

Edusemiotics: From theoretical foundations to emerging learning applications

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Abstract: This article explores the evolution of ‘edusemiotics’ in the literature on philosophy of education and semiotics and leads to a research proposal for constructive and dynamic learning inspired by this notion. The study aims to synthesize current literature on edusemiotics, highlighting its foundational concepts and their implications for pedagogical practices. It is structured into three main sections. In the section on the theoretical background, key principles of edusemiotics are examined, providing a transdisciplinary view for understanding the interplay between signs and learning processes. The second section is concerned with the current state of edusemiotics and evaluates contemporary models for pedagogy, providing examples that are designed to offer applications of edusemiotics, assessing its integration into various educational contexts and its impact on teaching and learning methodologies. In the final section, the paper discusses the potential of semiosis activities in shaping the future of learning, emphasizing how learning-as-semiosis can foster student-centred approaches in constructive learning. The paper clarifies the role of edusemiotics in advancing educational approaches and enhancing teaching and learning outcomes.

Keywords: edusemiotics; learning; pedagogy; semiosis; transdisciplinary research

Introduction

This study aims to elucidate edusemiotics – an intersection between the philosophy of education and semiotic studies – as a comprehensive approach that outlines principles for ways of engaging learners with meaning-making activities. It seeks to identify research gaps within the existing literature and, particularly towards the end, to propose a model for learning through the Peircean conception of pragmatism that outlines a path for future research in this area. The first step that this research takes to achieve these objectives is to present an overview of

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edusemiotics and show how it can result in a valuable impact on didactic pedagogy. A systematic search was conducted, using the terms ‘edusemiotics’, ‘educational semiotic’, and ‘learning and semiotic’ across databases including Google Scholar and prominent journals in semiotic studies. The search yielded 46 articles and books published in English focusing on edusemiotics, semiotics in/for education, and learning as semiosis, as indicated in the abstracts or titles of the studies.

The edusemiotics approach attempts to observe how signs within everyday experiences and practices contribute to learning, providing alternative ways for learners with awareness and motivation to express their understanding in interactive settings (Stables, Olteanu 2023: 142). The learning semiosphere as conceptualized in edusemiotics serves to connect individuals within a social and cultural community, addressing the deficiencies of educational paradigms and advocating for an inclusive approach in pedagogy (Semetsky 2015a; 2015b). This attempt calls for dismantling the traditional classroom walls by promoting an edusemiotics pathway that values the social and cultural contexts necessary for teaching individuals to learn to interpret the signs they encounter through semiosis. According to Catherine Legg (2017: 30), “teaching is a human activity that is able to convey many things to students but most importantly, knowledge”. Consequently, effective teaching can cultivate knowledge that endures beyond the confines of classroom activities and examinations, establishing a foundation for meaningful learning. To achieve this, semiotics, as a philosophy of signs, aligns well with the aspiration of fostering knowledge embedded in real-life education.

According to Peggy A. Ertmer and Timothy J. Newby (2013: 56), effective and meaningful learning must encompass three critical factors, namely “activity (practice), concept (knowledge), and culture (context)”. An edusemiotics perspective, theoretically, has them all within its foundational structure to be used in applied educational frameworks; however, the existing studies reveal a significant gap in practical approaches (activity/practice part) that demonstrate how this perspective can influence the philosophy of educational research methods effectively. Following this important note, Michela Deni and Salvatore Zingale (2017: S1294) assert that “semiotics must be viewed as a ‘mechanism’ working inside of design rather than as a microscope to analyze the results of design”. This perspective underscores the notion of semiotics as an integral component within educational designs used as frameworks, rather than merely an analytical tool. By cultivating a ‘*semiotic consciousness*’ (Semetsky 2020a: 15, italics in the original) among learners, students are empowered to explore beyond the presented context, facilitating the creation of their own dynamic semiosphere within the classroom that is empowered by their acts of interpretation in real-life meaning-making. This approach not only enhances engagement but also promotes deeper understanding

and meaningful learning experiences. Therefore, embracing semiotics within education research has the potential to support learning as a domain that is meaningful, intellectual and accomplished by semiosis-driven practices.

1. Literature review

1.1. Theoretical background

Edusemiotics, which is built upon Peirce's view of the growth and evolution of signs and self (CP 5.462, CP 8.125), was discussed at the 12th World Congress of the IASS/AIS in 2014 (Semetsky 2015a: 130). It is born out of a combination between semiotics, philosophy and educational sciences by grounding didactic theories in the principles of semiotics. As mentioned by Andrew Stables (2005, 2016), the study of signs and what they stand for is directly related to life and human communication and interaction in it that explains the modification of sign relations into a system for learning knowledge. Moreover, it fosters environments where learners actively construct meaning and navigate the complexities of knowledge, ultimately transforming the landscape of learning by communicating their perspectives. Edusemiotics as a field emphasizes the holistic and interpretative dimensions of education, asserting that effective teaching strategies should be grounded in semiotic principles (Semetsky 2016). In the following paragraphs, this study explores the theoretical literature of edusemiotics to help understand the motivation and necessity of its foundation.

