances for the latter. Having this conceptual frame in mind, from a holistic ecolinguistics perspective, entails redesigning the ESP course and teaching styles so that they may contribute to an optimized level of language learning, enhanced interaction and communication in general. It follows that, when learning a foreign language, we must explore linguistic elements not formally, but as carriers of meaning and cultural implications for value systems we share or conflicting value systems. To achieve communicative success means to overcome conflicting perspectives through negotiations of meaning. This could be carried out if we learn to cooperate instead of competing, starting with the classroom environment. Optimal results in negotiation of meaning can be achieved by heedful peer-to-peer interaction and by assisting each other to get one’s point across. Competing meanings are hardly conducive to problem
solving as they fail to integrate points of view different from our own that others could help us perceive.

The “ecological” solution we propose is setting up a holistic and inclusive dialogue in order to achieve collaborative learning and a sustainable acceptance of outlook diversity. On a class level, interaction typically occurs in spontaneous conversation in which each participant opens to the others and also learns from others, discovering together how they can coordinate their goals by exchanging information of common interest. The coordination of educational goals and activities across learning communities organized into teams has a major role in cooperative (rather than competitive) class processes. If a dynamic system such as a class of learners is to maintain its consistency despite typical irregularities (for instance language errors or teacher over-interference), facilitators of dialogue (i.e. teachers) are to include extended modalities of acceptable communication. Any interactive patterns which work in the negotiation of meanings and provide learning opportunities or affordances may be transferred to the language learning environment. The acquisition of knowledge is more authentic and adequate when students’ interventions are spontaneous, they relate to one another and to their main cognitive interests, when they express themselves freely and when they interact collaboratively. Finally, given the meaning of the root eco-/oeco- < Gr oikos – “home” or “household” – which essentially epitomizes the source domain of our ecolinguistic approach, students should be enabled to feel more “at home” in the learning community and environment. All things considered, activities in the language class are apt to provide all these types of enablement, to mobilize communicative capacities, and thus to achieve an optimal model of open education.

References
5. eco- Available: http://wordinfo.info/results?searchString=eco-

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