

SUSTAINABLE COMMUNICATION FROM A BIOSEMIOTIC PERSPECTIVE

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Abstract. *By The present research aims at conducting a theoretical analysis of the fundamental concepts proposed by biosemiotics, while highlighting the ways in which an accurate understanding of these ideas may benefit educators and their students as members who partake in the communicative academic community. Thus, by acquiring ecolinguistic and biosemiotic skills designed for perceiving and understanding the world ecologically, learners may become adept at decoding complex meaning-making systems by co-participating in a sustainable and ecosystemic culture. At the crossroads between ecolinguistics and ecosemiotic methodologies, ecological thinking has recently been widened from the natural and life sciences towards the humanities with a view to developing a more encompassing "ecology of mind". Thus, the paper inquires into the relevance of developing a holistic communicative framework, based on meeting points between humanistic sciences, life sciences, and biosemiotics, which reinforces sustainable educational practices. The prevailing lines of research coming into junction from these intersecting fields underlying our study highlight systems thinking and other holistic aspects of communication extended far beyond the formal aspects of classical linguistic structuralism. Therefore, we propose that updated language learning practices and other processes pertaining to language interaction be supported by meaningful exchange and a genuine sense of shared meaning.*

Keywords: *ecological education, foreign languages, ESP for the Life Sciences, communication.*

INTRODUCTION

This paper will interrogate whether biosemiotic models as variously formulated in the literature, are relevant to support communication and language learning in academic settings. This premise also serves as the basis for our distinctive pedagogical outlook on ESP (English for Specific Purposes – English for the Life Sciences, especially Biology, Genetics, and Biotechnologies). Furthermore, the inquiries undertaken in this paper aim at verifying the prevalence of semiotic relationships throughout nature and culture, that is – the “semiosphere” (KOTOV and KULL, 2011; LOTMAN, 2005).

As shown by biosemiotics, semiotic interaction takes place not only on linguistic levels, but across all domains of life, not reducible to cultural interactions (HOFFMEYER, 1996). From this perspective, biology may be seen as a science at the interface between physics and semiotics, studying “the origin and evolution of sign processes, semiosis” (HOFFMEYER 1997:363). Thus, Jesper Hoffmeyer's (1996) foundational approach to biosemiotics has prompted a “cognitive turn” in biology, inspired by “methods developed in the humanities, which have been applied to the solution of biological problems via the epistemic renewal of methods” (KULL, 1998:299; COBLEY, 2016). Instead of molecules, signs are now perceived as the fundamental unit of biology (HOFFMEYER in RAUCH and CARR, 1997:937) and everything alive is characterized by sign relations, developing correlations, and symbiotic interaction (FAVAREAU in WHEELER, 2015).

In order to answer the question “How can the study of the humanities inform the study of biosemiotics?”, Favareau (2017) proposes an ethnomethodology which highlights the complex interrelationships between sign systems belonging to the linguistic or cultural segment, which function in analogy to those of cells and organisms. To better understand the

language in which “the book of nature” is written (WHEELER in FAVAREAU, 2017), we need more holistic mindsets and collaborative methodologies from several disciplines.

Researchers interested in sign phenomena from across the humanities, working in fields such as cultural studies, literature, linguistics, psychology and other social sciences are now included in the wider “community of biosemioticians”, along with those in the life (biological) sciences. However, the point is made that the latter “need the humanities in order to be able to see beyond its own conceptual limitations, just as the humanities need the sciences for the same reason” (FAVAREAU, 2017:14).

MATERIAL AND METHODS

The study is supported by the methodology of sustainable education relying on the ecolinguistic approach to propose a holistic model of communication and language learning (BOGUSŁAWSKA-TAFELSKA, 2013; 2016; STONE and BARLOW, 2005; VAN LIER, 2004). This methodology also highlights the relevance of acquiring and sustainable communication competences in the context of “ecological English” classes (DRAGOESCU URLICA, 2022).

The ecological approach has developed far beyond the life and natural sciences towards the humanities and the ecology of language learning (FINKE, 2019:8). According to the ecological theory of communication, meaningful dialogic processes are pervasive across all living systems (VAN LIER, 2004; HOFFMEYER; 1996). The methodology relies on biosemiotics and ecolinguistics, the ecology of learning and communication theory, based on qualitative analysis (DRAGOESCU URLICA, 2018).

RESULTS AND DISCUSSIONS

The acquisition of ecological literacy and other ecolinguistic competences are made available to students in the Life Sciences by means of including biosemiotic terminology in their curricular background. For this purpose, students in the life sciences (in this case, biology, biotechnologies, genetic engineering, etc.) are encouraged to become familiarized with the terminology of biosemiotics and the interconnections between biology, cultural (meta)text and communication.

By scrutinizing the broadening terminology of contemporary biosemiotics, it appears that it fundamentally “assumes that any innovation, and any biological process, stands on a communicative event, describable in semiotic terms, i.e. terms like interpretation, translation, dialogue”, which implies the communicative or dialogic nature of life (KULL, 1998).