Marcel Danesi (2010) coined the term 'edusemiotics' to address an essential bridge between semiotics and learning theories. The theory of edusemiotics originated from brainstorming sessions developed by a group of European researchers at Oulu University, Finland, marking a significant shift from traditional psychology and education towards a philosophical domain that emphasizes the epistemological, ontological, and ethical dimensions in dynamic educational practices (Semetsky 2015a). Incorporating semiotics into the realms of psychology and education draws upon foundational scholars such as Lev Vygotsky and Jean Piaget whose ideologies resonate with the edusemiotics approach. Vygotsky's (1978) perspective positions learning as a social process that facilitates the learner's development, while Piaget (1964) emphasizes the biological and developmental aspects of cognitive learning as the primary condition (Semetsky 2020a). Taking both of these views into consideration, edusemiotics articulates a more constructivist vision of learning, more favoured by contemporary educational research, as a system of signs functioning as an integrated body-mind unit (Semetsky 2014). The constructivist theory of learning focuses on asserting that

education “does not put any emphasis on the individual learner but stresses the reality of life practices in interpersonal and cultural contexts” (Semetsky 2020a: 9). This transition highlights the necessity of incorporating human experiences and subjectivity. Unfortunately, attention to experiences and meaningful learning is not vividly present in traditional learning approaches. ‘Traditional learning’ is understood as learning that uses any kind of methods “with little room for spontaneity or interactive, experiential learning” (Ben-Eliyahu 2021: 2). The notion of promoting experience-based learning and enhancing subjectivity is often overlooked also in contemporary educational research.

To tackle the problem, this study begins with prior exploration of studies that were published before the notion of ‘edusemiotics’ was launched, as it is essential first to examine the challenges that prompted scholars to develop this learning approach. Education is part of human life, and learning, which is a key part of education, is at the core of life, because it involves gaining knowledge in many different areas. While individuals may select various fields of study to enhance their understanding, it is imperative to focus on the learning process itself, as success hinges on navigating potential obstacles along the chosen educational path. These barriers can diminish motivation and block the desire to learn. Consequently, educators bear the critical responsibility for employing methods that promote learner engagement and facilitate the achievement of their goals, because “if all living is semiotic engagement, then learning is semiotic engagement” (Stables 2005: 375).

The interpretation of signs constitutes a form of semiotic engagement with the world. From this perspective, learning is a process of semiosis through which learners make meaning, internalize their environment, and develop a willingness to participate in the social and ecological communities of which they are part. The role of the learner emerges as a significant consideration when designing curricula within educational systems. It is crucial to position learning at the intersection of real-life experiences and events, extending beyond the confines of formal traditional types of instruction, which are still predominant in many classrooms. According to Inna Semetsky (2010), humans should have the chance to learn from their own lived experiences and cultural understanding. This perspective emphasizes the importance of integrating student-centred approaches and culturally relevant experiences into the educational landscape, thus enriching the semiotic learning process.

Scholars such as Winfried Nöth (2010) and Donald J. Cunningham (1992) were among the first to emphasize that learning should be viewed as an active interpretative process enriched by semiotic principles. Cunningham does not reject psychological inquiry *per se*; rather, he questions educational psychological

approaches grounded in positivist and measurement-oriented traditions. From a semiotic standpoint, these approaches inadequately address processes of signification and meaning-making, which is why “traditional measures and research techniques are largely irrelevant under the assumptions that ground semiotics” (Cunningham 1992: 191). On the one hand, it can be understood from his perspective that it is necessary to redefine education as a dynamic and communicative interaction, urging educators to rethink curriculum design to promote deeper understanding and critical thinking. On the other hand, scholars such as Charles Duncan Arney explore the advantages that pedagogy would face if semiosis was actively used in classrooms, stressing that “if we can teach students the art of reading semiotic information, then it is a tool our students can use to unlock more of the world” (Arney 2012: 41). Prisca Augustyn (2012: 524), with reference to Claire Kramsch, emphasizes that it is no longer adequate for learners simply to communicate meanings; they must also comprehend the very practice of meaning itself. For example, in Second Language Acquisition (SLA) the aim is not merely teaching a language but also letting the students learn the art of using the target language in real-life communication and practice to make sense of the world in the new language with its social and cultural aspects. Therefore, it goes without saying that “it is precisely semiotic interpretation [that] means learning” (Nöth 2014: 12).

In their exploration of edusemiotics, Semetsky and Stables (2014) articulate both the theoretical challenges and practical opportunities presented by it. They argue that the modern online platforms for learning reject the social aspects involving others, and this “may foster a heightened sense of individualization in students” (Semetsky, Stables 2014: 70). This individualization can lead to a diminishing significance of direct interaction with teachers, which might give rise to a form of virtual, and perhaps artificial, learning experience. Furthermore, they emphasize that signs cannot be reduced to their linguistic – verbal – representations. In this sense, edusemiotics situates new observations and competencies alongside existing knowledge, transforming the latter into a more comprehensive understanding rather than eliminating it. In another study, Stables and Semetsky (2014: 91) further assert that “learning is seen as a process and is always considered in relation to a rich notion of experience”. Expanding on these ideas, the focus remains on the interconnection of experience and knowledge. Semetsky (2015a: 131) notes that “edusemiotics does not limit itself to the analysis of formal education and traditional classrooms”. This field is closer to a contemporary approach in educational theory that adopts semiotics as its foundational philosophy, examining its philosophical implications in various educational contexts (Semetsky 2015a: 1). The holistic perspective of edusemiotics

encompasses relational ethics, expanded experiences, and an emphasis on interpretations that exceed mere factual evidence. It also recognizes a broad conception of language, image, perception, and experience framed in terms of semiotic structures that transcend traditional linguistic boundaries. Alongside this idea, the significance of self-formation is very much valued in edusemiotics as a lifelong process, impacting education across a person's lifespan (Semetsky 2015a: 2). Semetsky illustrates this key point with the example of tarot cards reading, where the interpretation of images varies for each individual. Such images can stimulate imagination and serve as inspiration, leveraging prior experiences and knowledge to develop insights that bridge gaps in understanding (Semetsky 2015b; 2015c).

