

# Chapter 1

## Introduction: A Primer on Edusemiotics

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**Abstract** This introductory chapter presents an overview of the defining characteristics and distinguishing features of educational semiotics. The chapter traces some marks in the history of edusemiotics as a novel branch in philosophy of education that, albeit so far very briefly, has already had an interdisciplinary impact and inspired the research strands highlighted in this handbook. As a new theoretical foundation, edusemiotics also represents a conceptual shift from the mainly psychological research that characterizes the applied field known as semiotics in education. Edusemiotics is an integrative conceptual framework that aims to overcome the persistent legacy of Cartesian dualism both in theory and in practice. Edusemiotics centers on learning experiences comprising a process of growth and evolution of signs in which both teachers and students can find significance and meaning. While focusing on the signs of experience, edusemiotics has strong onto/logical presuppositions that affect our conceptions of what constitutes this very experience, subjectivity, and reason; thus having important implications for pedagogy and policy.

### Introducing Educational Semiotics

This handbook's topic is edusemiotics—educational semiotics. Semiotics is a derivation of the Greek verb *sēmeiō* that means 'to mark'. Human experience, including educational experience, is marked by signs; importantly, both linguistic and extralinguistic. Sign is a unit of description and analysis in semiotics. In ancient times semiotics was a specific branch of medicine, with signs describing symptoms. Later semiotics became a branch of philosophy, with signs describing the nature of things. What started as the doctrine of signs, elaborated by John Locke in his *Essay Concerning Human Understanding*, became over the centuries, in the words of the great contemporary semiotician John Deely (Deely 1990, 2001; Semetsky 2007), a new intellectual movement. In academia, semiotics has so far been employed mainly

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as a methodological tool to study various sign-based activities such as media, visual communication or advertising, and much less as a specific foundational philosophy. Edusemiotics is a distinctive field of study that brings together semiotics as a study of signs with educational theory/philosophy of education. Edusemiotics is also a recent addition to the existing branches in the field of theoretical semiotics such as biosemiotics.

This handbook presents cutting-edge research by scholars in education and scholars in semiotics worldwide, thus bringing two discourses together in a dialogue for the purpose of demonstrating the state of the art in this cross-disciplinary field to its readers in the fullest. In education, if and when it is considered an academic discipline, semiotics has traditionally played an applied role derived from largely empirical research informed by methodologies in social sciences; accordingly a sign's role often being reduced to its instrumental function as a 'tool' or educational aid to be used, for example, in implementing videos in a classroom. Semiotics in education has long tended to remain within the confines of behavioral and social sciences, by and large ignoring the very philosophical foundations of semiotics. As for edusemiotics, it is grounded in a distinctive philosophy that, in its multiple aspects, informs the research presented in this handbook. The emphasis on educational theory and philosophy of education as specifically *semiotic philosophy* is one of this handbook's distinguishing features and constitutes its novelty. Nonetheless, both empirical studies and theoretical research complement each other in this handbook.

A sign not only directly represents in the manner of a certain word having a certain object in the world as its single reference, but leads other signs to come to mind as a consequence of itself. Signs can be polysemic, that is they may connote more than one meaning. Therefore meanings may be characterized by their surplus. A symbolic connotation may demonstrate a deeper layer of meanings, sometimes with complex emotional associations or having a cryptic character as portending and pointing to something beyond itself. Human beings are also signs—they are living signs amidst other signs that they read, interpret and use, thereby acquiring a capacity to learn, develop, and grow. Edusemiotics sees living in terms of engaging with, responding to, and interpreting signs so as to create meanings for lived experience. Life *per se*, from the perspective of edusemiotics, is a school, albeit informal and as such traversing the walls of formal educational settings.

## Background, in Brief

Marcel Danesi (2010), who is Editor-in-Chief of the journal *Semiotica*, in his Foreword to the book *Semiotics Education Experience* (Semetsky 2010b) characterized the research collected there as constituting a “magnificent volume that I would consider to be the foundational text for sculpting a veritable *edusemiotics for the future*” (p. vii). The present handbook represents multiple current research outputs in what had been considered back in 2010 to be a *future* direction in the development of

this emergent theoretical position. Danesi commented that “until recently, the idea of amalgamating signs with learning theory and education to establish a new branch, which can be called *edusemiotics*, has never really crystallized, even though the great Russian psychologist Lev S. Vygotsky had remarked... that the ‘very essence of human memory is that human beings actively remember with the help of signs’... In these words can be detected the *raison d’être* for establishing a connection between *semiotics* as the science of signs, *learning theory* or the science of how signs are learned, and *education*, that is, the practical art/science of teaching individuals how to interpret and understand signs” (Danesi 2010, p. vii).