Given the two premises that semiotics is the study of signs and meaning relations and that semiosis is coextensive with the living, biosemioticians have reviewed the laws of biology in analogy with the rules of the functioning of texts (KULL, 1997). The notion that living organisms function like texts has been conducive to stipulating the semiotic view as paradigmatic for the life sciences (HOFFMEYER and EMMECHE, 1991; KULL, 1993; 1997; 1998). Therefore, semiotic terminology revolving around meaning, message, text, dialogue, and translation, much like that of biology and molecular genetics, has engendered a cross-fertilizing reservoir of ideas between the cultural sphere, the language of natural sciences, and the discourse of arts and humanities.

From this perspective, biological/genetic and social/cultural evolution are conceptualized as analogous and correlated processes (FISHER and RIDLEY, 2013). Based on signaling and information processing, language artefacts used in communicative contexts are seen as replicators of socio-cultural phenomena isomorphic with genomic processes in evolutionary biology (PAGEL, 2017). Principally, communication is based on semiotic phenomena (COBLEY, 2013), precisely mirroring self-organizing biological systems (EMMECHE

and KULL, 2011). On the background scaffolding, it is semiosis or the action of signs that correlates biology and linguistics (VELMEZOVA, KULL, and COWLEY, 2016).

Among the structural principles of biosemiotics, it is postulated that life principally relies upon the recognition of semiosis. Essentially, there occurs a shift from the structuralist understanding that interactions are of the formal type signal-response, which is replaced by the triadic understanding that biological interactions in living systems function by recognition – i.e. “recognizing then responding according to the previously stored “image” of the recognized and translating its message into some product or behavior, which is actually a new message” (KULL, 1998).

In addition, ecolinguistics is a paradigmatic approach that studies the “ecosystemic function” of language which has “evolutionarily developed from older natural ecosystems in the course of the emerging cognitive basics for the complex use of symbols” (Finke, 2019: 7). Thus, ecolinguistics appears as a “polyphonic” thematic field which emphasizes the interconnectiveness between the humanities approach to language, ecology and natural sciences, and nature-cultural theory (FINKE, 2019: 7). This approach provides opportunities for cooperating in a transdisciplinary manner, so as to reach a non-reductive synthesis and more extended collaborative mind frames.

This attempt is also grounded in the effort of the humanities to counter the reductionism of the sciences, which would afford larger openings that have the potential to take us beyond the current (eco)systemic impasse (WHEELER & WESTLING, 2015: 215). The prevailing lines of research coming into junction from these intersecting fields highlight systems thinking and the underlying systemic aspects of communication extended far beyond the formal aspects of language structure. Therefore, we propose that language learning and other processes pertaining to language exchange be supported by meaningful contents and anchored in a genuine sense of shared meaning.

By acquiring ecolinguistic and biosemiotic tools to decode complex meaning-systems, students are enabled to participate in a more inclusive or ecosystemic culture. The ecological approach, which resonates with systems thinking, has currently outreached the limits of natural sciences to embrace a more comprehensive and humanistic “ecology of mind” (FINKE, 2019: 8). We shall inquire into the meaning of constructing a rich ecosemiotic culture and society, from the standpoint of humanistic sciences which interpenetrate with the entire communicative domain.

The “ecology of mind” proposed by Bateson is inscribed in the tradition of systems thinking, as it pursues the conceptual basis of ecolinguistic theory, to which semiotic analyses have added new strands of research that serve our purposes. Biosemiotics, as well as ecosemiotics, have proposed inquiries into the hypothesis that linguistic capacities evolve from the comprehensive use of signs throughout nature, revealing all types of communication as “extensions” of semiotic competences held at the most basic levels of life (WHEELER & WESTLING, 2015: 215). In this framework, definitions of life could be refashioned from this broader communicational perspective to include sign processing and the encoding/decoding of meaning. The ecolinguistic approach builds on the ecological framework, which enables the most sustainable understanding of the fundamental communicative aspects of language.

CONCLUSIONS

The innovative ideas proposed by biosemiotic discourse investigated in the present study support the overarching pedagogical enterprise and our common learning journey. Thereby, the study aims at integrating ESP students’ language learning within cultural discourse relevant to their field of study (the Life Sciences). This may also hopefully lead to

qualitatively improving their possibilities of communicative and personal development. Finally, we note that foreign language communication also conveys a critical “work culture” element which students will need in any organizational culture (IOSIM POPESCU, 2015:95). For this purpose, the authors and collaborators in other related research projects (DRAGOESCU URLICA and STEFANOVIĆ, 2018; COROAMA, DRAGOESCU, and GROSZLER; BOACA and SAVESCU, 2018) are continually seeking to integrate didactic and methodological strategies to develop class communication more sustainably.

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