Semetsky and Stables' point of view is in line with that of Nöth and Cunningham, who advocate viewing learning not merely as passive acquisition of knowledge but as an active interpretative process enriched by semiotic principles. This path becomes clearer if we take into consideration the work of other authors, e.g. Hoffmeyer (2018), who describes knowledge as not something we have but something created in the very moment of use and process of becoming. This perspective emphasizes that education is a dynamic interplay of critical thinking among learners; hence, it stresses that learning is not only following instructions and traditional school frameworks, but also a means to interpret and grow the capacity of what educators translate from signs and semiotics tools that could be used to analyse various (i.e. verbal, non-verbal, and visual) texts. Thus, edusemiotics works as an open-ended practical inquiry that can pave the path for new opportunities in human development. Based on this, as far as learning is concerned edusemiotics aims to move through a variety of contexts in learning procedures and, finally, establish a semiotic relation that exists between "sensible experience [of a learner] and intellectual knowledge" (Gangle 2019: 342).

In her work, Semetsky (2015a) reconceptualizes adult education within the framework of edusemiotics, emphasizing the significance of lifelong learning derived from events and experiences. She posits that the human subject operates as a sign among a constellation of other signs. According to her, "the edusemiotics perspective leads to relations between ourselves and others that can bring about mutual understanding and sharing each other's values" (Semetsky 2015a: 4). This model of learning necessitates that the learner is perpetually engaged in relational dynamics that contribute to their process of becoming. Furthermore, in the context of edusemiotics, the roles of the teacher and the student are interdependent; neither can function in isolation from the other. Semetsky (2015b: 138) asserts that the implications for didactic pedagogy are profound, as they propose that teacher and student coalesce into a unified entity, interconnected within an environment that is embedded in a network of potential meanings, which manifest

through lived experiences. Learning grounded in edusemiotics thus cultivates a multidimensional, integrative, and creative learning environment.

During 2016 and 2017, the integration of semiotics into educational theory and practice emerged as a significant area of inquiry. Susan Petrilli (2016) asserts that adopting a semiotic perspective in education is not merely about incorporating semiotic studies into educational philosophy; rather, it involves revealing the essential role that signs play in human behaviour. This includes examining how signs serve various purposes and assessing their appropriate use within educational contexts. The contemporary intersection of education, philosophy, and semiotics, encapsulated in the concept of edusemiotics, highlights that semiotics is foundational for educational studies (Petrilli 2016: 260). Furthermore, Eetu Pikkarainen (2016) and Alin Olteanu (2016) posit that learning is a continuous process that occurs across all life forms (cultural and social, etc.), asserting that any environment (*umwelt*) possesses educational potentiality. Olteanu *et al.* (2016) advocate the position that the aim of teaching should be to cultivate meaningful signification based on existing knowledge, thereby enhancing the overall learning experience. To achieve this goal, the application of edusemiotics offers a robust framework for discourse analysis and language acquisition, facilitating a shift from passive to active learning. In this context, learners transition from mere memorization and repetition to engaging actively in the learning process by expressing their perspectives and critiques. Such an environment fosters a student-centred approach, encouraging mutual learning between students and teachers.

John Deely and Semetsky (2017: 2) assert that human experience is valuable for edusemiotics that “posits life itself as an informal school enabling us – as signs among other signs – to enter the process of semiosis”. They further elucidate how essential is semiotic consciousness which can be explained as an implicit and explicit form of awareness that someone can acquire to interpret signs in a polysemic manner. In this context, they emphasize that “learning aims towards signification; signs, via the dynamics of multiple interpretations and translations into other signs” (Deely, Semetsky 2017: 8). This includes growth in the single user of the sign, and as a community, which creates a semiosphere bubble full of semiosis and interactions. Finally, they contend that edusemiotics empowers humans with more opportunities that are rooted in creativity and intelligence. Notably, they highlight a significant gap in educational research regarding integrative practices that this study zooms on in order better to understand the reasons for having practical aims with edusemiotics within applied zone for the future of learning.

In his analysis, Hongbing Yu investigates the impact of Thomas Sebeok on interdisciplinary studies related to philosophy and education, positing that Sebeok regarded semiotics not merely as a field of study, but as an essential enquiry, asserting that this perspective “directly addresses the core of the philosophy of education in the light of semiotics” (Yu 2017: 366). Utilizing contemporary semiotics alongside Peirce’s notion of semiosis, Yu argues for an intrinsic connection between education and semiotics. He calls the concept of edusemiotics a novel practice aimed at enhancing semiosis within educational contexts by employing image representations to foster learners’ abilities to generate and interpret diverse meanings. Yu concludes his research by identifying two critical aspects of edusemiotics: first, conceptualized semiosis serves as a complementary facet of life; and second, various learning theories can converge, emphasizing the significance of cultural and social contexts in constructivist approaches. He asserts that “today’s edusemiotics [...] is a field of inquiry that combines theoretical semiotics and the philosophy of education” (Yu 2017: 368), challenging the traditional learning view that regards it merely as an application of artefacts within education. This discourse will be expanded upon in the next section by examples from Nataša Lacković (2020) regarding the practical application of edusemiotics in enhancing discourse comprehension within pedagogical frameworks.