While the 20th century’s philosophy was marked by the so-called linguistic turn, the 21st century’s demonstrates an innovative semiotic, and by implication edusemiotic, turn that brings into sharp focus the often missing dimensions of epistemology, ontology, ethics, and deep existential questions, positing these as especially valuable for education and in urgent need of exploration. The edusemiotic turn rejects the exclusive focus on verbal language and logical analysis prevalent in analytic philosophy, even as it has had a decisive influence on the semiology of Ferdinand de Saussure. While Saussure’s structuralist perspective limited the concept of a sign to its linguistic manifestations and verbal utterances, Charles Sanders Peirce’s philosophy considered signs as perfusing both the human and nonhuman worlds in a variety of guises. Peirce’s perspective was pansemiotic and naturalistic and emphasized the process of signs’ growth and change called *semiosis*, representing the action, transformation, and evolution of signs across nature, culture, and the human mind. Semiosis is a communicative, interactive, relational, and interpretive process. Communication, that is the flow of information and the mutual transformation of signs that are being translated into other signs, is an important concept in semiotics. Semiotically, communication aiming at information sharing is considered to be a natural organizing principle. However, signs are not only intentionally produced for the purpose of communication, as in semiology; the sign-function as the semiotics of signification or meaning-making is extremely important, and the action of signs manifests also in symptoms, in dreams, and in the unconscious in psychoanalysis.

Preceding the birth of edusemiotics, in 2008 a group of mostly European researchers in education formed an informal online community under the name Network for Semiotics and Education out of Oulu University, Finland. The Philosophy of Education Society of Great Britain funded two international research seminars conducted by this group: at the University of Cergy in Paris in 2011 and at the University of Bath in 2012. Papers arising from these seminars appeared in two special issues of the *Journal of Philosophy of Education*; while the seeds of what later became known as edusemiotics were visible in special issues of such journals as *Educational Philosophy and Theory* and *Studies in Philosophy and Education* as early as 2004. Some members of the network were invited to run a symposium at the Finnish Educational Research Association conference in Helsinki, followed by another one at the meeting of the International Association for Semiotic Studies in Imatra, Finland, in June 2013. Also in 2013, a panel titled *Edusemiotics: research on transformative education* was presented at the Semiotic Society of America

(SSA) Annual Meeting in Dayton, Ohio. Edusemiotics as a distinctive discipline and a new sub-branch of theoretical semiotics was formally launched in September 2014 at the 12th World Congress of the International Association for Semiotic Studies (IASS) at the New Bulgarian University in Sofia. In November 2014, a Symposium on edusemiotics was conducted at the Philosophy of Education Society of Australasia (PESA) Annual Meeting in Hamilton, New Zealand. In 2015, the Institute for Edusemiotic Studies (IES), devoted to research, development and dissemination of research results in this new field, was created in Melbourne, Australia. Most recently, edusemiotics became a part of *Encyclopedia of Educational Philosophy and Theory* (edited by M. Peters). This ongoing project is a dynamic study place for students, teachers, researchers, and professionals in the field of education, philosophy, and social sciences which is being continually updated with new research. The section on edusemiotics (edited by I. Semetsky) in the encyclopedia currently comprises ten entries, including my short introduction of the topic. The evolution of the initial research is represented by the present chapter as a concise primer on edusemiotics.