The edusemiotics perspective underscores the interconnectedness of signs and the continuous interplay between mind, body, and cultural context in the learning process. Moreover, Farouk Y. Seif (2017) characterizes edusemiotics as a *transdisciplinary* field that bridges theory and practice in language education, thereby highlighting its potential to enrich educational methodologies and enhance learning outcomes through a deeper understanding of the semiotic processes involved. Collectively, these perspectives illustrate how edusemiotics not only provides a theoretical foundation for understanding learning as a semiotic process but also offers practical implications for educational practices that foster effective communication and collaborative learning environments. In his discussion of second language acquisition (SLA) and edusemiotics approach, Saeid Atoofi (2019) contends that in SLA, language teaching is a process that transcends mere transfer of linguistic elements. Instead, it conveys new experiences embedded within a system of meaning-making signs. Atoofi argues that edusemiotics is a learning approach for exploration and growth, intertwined with the evolving nature of signs, thereby framing language as a dynamic entity subject to continuous interpretation. According to him, this perspective challenges traditional educational models, asserting that learners are not merely passive recipients but active participants in a transformative process of learning. By the

end of 2017, the focus of studies related to edusemiotics started to shift toward the concept of practical education:

Charles Sanders Peirce's philosophy did not limit signs to verbal utterances [...], Peirce's perspective [...] emphasized the process of sign growth and change called semiosis, representing the action, transformation, and evolution of signs across nature, culture, and the human mind. In contrast to isolated substances such as body and mind in the philosophy of Descartes, a Peircean genuine sign as a minimal unit of description is a tri-relative entity. (Semetsky 2017: 704)

1.2. Learning-as-semiosis strategy

The year 2018 marked a significant turning point in edusemiotics research, as studies from this period began to highlight the importance of semiosis acts in the learning process. In the context of teaching and learning, it is essential to recognize that individuals learn differently; thus, educators must be attentive to each learner's unique capacities. This calls for a shift towards more personalized teaching frameworks that accommodate diverse learning styles that enable learners to be bold and speak their minds. Furthermore, learning in predominantly cross-cultural environments presents both advantages and challenges, compelling learners to adopt various methods for comprehending the materials presented. In order effectively to connect learners with the learning process, a contemporary approach rooted in transdisciplinary research is necessary. Education is inherently intertwined with life, and semiotics plays a critical role in helping us navigate the signs and meanings that shape our understanding of the world. However, we must ask ourselves whether semiotics is merely a tool used for superficial illustrations in textbooks, or else it is being underutilized in a way that eliminates its potential to enhance student competence through acts of semiosis. From an edusemiotics point of view, semiotics philosophy holds greater promise when integrated into pedagogical practices rather than when it merely serves as an accessory to them. By empowering students with semiotic understanding (an awareness of how important their interpretation can be in education), we can enhance their ability to comprehend texts and construct new knowledge (Gough, Stables 2012).

This study explores various definitions of semiotic acts, particularly in relation to the learning process. Peirce's definition characterizes semiosis as "an action, or influence, which is, or involves, a cooperation of three subjects: the sign, its object, and its interpretant" (CP 5.484). In an educational context, the term 'influence' refers to the semiotic acts that can be shaped by both teachers and students through communication and interpretation within learning environments. Similarly, the

term ‘action’ encompasses task-based practices that impact learners’ cognitive processes, facilitating the construction of new knowledge and fostering deep learning that can be applied to real-life situations. Expanding on Peirce’s ideas, Olteanu and Cary Campbell (2018) frame semiotic acts within the edusemiotics approach, referring to it as ‘conceptualized learning’. They assert that “learning involves a little of everything – internal mental states, neurological activity, or behavioral responses – but signs are mediations” (Olteanu, Campbell 2018: 247). They further argue that a semiotic approach to education challenges conventional assumptions associated with the linguistic turn, claiming that learning occurs in a broader context (Olteanu, Campbell 2018: 248). Another thoughtful definition for semiosis in learning is provided by Brian Kemple who explains that in order for semiosis – the action of sign – “to be completed, and thus actual, the interpretant needs to be not only immediately affected but also dynamically affected by the sign” (Kemple 2019: 311).

Makrina-Nina Zafiri (2018) has written a critical review of Semetsky’s *Edu-semiotics – A Handbook* (see Semetsky 2017a) and provides a detailed examination of various perspectives on the application of semiotics in pedagogy. The review posits that edusemiotics represents a novel area within philosophy that advances cognitive and communicative learning theories. The integration of semiotic models in education is suggested to enhance learners’ memory retention and facilitate improved comprehension of texts. In her article titled “Visual semiotics and real events”, Semetsky (2019) elaborates extensively on the translation of signs into other signs, which is mediated by the dynamic relationships formed by the human mind, cultural artefacts, and real-life events. She asserts that “the effect of images consists in their creating holistic consciousness that achieves new understanding in the form of novel meaning experiences” (Semetsky 2019: 9). Stables *et al.* (2018) claim that in order to comprehend teaching and learning from a semiotic perspective it is essential to transcend the view of semiotics as merely a tool applied in pedagogy to facilitate contextual understanding. Semiotics, in the realm of education, implies that every concept and perspective holds validity, dismissing the notion of “incorrect” responses, especially in the context of communication and the meaningful understanding of classroom discussions. Consequently, if a student feels valued and engaged in dialogue, they are more likely to achieve a level of understanding that resonates with their experiences.

Yet another seminal figure in edusemiotics studies is Campbell, who asserts that edusemiotics provides a framework for explaining the complex processes of learning from multiple perspectives. According to him, it enables learners to express themselves semiotically, leading to the conceptualization of semiosis as they observe and analyse the productivity of and interpretations by others within

a collaborative semiosphere. Edusemiotics occupies a pivotal position in bridging cognitive processes and experiential learning, fostering the construction of knowledge through sustained engagement with information over time (Campbell 2017: 2). In 2019, Campbell elaborated on the concept of learning as semiosis, defining it as the process of signification that mediates the relationship between the learner and their environments (two semiospheres: one that is inside the learner's mind and the other – that of the community they are part of), thereby informing educational practices. To grasp the process of semiosis, one must engage with both environments since they include the classroom, the context, and the broader community in a whole group. The relationship between communicative acts as semiosis is characterized by the notion that “thirdness – or the growth of interpretation [by the learners] and thus the growth of action possibilities – occurs in perceptual learning, mediating between the processes of qualification (firstness) and sense-impression (secondness): to mediate the potential becoming actual in our experience” (Campbell 2019: 300).

Semetsky (2020a) conceptualizes semiotic subjectivity as a function of experiential learning and the unconscious, contrasting this view with a reductive understanding of learning as purely cognitive. She argues that the interconnection between semiotics and applied pedagogical research represents a novel approach for redesigning educational methods to align with the needs of contemporary learners. The evolution of education is intertwined with semiotics from an edusemiotics perspective, suggesting that neither can progress without the other. Semetsky (2020a: 2) asserts that “a sign not only directly represents but leads to other signs that come to mind as a consequence of itself”. She further elaborates that “semiosis is a communicative, interactive, relational, and interpretive process” (Semetsky 2020a: 3); therefore, by following it as a system, we can see learning function as a cohesive body–mind unit and hence “as an experiential inquiry that brings forth a specifically semiotic type of knowledge: integrative and interpretive” (Semetsky 2020a: 7). The primary objective within edusemiotics frameworks for teaching and learning design is to enhance the ability to recognize signs and learn to observe them, thereby creating meaningful connections between them and lived experiences, which contributes to meaning-making.

Semetsky (2020b) explores future pedagogical forms, advocating for a post-humanist education model and an approach to education as transformational pragmatics, emphasizing the importance of experience, culture, and life. Cultural pedagogy is oriented towards the *becomings* of human subjects, wherein cultural competence plays a pivotal role in education. It allows students to realize their potential as unique members capable of articulating their perspectives publicly, improvising discussions, and reflecting on the complex interpretations of

cultural signs to create meanings within a multidimensional setting across diverse fields. This is learning-as-semiosis which forms a state of transformation, progressing from ignorance to realization, evaluation, experience, and ultimately understanding of concepts. This notion can be seen in Juming Shen *et al.* (2020a), who use an edusemiotics framework to modify Peirce's trichotomy to equip learners with an understanding of texts that incorporates decision-making.

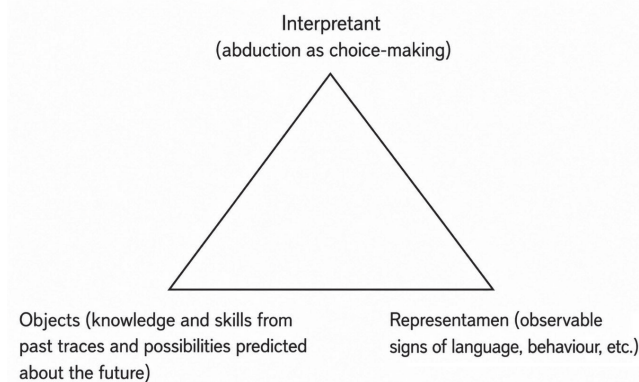


Figure 1. Modification of Peirce's trichotomy (Shen *et al.* 2020a).

Fig. 1 shows learning as semiosis, fostering freedom in continuous communication and interpretive actions. With an edusemiotics learning design, students engage more effectively in the transformation of experiences into concepts that resonate within the context of discourse, thereby leading to the acquisition of knowledge. The semiotic links established between the bodies and minds of learners emphasize the potential and possibilities for accepting and interpreting knowledge transmitted during the learning process. The study adopts Lotman's semiotics of culture to explore the dynamic nature of intercultural communication (Shen 2010), positing that both culture and communication are inherently transformative and fluid elements of human interaction. This dynamic position is pivotal in bridging gaps between distinct cultural backgrounds, enabling perceptions and cognitive frameworks to evolve in contexts of dynamic interaction, thereby reducing the potential obstacles posed by cultural differences.

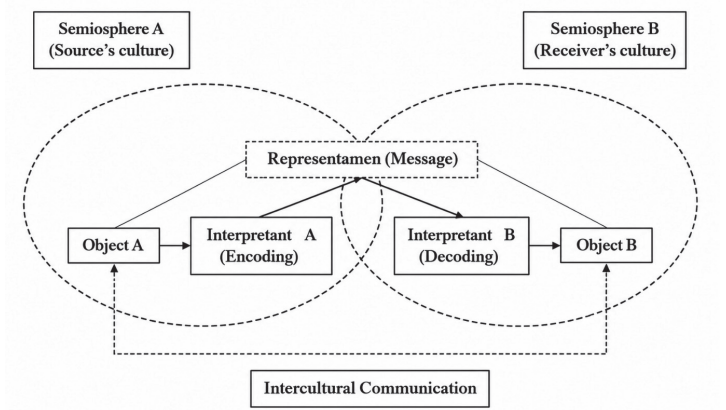


Figure 2. Semiotic model of intercultural communication (Shen 2010; Shen *et al.* 2020a).

The concept of interpretation, or semiosis, is framed as a product of individual choices, which are influenced by two interconnected dimensions: the subjective experiences of individuals and the indirect impact of others’ environments (umwelten) in the semiosphere of pedagogical atmosphere. The communicators’ umwelten are continuously shaped by both self-perceptions and external influences during the communicative process.