## Edusemiotics as an Integrative Conceptual Framework

In contrast to isolated substances, such as body and mind in the philosophy of Descartes, Peirce posited a genuine sign as a tri-relative entity, referring to something other than itself (its object or referent) indirectly, via a third category (interpretant). The Cartesian ontology of stable substances with its separation of *res cogitans* (immaterial, unextended substance) from *res extensa* (material, extended substance) gives way to the philosophy of sign-relations as processes and events. A sign as a relation serves as a minimal unit of description thus, in a suprasubjective manner, overcoming the dichotomy between subject and object. The problematics of subjectivity (Semetsky 2003) elicits multiple debates in our postmodern times. Rather than a detached Cartesian subject, subjectivity as a *relation* traverses the boundary between itself and the rest of the world, both social and natural. As John Deely (2015) comments, it “transcends the distinction between *ens reale* and *ens rationis*” (p. 75) or, in Cartesian terms, between *res extensa* and *res cogitans*. Such transcendence is enabled by the dynamic process of semiosis that represents the evolution of signs (surpassing Darwinian evolution in biology that has its basis in natural selection) with signs growing in meaning and purpose. Process can be described as a “coordinated group of changes in the complexion of reality, an organized family of occurrences that are systematically linked to one another either causally or functionally” (Rescher 1996, p. 38). Edusemiotics adopts process-ontology whose philosophical precursors include, besides Peirce, such thinkers as Plato, Leibniz, James, Dewey or Whitehead; as well as a number of earlier Hermetic, Neoplatonic, and Eastern philosophers. Thus edusemiotics not only continues but reinterprets in new contexts the intellectual legacy of major philosophers and critical theorists, crossing over from American Pragmatism to the Continental tradition and revisiting ancient philosophies such as Hermeticism or Taoism. Philosophers in the

pragmatic, versus analytic, tradition reject a sharp dichotomy between subject and object, body and mind, and epistemology reduced to the spectator theory of knowledge. Keeping this rejection from being just a slogan is indeed a task pursued by edusemiotics. This task is complex and requires the synthesis of cognition and affect, logic and ethics, metaphysics and practice.

Edusemiotics is an integrative conceptual framework. In Western educational systems, integrated approaches are either missing altogether or refer in passing to Eastern philosophies and practices without addressing modern/postmodern semiotics as a specific philosophy for education. Traditionally, for Western thought in the period of modernity “there could be no *tertium quid*” (Merrell 2002, p. 204) manifesting as such the elusive middle as the included third between the two, apparently opposite, terms. Such *tertium* is defined as something of uncertain or unclassifiable nature which is related to, yet distinct from, the other two terms that we tend to perceive as logical binaries. Modern philosophy is largely dualistic and demonstrates the “great bifurcation” (Merrell 2002, p. 54) between body and mind; and education still continues to model itself, even if implicitly, on the philosophy of Cartesian dualism. But Eastern thought proclaims “the polar relationship of all opposites” (Capra 1975, p. 112). For Taosit philosopher Chuang Tzu, for example, ‘this’ is also ‘that’ and ‘that’ is also ‘this’. The apparent opposites are united, hence cease to be binaries but complement each other in the manner of *yin* and *yang*, of body and mind, of material and spiritual, of intuitive wisdom and rational knowledge. Action and contemplation exist in a complementary relation to each other: such complementarity is exemplified in the figures of the sage and the king in Chinese philosophy. As noted by physicist and philosopher Fritjof Capra in his influential book *The Tao of Physics* (1975), “Fully realized human beings, in the words of Chuang Tzu, ‘by their stillness become sages, by their movement kings’” (p. 99). This statement certainly sounds paradoxical, yet the paradox (pertaining to the semiotic logic of the included middle) is an ineliminable distinguishing feature of edusemiotics. Because of this defining characteristic, edusemiotics can be also described as the Tao of education that the Chinese have called ‘the Way’ (Semetsky 2015a). This metaphorical way is the ever-evolving and never-ending process enabled by, and enabling in turn, harmonious relations that cross the divide between culture and nature. As signs evolve, they indeed furnish both the human mind and nonhuman, natural, world (cf. De Tienne 2003). In the semiotic universe, the human mind is not separate from the environing physical world but is engaged in a continual participation with it, thus forming a holistic process-structure, a network, encompassing socio-cultural and natural aspects. Standing for something other than itself, a genuine sign ultimately integrates this ‘other’ into itself by engaging in a series of relations and translations eliciting a series of transformations.

Contemporary educational theory is often haunted by the ghosts of the past—Cartesian substance dualism, the philosophy of language grounded in logical analysis and direct, unmediated, representation, and modernity’s singularly right, scientific, method on which educational research tends to be modeled. Edusemiotics represents a new, alternative, direction in philosophy of education marked by

several distinctive characteristics. Overcoming habitual dualisms is another distinguishing feature of edusemiotics, while its defining characteristics include the following: process-ontology, the logic of the included middle, relational ethics, existential and posthuman dimensions, learning from practical experience, the necessity of interpretation and not relying merely on empirical facts as evidence, a conception of language understood broadly in terms of semiotic structures that exceed analytic philosophy's emphasis on truth and direct representation, embodied cognition, and the problematic of self-formation. As a philosophy of education, edusemiotics aims toward organizing a sense of the *relational* self, in which a generic other would be integrated, thus enabling mutual understanding oriented to creating values and meanings that are, ultimately, shared. Edusemiotics entails alternative research methodologies including, but not limited to, phenomenology and hermeneutics, with a view to positing multiple recommendations derived from its foundational principles. Especially significant is edusemiotics for exploring questions of educational policy and practice.