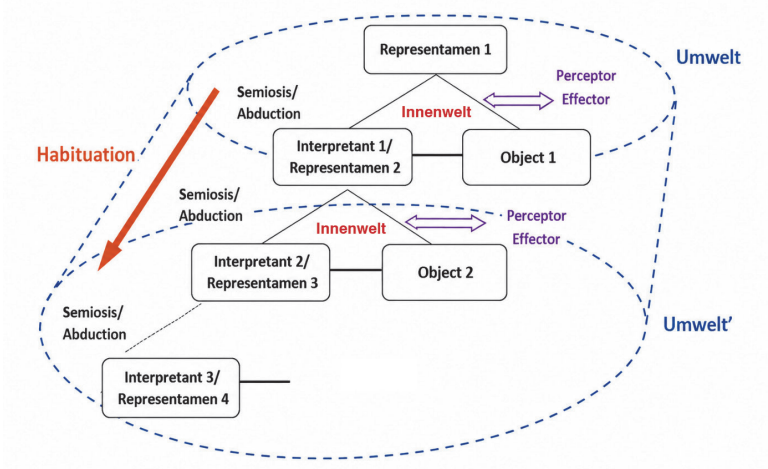


Figure 3. Umwelt-semiosis framework (Shen *et al.* 2020b).

Figs. 2 and 3 illuminate key aspects of intercultural communication, illustrating how the semiospheres of the source and the receiver reflect their respective cultural contexts. The relationship between semiosis and semiosphere is examined in Fig. 3, revealing that semiospheres can be shaped by the process of semiosis. Thus, the *umwelt* serves as the influencing factor within the semiosphere, interacting with semiosis – encompassing perception and interpretative actions. The framework proposed will subsequently be employed to analyse how intercultural communication, manifested through ongoing semiosis, can modify the culturally specific thinking and behaviours of communicators, or their *umwelten*.

Ljudmila Klimanova and Lara Lomicka (2023) note that a semiotic approach to teaching creates opportunities to extend instruction beyond mere linguistic content, equipping students with analytical and critical thinking skills. They argue that the necessity for semiosis is increasingly more relevant in light of the reconfiguration of social awareness influenced by the rapid advancement of media and teaching methods. In this context, processes of personal, social, and environmental becoming shape teaching and learning across disciplinary perspectives. Because semiosis occurs through the interpretation of signs within social and cultural environments, interactive contexts enriched by visual artefacts provide important opportunities for meaning-making, reflection, and the development of critical awareness.

Aligned with the theoretical framework presented by Lacković and Olteanu (2020) regarding learning as image-concept integration with semiosis, education should leverage semiotic resources (visual representations and image-reading strategies) as a means of iconic thinking to facilitate meaningful reflections on observations. This approach aims to enhance students' abilities to evaluate objects and extract meanings, thereby fostering their active participation in learning and critical-constructive reflection within the context of a learning-as-semiosis approach.

To conclude this section, it is obvious that the semiotic approach not only redefines how educators understand teaching and learning but also enhances students' engagement and responsiveness to their surroundings, ensuring a deeper connection with the educational content presented to them. This view of semiosis as a pedagogical practice functions as a philosophical approach to learning within classroom environments. It expands didactic pedagogy by situating learner development within processes of mediation (the reading of signs) and interpretation (the construction of meaning from those signs).

2. Edusemiotics at the moment: Are we ready to apply it?

The application of edusemiotics to enhance intercultural communication and learning processes emphasizes the dynamic nature of culture and communication, arguing that these can evolve through interactions that bridge cultural gaps. The relationship between semiosis (the process of interpreting signs) and the semiosphere (the cultural context) is crucial in understanding how meanings are constructed and transformed through communication. Kemple's (2019) study suggests that education must incorporate semiotic principles to achieve effective learning outcomes. In this regard, Eni Faridah and Rukminingsih Rukminingsih (2021) highlight the role of semiotics in developing students' reading and writing skills, positing that semiotic engagement can enrich educational practices by fostering critical thinking and interpretation. Rocco Gangle (2019) further develops this idea by proposing a semiotic and pragmatist approach to education that prioritizes experiential learning and the interaction between individuals and their environments (umwelten). This perspective aligns with Peircean semiotics, which views signs as relational and essential for meaning-making in pedagogy.

Klelia Pella *et al.* (2019) advocate for a deeper connection between semiotics and education, arguing that understanding semiosis enhances learners' abilities to interpret signs in diverse contexts, particularly in second language acquisition. José J. Riera (2021) asserts that semiotic theory is essential for teaching and learning, emphasizing the importance of context in facilitating meaning-making. Riera presents his own vision of semiosis as a model (Fig. 4) that employs sign, context, and acts of semiosis to reach meanings and get intended response in learning. Context, specifically in this model, is designed according to desired curricula which is relevant to a semiotic-based interaction for meaning-making in a particular exchange between recipient and the sign.

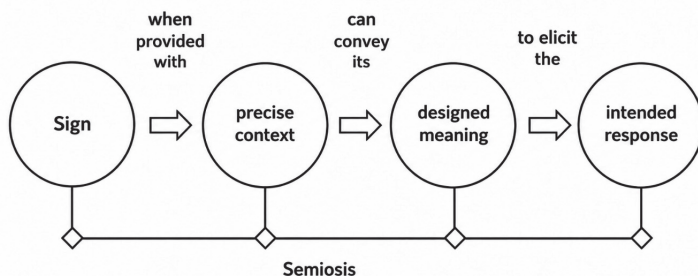


Figure 4. Model of semiotic theory (Riera 2021).

Ruth Gannon-Cook and Kathryn Ley (2020) underline the necessity of semiotic frameworks in designing culturally competent instructional strategies, highlighting the roles of engagement and motivation in the learning process. They also address the challenges of online learning environments in conveying implicit meanings. According to them, “[i]nstructional designers and educational web designers are highly concerned with designing learning environments or educational websites that have usually addressed learning objectives through text with accurate, succinct content and efficient, effective instructional activities” (Gannon-Cook, Ley 2020: 6). Torill Strand (2021) reinforces the significance of experiential learning and practical engagement within the process of semiosis, arguing that signs function as crucial mediators of communication and knowledge construction. Learning therefore extends beyond the transmission of information, as learners acquire knowledge through the interpretation of signs and participation in socially mediated meaning-making processes. For this reason, Strand (2021: 159) characterizes learning as a “semiotic process”.