From the semiotic perspective, people are signs among other signs and are sign-users. Signs evolve and grow via the dynamics of multiple interpretations, incarnations, and translations into other signs. Accordingly, human beings as embedded in semiosis can grow and evolve. Their life acquires meaning. Education, in semiotic terms, is a relational process of growth as a function of engaging with, and learning from, signs situated in life, in human experience, thus defying the strict boundary between formal schooling and cultural education. Experiential learning expands the walls of a traditional classroom and opens it to the greater social and natural world. Learning exceeds narrow rationality: even if we “think of... learning as a conscious mental process [edusemiotics functions on the basis of] chiefly bodymind learning” (Merrell 2002, p. 15). As a process of learning grounded in *embodied* experience, education that draws from philosophy as semiotics elicits the transformation of habits—habits of thinking and habits of acting in the world. An attention to ethics and practical action is a significant feature of edusemiotics; equally important is a distinctive approach to logic as the science of signs.

## The Logic of Signs

Peirce made clear that there is different logic to specifically semiotic philosophy: logic is described as “the science of the necessary laws of thought, or, still better (thought always taking place by means of signs), it is a general semeiotic, treating not merely of truth, but also of the general conditions of signs being signs” (Peirce, CP 1. 444). Sign as a unit of description is not an individual thing or person, but a relational—versus substantial—entity, which continuously engages in changes and transformations, thus defying the perceived binary oppositions between not only Cartesian categories of mind and matter but between all other dualisms. Based on this premise, edusemiotics does not single out true versus false or right versus

wrong answers as the binary opposites that teachers usually employ for the assessment of their students; what is important is the participative learning *process* in which students are finding significance and meaning, and teachers are responsible for creating such a participative environment rather than limiting education to merely its *product* which is usually reduced to results determined by standardized tests.

As the science of the necessary laws of thought, logic as semiotics defies the classical principle of non-contradiction that dates back to Aristotle and relates to the law of the excluded middle that ‘informs’ the analytic logic of verbal language and propositional thought: a proposition is either true or its negation is true—that is, there is nothing between the two parts of the contradiction. The law of non-contradiction manifests the classical *tertium non datur* principle which is the very basis for the either-or logic established by Aristotle’s syllogistic reason. But from the semiotic perspective, all binary opposites (*either this or that*) become subject to mediation enabled by the paradoxical structure of genuine signs that have an included middle (in this or that guise) which ensures signs’ dynamic growth in meanings rather than attainment of stable truth. In contrast to the law of non-contradiction that continues to haunt education, even if implicitly (while teachers continue to demand unambiguous and singularly ‘right’ answers from their students), edusemiotics asserts that it is logical contradictions—or moral dilemmas which are plentiful in lived experience—that may serve as important content and become learning material. It is the indirect mediation as a semiotic interpretation that establishes a triadic versus dyadic relation. As relational entities, signs defy the logic of either-or, and it is the mediation peculiar to genuine signs that constitutes their most distinctive aspect and amounts to the logic of the included third, of both-and, characterizing an edusemiotic turn that aims toward making education transformative and creative.

Because of this logic, the creation of new signs can take place: signs grow, that is, they become other signs within the interpretive—indirect, mediated, and recursive—process of semiosis. Such process is the very foundation for the transformation of habits in actual practice. The transformation of habits, both in thought and in action, is embedded in the relational dynamics of semiosis permeated by newly created signs. Accordingly, edusemiotics as a theoretical framework leads to reformulating the received notion of progress which is traditionally equated with material success and quantitative measures. Edusemiotics changes the perception of standards that serve as the established policy for testing, assessment, and evaluating academic success or failure. Failure, in accord with the process of signs being transformed into other signs, may turn into its own opposite, that is, carry a positive value by virtue of being a learning experience. To reiterate, the edusemiotic perspective leads to positing new ethics oriented to creating reconciling relations between ourselves and others that can bring about mutual understanding and sharing each other’s values. Signs acting in life function as unorthodox cultural texts comprising human experiences that can be read and interpreted. By responding to and interpreting such texts’ indirect and often subtle messages that, rather than being *a priori* ‘clear and distinct’ Cartesian ideas, often reach us at unconscious levels only, we can educate

ourselves, hence in accordance with the dynamics of semiosis we can become more developed signs.

As a philosophy of education, edusemiotics promotes not any personal agency or *a priori* autonomous individuals but the value of relations. Developing networks of relations is especially significant for our real-life practices in interpersonal and sociopolitical contexts. Everything is a sign—still, nothing is a sign unless it is interpreted. This statement sounds paradoxical, but we reiterate that the presence of paradoxes is one of the characteristics of semiotics and edusemiotics. The modes of inference include, in addition to deduction and induction, also abduction functioning on the basis of the logic of discovery rather than just the logic of justification (Semetsky 2005, 2009). Signs, via the dynamics of multiple interpretations and translations into other signs, evolve and grow. Learning is achieved not by an analytic, Cartesian, mind that observes the surrounding world from which it is detached, but by a synthetic—or integral—consciousness that constructs an expanded field of existential meanings informed by lived experience. Edusemiotics interrogates and reconceptualizes anthropocentrism, positing the human mind as embodied in the greater, posthuman, environment. Teaching and learning are embedded in semiosis, and the study of processes of learning and teaching is part of, and contributes to, the study of the ontogeny of signs together with the problematic of their communication and signification (cf. Nöth 2010).

## **Ethics, Values, Reason**

A semiotic approach to the process-structures of knowledge leads to reciprocity between ethics and reason, knowledge and action, consciousness and the unconscious, will and desire. These are *complementary* pairs and not binary opposites. Their dynamics can be expressed via the tilde ‘~’ as a notation for a coordinating, reconciling relation, or a mark of the paradoxical feature of self-reference peculiar to genuine signs. Signs are thus, strictly speaking, process~structures. It is self-reference, indeed problematical from the viewpoint of classical logic, yet intrinsic to the structure of genuine, triadic, signs, that enables self-knowledge. Teachers’ self-knowledge is a must: without it one would be unable to establish a genuine relation with their opposite, their ‘other’. Self-knowledge as a relation to oneself is a prerogative of edusemiotics and is a prerequisite for knowing others. However self-knowledge would be impossible without the process of self-reflection. The ability to reflect on oneself, to interpret and reevaluate one’s experience enables one to learn, evolve and become other in this process. Establishing self-other relations is foundational for ethical education. Years ago, educational philosopher Nel Noddings (1984/2003) had already posited the ethics of care as based on relations. She described caring as a feminine alternative to individual character education. Edusemiotics takes this up a notch and formulates a new approach to moral education and an ethics of integration (Semetsky 2010a, 2012a, b) as an important theoretical premise that enables a practice devoted to creating reconciling relations between generic selves and



others that can potentially arrive at mutual understanding and sharing each other's values: the way a mother understands her (as yet preverbal) child by means of a natural bond. Surely, we are signs among signs and as such we are necessarily "defined in relation" (Noddings 2010, p. 113).

Edusemiotics proposes a meaningful pedagogy of values, with values *per se* continuously reevaluated and created anew in the manner of signs as a function of situations, events, and diverse experiential and experimental contexts. The questions of experience, practice, existential issues, and a value-related problematic are very much prominent in this handbook. As far as moral education is concerned, while promoting education in values, edusemiotics does challenge the practice of direct inculcation that may sometimes slip into indoctrination. While the moral dimension is part and parcel of edusemiotics, education from the viewpoint of edusemiotics interrogates values that are set in stone and calls for anticipating new values as the function of times, places, and contexts. Values are signs of the times; hence they also evolve like other genuine signs. Asking the question of what happened to the 'treasure' of learning 15 years after the International Commission on Education for the 21st century submitted its report *Learning: The treasure within* to UNESCO, Jacques Delors (2013) suggests that a lifelong approach is essential for self-esteem and taking control of our lives, thus implicitly supporting the postulate of edusemiotics concerning lifelong education. The usual conception of adult education becomes problematical: rather than focusing on continuing professional training and emphasizing the necessity of acquiring new technical skills, it extends to the level of informal edusemiotic pedagogy that also includes personal development and self-formation outside the walls of formal classrooms in institutional settings. In fact, one unorthodox skill is involved in such pedagogy: the ancient Stoics developed the idea that virtue is a kind of *technê* or craft of life which, when blended together with the theoretical knowledge of the world, forms the art and science of living. In semiotics, art is complementary to science: the science of signs is intrinsically creative and can be expressed, respectively, as art ~ science.