Natalya Buldakova *et al.* (2021) support Nöth’s and Cunningham’s view on traditional educational methodologies by asserting that pedagogical semiotics presents a challenge to traditional educational paradigms, which often prioritize direct content delivery from teacher to student. They advocate for a semiotic framework that underscores the importance of communication and active interpretation of signs in educational practices. Such an approach promotes flexibility, encourages self-improvement, and facilitates sociocultural engagement among learners. The process of learning can be understood through various phases of semiosis, where instructional content is delivered via visual displays – specifically images – utilizing “persuasive or manipulative triggers for emotions, actions and beliefs, but because they are and can play an important part in teaching–learning designs and acts of learning and thinking” (Lacković 2020: 13). The Inquiry Graphics (IG) method, described by Lacković (2020), is shaped by Peirce’s triadic model and pragmatism. It is an innovative way to have an open-ended description of the world around us with communication and acts of interpretation that are considered the frameworks in edusemiotics. IG is explained in Lacković’s own words as follows:

The term inquiry graphics can be understood as a response to the rise and widespread use of infographics (information graphics). Whereas infographics are used to summarize information visually for fast impactful presentation and consumption of often large-scale data, inquiry graphics turns graphics into inquiry artifacts to slow down unreflective image consumption (that in most cases cannot be avoided in today’s pixelated frenzy). An inquiry graphics approach foregrounds

slow, analytical and semiotic unpacking of visual information, and engagement via image–concept inquiry graphics (IG) artifact creation. (Lacković 2020: 16)

At this stage, learners exhibit semiotic awareness, and educators scaffold the meaning of tasks through an edusemiotics perspective. This approach highlights how visual stimuli at the centre of learning facilitate communication and interpretation, allowing learners to derive meaning from both visible and implicit aspects of images, ultimately fostering collaborative understanding of real-life contexts (Fig. 5).

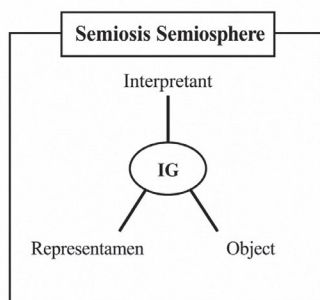


Figure 5. An inquiry graphics (IG) sign with elements of Peirce's triadic model (inspired by Lacković 2020).

Overall, recent studies advocate for a transdisciplinary approach that combines semiotics with educational practices to enhance communicative competence and critical interpretation in learners in applied educational contexts. However, the question remains whether we are ready to see edusemiotics in quantitative and qualitative research that measures learning outcomes while discussing the results in respect to both, philosophy of constructivist learning and semiotics.

3. Semiosis as the future of dynamic learning

Nowadays, the concept of semiosis, which refers to the process of meaning-making through signs, is understood well by edusemioticians who agree that it plays a critical role in contemporary instructional design and dynamic learning environments. In this section, the focus is on a futuristic view on the implication of edusemiotics in redesigning didactic frameworks in education with the help of visual artefacts to bring out learners' active comprehension. Stables (2023: 90) states that "all encounters with semiotics offer the promise of theoretical frameworks that can cross more established disciplinary boundaries". He argues

for the necessity of interpretation in visual inquiry, as signs require observers to uncover both their explicit and hidden meanings inside of an image representation. The interplay between conditional responses (Cd) and new context (Cn) informs the learning outcome (O), expressed as $O = (Cd + Cn)$, where recognition of what is seen plays a vital role in making sense of new information not visible, and finally, in leading to discovery of new knowledge (Stables 2023: 98–99).

Ley and Gannon-Cook (2023) emphasize that semiotics can enhance educational outcomes and constructivism learning theory while sharing complementary epistemological foundations. This notion suggests that learners construct meaning from instructional content through cultural and experiential lenses. The authors propose that semiotic design can improve learner engagement and outcomes by fostering positive cultural connections and actively involving students in the learning process, and strongly affect “learners’ culture, experiences, and skills, knowledge, abilities, and attitudes [that] integrally mediate a learning environment” (Ley, Gannon-Cook 2023: 59). All these six elements are affected by the semiosis acts of learners while following educational frameworks. Therefore, semiosis in action (Fig. 6) is characterized as a triadic process in which learners interpret signs, mediated by their prior experiences; meanwhile, activities and external artefacts are joined together to help comprehension of the text empower “learners, accompanied by their culture and lived experiences, make meaning from the words and images supplied by the instruction and learning environment” (Ley, Gannon-Cook 2023: 56).

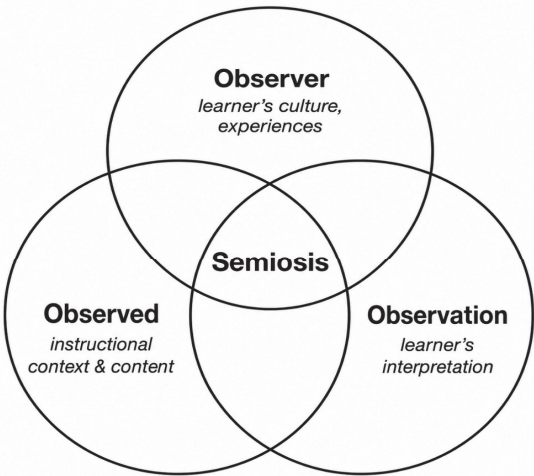


Figure 6. Semiosis in action (Gannon-Cook, Ley 2023).