The continuing debate over the methods of ethics appears unending: "since Socrates [philosophers] have sought... criteria for distinguishing between right and wrong and between good and evil" (Baron et al. 1997, p. 1). What is common to all approaches, however, is that they are framed by the reasoning of an independent moral agent that presents ethical categories in the form of dualistic opposites. However, even if classical ethical theories are included in teacher preparation courses (and often they are not included at all), the adequacy of those theories becomes doubtful in contemporary global contexts of cultural differences and conflicting values. We understand that the real-life interplay of signs embedded in human experiences erases the borders between categories and makes it impossible to lay down strict theoretical rules as indubitable moral yardsticks. The edusemiotic perspective on ethics overcomes the dualistic split inherent in simplistic moral algebra with its traditional binary division into good versus evil or right versus wrong. It enables us to move beyond such separation and toward the integration of those dualistic opposites that are still deeply ingrained in individual and cultural consciousness. When the walls surrounding the rigid logical categories crumble and

open the gates for the fuzzy included middle to slip in-between, this inadvertently does away with egocentric moral judgment. While the goal of traditional ethics is of illusory perfection and an adherence to the absolute good that necessarily leads to the appearance of its binary opposite, the absolute evil as the eternal other, a new edusemiotic ethics aims toward wholeness rather than having as its goal some ideal betterment and perfection. Education from the edusemiotic perspective is, by its very logic, holistic and integrative.

Continuing research in edusemiotics as a newly created program should be able to not only eradicate old habits of thinking and acting but also to investigate the prospective effects of such a perspective on multiple socio-cultural relations: this handbook represents cutting-edge research that addresses a related problematic worldwide. Semiotics and edusemiotics create the challenge in the modern academy (cf. Deely 2015) and for contemporary academics, researchers, and teachers. Still, it is precisely edusemiotics that can educate us by leading us out of old habits, overcoming narrow specialization and the fragmentation of knowledge prevalent in schools and universities alike. Indeed, *educare* in Latin literally means to lead out as well as to bring out something that is within, however not confined to narrow instrumental rationality. Habit-change is a lengthy process that often proceeds below our awareness of it. But edusemiotics displays a radical scientific reason inseparable from the creative interpretation, imagination, and critical self-reflection informed and enabled by the action of signs. Such expansive reason should begin to affect current educational policies and to elicit educational reform.

## Some Implications for Profession

The chapters comprising this handbook are written by semioticians, educational researchers, and philosophers of education that comprise a global community of inquiry. Peirce attached a special significance to the role of community in acquiring knowledge:

The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you. Thus the very origin of the conception of reality shows that this conception essentially involves the notion of a COMMUNITY, without definite limits, and capable of a definite increase of knowledge (Peirce, CP 5.311).

Such a community of practical inquiry is theoretically unbounded by space or time and is future-oriented; while as discrete individuals we of course remain finite human beings:

Finally, as what anything really is, is what it may finally come to be known to be in the ideal state of complete information, so that reality depends on the ultimate decision of the community; so thought is what it is, only by virtue of its addressing a future thought which is in its value as thought identical with it, though more developed. In this way, the existence of thought now depends on what is to be hereafter; so that it has only a potential existence, dependent on the future thought of the community (Peirce, CP 5.316).

The edusemiotic process of the evolution and transformation of signs intrinsically determines new opportunities for human development and transformative education and necessarily encompasses the future-oriented dimensions of becoming, novelty, and creativity. These elements were the defining characteristics of Alfred North Whitehead's process-metaphysics and need to be taken into account in education. As creative, edusemiotics interrogates the model of teaching reduced to the unidirectional transmission of pre-given content from a generic teacher to a generic student. Rather, teachers and students together are part of the same semiotic process: they form a single relational unit. In other words, teacher and student cannot function as individual and independent entities. When teachers' work is limited to instruction and students' task is to receive such an indubitable and unquestionable instruction from a supposed authority figure, then both of them, even if unbeknown to each other, put into practice the habitual philosophy of Cartesian dualism. Edusemiotics however posits a teacher and a student as one unified, albeit double-sided, whole—a sign, a relation. Teachers and students together form complementary pairs. The feature of complementarity is part and parcel of the logic of the included middle. The logic of signs is what makes a teacher and a student function in an interrelated and interdependent manner by virtue of their being embedded in the field of signs and ultimately creating mutually shared meanings.

Edusemiotics partakes of an open-ended practical inquiry that does not aim to attain finite and indubitable knowledge. It problematizes the prevalent role of formal instruction and elicits alternative pedagogies. Pedagogy in the spirit of edusemiotics is not reducible to teaching 'true' facts, but aims to enrich experience with meanings and values while also saturating classrooms with alternative discourses surpassing the strictly cognitive (Semetsky 2014) but incorporating artistic creative practices, poetry, imagination, and reasoning with diagrams as nonverbal sources of valuable information that stimulate our cognitive abilities. For Peirce, diagrammatic reasoning was one of the means to denounce the Cartesian maxim (Semetsky 2015b). Edusemiotics encompasses both natural and invented signs, such as culturally specific artifacts. In addition to verbal signs, edusemiotics addresses images and diagrams as a visual mode of communication and pedagogy, and affirms metaphors, narratives, contextual interpretations and affective, somewhat erotic, experiences. The tri-relative nature of semiosis presupposes a threefold reciprocity between living, loving, and learning (Semetsky 2012a).

Semiotic tropes, such as interpretation, development, and evolution; relational and dialogic structures and processes; narrative knowledge, metaphor, and metonymy become prominent in educational discourse, manifesting a step away from the single model of social sciences applied to research in education. Learning by means of using signs can become a modality of both formal and post-formal pedagogies that strengthen relations and connections and are oriented to meaning-making practices; the value-dimension of edusemiotics is thus implied. The edusemiotic perspective defies the reductionist paradigm and the model of educational research as exclusively evidence-based. Edusemiotics posits empirical evidence as always open to interpretations. It creates a novel open-ended foundation

for knowledge which is always already of the nature of a process; thus subject to evolution, development and the intrusion of signs that need to be interpreted anew in the unpredictable circumstances of lived experience for which our old habits of thought and action may be unfit or counterproductive. The process of semiosis that encompasses human beings functioning as signs elicits the transformation of habits as especially important in the context of education and representing the core of edusemiotics. Edusemiotics not only problematizes the habitual approaches to teacher training but should potentially influence the whole gamut of educational policy-making. In this sense, the purpose of edusemiotics falls into the scope of the comprehensive policy agenda for education in the 21st century (Simons et al. 2009). The overall aim of edusemiotics partakes of a political task in terms of creating an open society (cf. Peters 2009) as the transformation of the whole of the knowledge economy including the persistent question of school reform.

The chapters in this handbook are preceded by a Foreword written by Andrew Stables, whose scholarship is one of the driving forces behind the current position of edusemiotics as a discipline (e.g., Stables 2005, 2010, 2012) and who is a co-author of the latest seminal tome on this topic (Stables and Semetsky 2015) that has received an inaugural book award from the Philosophy of Education Society of Australasia in 2015. Individual researchers, comprising the current community of edusemioticians, draw from and re-read in contemporary contexts the rich heritage of many predecessors that include such philosophers and cultural theorists as Peirce, Dewey, Kristeva, Ricouer, Bakhtin, Deleuze and Guattari, Heidegger, Habermas, Greimas, Barthes, and Sebeok. The book also pays a timely tribute to Umberto Eco, who sadly passed away while this volume was in preparation. The topics addressed by the authors are diverse and the research as presented here covers both empirical and theoretical studies united by edusemiotics as a conceptual framework. The research also challenges some of our habitual perceptions of the areas that traditionally lie outside an immediate focus on educational philosophy, namely physics and biology, even if in passing; thus creating a semiotic bridge between humanities and sciences, art and mathematics, metaphysics and history of education.

The immediate impact of this collection is the possibility (and the necessity) to educate its readers in the multiple opportunities provided by edusemiotics not only at the level of schools or universities but also in our everyday practices. The volume creates a comprehensive novel body of knowledge to inform both meaningful education and meaningful life. The book demonstrates that the theoretical foundation for implementing such tasks at the practical level indeed exists and is named edusemiotics.

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