Guangyi Li *et al.* (2024) and Susana Gómez Redondo *et al.* (2024) further explore the implications of edusemiotics in educational theory and practice. They argue for an applied understanding of semiotics in curriculum design that prioritizes experiential learning and contextual engagement, particularly in addressing contemporary challenges. They emphasize that shared educational experiences foster exploration and meaning-making. Gómez Redondo *et al.* (2024: 178; italics in the original) build on this by proposing a practical framework in communication theories in education for understanding “*learning as interpretation*”, highlighting the importance of context in the learning process. Furthermore, Ibrahim Halil Topal (2024) focuses on the application of edusemiotics in teaching intonation within English language teacher education, advocating for a nuanced understanding of how symbolic signs can enhance communication and learning. In conclusion, the integration of semiotic principles into educational frameworks promotes a more dynamic, contextual, and interactive learning environment. Finally, the integration of semiotic theories into educational frameworks in the past decade promotes a deeper understanding of the philosophical aspect of the learning process, aligning instructional, social, and cultural strategies with learners’ experiences to ease the path of knowledge acquisition in educational settings.

Conclusion

This paper highlights the significant evolution of edusemiotics as a transformative approach in educational practices. By looking at the current literature and examining the key principles of this phenomenon whose key principles were examined above, the article highlights its profound impact on understanding the relationship between signs, meaning-making, and learning processes. The findings underscore the potential of learning-as-semiosis as a dynamic framework that can enhance pedagogical methodologies through innovative approaches for the future of applied education, such as the Inquiry Graphics (IG) method. As educators increasingly integrate semiotic principles into their teaching strategies, they can foster a more robust learning environment that encourages learners to engage actively with their contexts, thereby expanding their capacities for investigation and critical thinking. The focus on visual artefacts and the application of Peirce’s triadic sign model not only enrich the instructional design but also facilitate semiotic activities, allowing learners to derive meaning from their interactions within their *umwelten*. Ultimately, embracing edusemiotics offers a promising avenue for future educational research and practice. By understanding learning as an ongoing, co-extensive process of meaning-making, we can create educational

frameworks that both promote knowledge acquisition as well as cultivate a deeper existential engagement with the world.

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نشانه گذاری در آموزش: از مبانی نظری تا کاربردهای نوظهور در یادگیری

شناسی می و نشانه این مقاله به بررسی سیر تحول «نشانه شناسی آموزشی» در مرور ادبیات فلسفه تعلیم و تربیت: چکیده پردازد و در نهایت به ارائه یک پیشنهاد پژوهشی برای یادگیری سازنده با الهام از این رویکرد منتهی می شود. ساختار این مقاله در سه بخش اصلی تنظیم شده است: نخست، پیش زمینه نظری، به دنبال آن درباره نشانه شناسی آموزشی در وضعیت کنونی آموزش، و در نهایت نشانه سازی به مثاله آینده یادگیری پویا. هدف این مطالعه، تلفیق ادبیات آموزشی معاصر در حوزه نشان شناسی آموزشی و برجسته سازی مفاهیم بنیادین آن و پیامدهای آن برای شیوه های آموزشی است در بخش پیش زمینه نظری، اصول کلیدی نشان شناسی آموزشی مورد بررسی قرار می گیرد و دیدگاهی فرارشته ای برای درک تعامل میان نشانه ها و فرآیندهای یادگیری ارائه می شود. بخش دوم به ارزیابی الگوهای معاصر آموزشی می پردازد چگونگی ادغام آن در زمینه های مختلف آموزشی و، نشان شناسی آموزشی و با ارائه نمونه هایی از کاربردهای عملی می کند. در نهایت، مقاله به بررسی ظرفیت فعالیت های نشانه سازی در تأثیر آن بر روش های تدریس و یادگیری را تحلیل می تواند رویکردهای یادگیرنده محور مثابه نشانه سازی می کند که یادگیری به شکل دهی آینده یادگیری می پردازد و تأکید در یادگیری سازنده را تقویت کند. این مقاله به حوزه نشانه شناسی و آموزش پژوهی (دیداکتیک) با تبیین نقش نشان شناسی آموزشی در پیشبرد رویکردهای نوین تعلیم و تربیت و بهبود نتایج یاددهی-یادگیری، کمک می نماید.

Haridussemiootika: teoreetilistest alustest kujuneva õppevarani

Artiklis käsitletakse haridussemiootika arengut, nagu see peegeldub haridusfilosoofilises ja semiootika-alases kirjanduses, ning pakutakse välja sellest inspireeritud konstruktiivne ja dünaamiline raamistik õppimise uurimiseks. Artikkel koosneb kolmest osast: teoreetiline taust, haridussemiootika hetkeseis ja semioos kui dünaamilise õppimise tulevik. Käsitluse eesmärk on sünteesida olemasolevat haridussemiootika-alast kirjandust, tuua esile selle aluspõhimõtted ja nende mõju pedagoogilisele praktikale. Teoreetilises osas tuuakse välja haridussemiootika põhiprintsiibid, pakkudes transdistsiplinaarset vaatenurka märkide ja õppeprotsesside vastastikuse mõju mõistmiseks. Teises osas vaadeldakse kaasaegseid pedagoogikamudeleid ja nende rakendusnäiteid haridussemiootikas, hinnates valdkonna lõimitust erinevate hariduskontekstidega ning selle mõju õpetamis- ja õppimismeetoditele. Lõpetuseks arutletakse semioosipõhiste õpitegevuste potentsiaali üle õppimise kujundamisel tulevikus, rõhutades, kuidas käsitlus õppimisest kui semioosist toetab õpilaskeskset ja konstruktiivset õpikäsitust. Artikkel annab panuse semiootilise ja didaktilise pedagoogika valdkondadesse, selgitades haridussemiootika rolli hariduslike lähenemiste edendamisel ning õpetamise ja õppimise tulemuste parandamisel.