

Inna Semetsky *Editor*

Edusemiotics — A Handbook

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This book is dedicated to the great John Deely, a dear friend and colleague whose research in the theory and history of semiotics is unsurpassable. His work is a lasting inspiration for generations of students to come, in philosophy, semiotics, and now edusemiotics.

Foreword

It is indeed a privilege to be asked to write a foreword for a handbook on edusemiotics considering that the term was not even in use until 2010. Edusemiotics is a fast emerging field within both semiotics and educational studies. On one level, there are quite obvious pragmatic reasons for this increasing interest. Most semioticians are also educators and welcome a branch of their discipline that explores this aspect of their work. Meanwhile, many educators and educational researchers are keen to find an approach that dissolves many of the tensions between ‘theory’ and ‘practice’ that often cause divisions within their field and can serve to restrict the impact of their work in the public imagination.

Philosophically, edusemiotics offers a way of understanding education, in the broadest sense, that does not rest on the legacy of strong Cartesian mind-body dualism, a legacy evident in debates across the board, from the distinction between cognitivist and behaviorist learning theories, to the dismissal of much thinking about education as ‘just theory’, or the strong status superiority still afforded to activities involving students sitting still, reading and writing, as opposed to undertaking physical or vocational activity, as if the health of mind and body were two entirely separate activities. In place of these naïve dualisms, semiotics as a distinctive philosophy offers a thoroughgoing relational view that acknowledges dualisms in context but overall rejects strong *either-or* thinking and considers all educational actors (teachers, students, even the subject matter) as open systems evolving through changing relationships. On the edusemiotic account, knowledge cannot simply be transmitted and teachers cannot simply ‘deliver’ or ‘instruct’ in the crudest sense; nor do students ever learn quite what teachers teach. Teaching and learning are about dialogue, discovery, and interpretation: in short, *semiosis*.

Neither teacher nor student nor subject matter is a fixed entity. The teacher’s approach and understanding is developed in relation to interactions with the student with respect to the subject matter. The student brings habits of response and understanding to the classroom encounter that are modified by the encounter that constitutes the lesson (thus learning is always a form of both discovery and disillusionment, as that which was held to be so can no longer be so assumed). The

subject matter itself is modified through its iterations in the student-teacher meeting, such that those inducted into disciplines gradually take their interpretations forward into their further uses and (at the top end, at least) development of the practices in question. In short, the teaching and learning encounter is one of transformation, not of transmission.

While its rise has been rapid and remarkable, we should remember that edusemiotics too is an open system, and not all commentators with interests in semiotics and education may want to subscribe to it as a technical descriptor: it is, after all, a broad container concept. It is useful, however, to distinguish between purely applied empirical work in education that uses semiotic ideas for analysis (some of it prestigious and important in its own right) from work that attempts to reconsider and reconfigure education more broadly using philosophical and theoretical resources from semiotics. It is this latter approach that can be referred to as edusemiotic. Furthermore, edusemiotics is not a one-way street: in asking questions about education from semiotic perspectives, edusemioticians are simultaneously problematizing semiotics by deploying resources from the philosophy and theory of education. ‘Edusemiotics’ is thus effectively a shorthand for the branch of semiotics and educational theory that intends to develop semiotic philosophy as a foundation for education. It was formally recognized as a theoretical branch of semiotics at the 12th World Congress of the International Association for Semiotic Studies in Sofia in 2014.

This work owes a great deal to Inna Semetsky’s seminal contributions, to members of the Philosophy of Education Societies of Great Britain and Australasia, to the International Network for Semiotics and Education and the new Institute for Edusemiotic Studies, and to other academics not formally aligned to any of these organizations. The development of edusemiotics as a discipline is the result of these individual and collective efforts, many of which are represented in the following chapters.

Andrew Stables
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Contents

1	Introduction: A Primer on Edusemiotics	1
	Inna Semetsky	
2	Academic Culture and the Science of Signs	15
	John Deely	
3	‘Diagrammatic Teaching’: The Role of Iconic Signs in Meaningful Pedagogy	29
	Catherine Legg	
4	Semiotics in Mathematics Education: Topological Foundations and Diagrammatic Methods	47
	Rocco Gangle	
5	Metaphors, Models, and Diagrams in Educational Theories and Practices	63
	Marcel Danesi	
6	Education and Reasoning: Advancing a Peircean Edusemiotic	79
	John Quay	
7	No Surprise in the ‘Surprise Effect’ of Values Pedagogy: An Edusemiotic Analysis	93
	Terence J. Lovat	
8	Semiotics and Meaning in the Aims of Education in Greece	107
	Anastasia Christodoulou and George Damaskinidis	
9	Edusemiotics, Existential Semiotics, and Existential Pedagogy	121
	Jani Kukkola and Eetu Pikkarainen	
10	The Embodied Mind: Education as the Transformation of Habits	137
	Inna Semetsky	

11 Academic Pathologies and Anxieties of Knowing	151
Michael A. Peters	
12 Interpreting Our Selves	165
Sandy Farquhar and Peter Fitzsimons	
13 The Role of the Reader: Remembering the Possible Worlds of Umberto Eco	179
Peter Pericles Trifonas	
14 Reading History: Education, Semiotics, and Edusemiotics	193
Alin Olteanu	
15 Heteroglossia as a Dialogic Route to Metaphoricity in Education	207
E. Jayne White	
16 Knowledge as a Sign: An Edusemiotic Theory of Learning Heritage Language.	221
Saeid Atoofi	
17 Julia Kristeva's Semanalysis and the Legacy of Émile Benveniste	235
Marga van Mechelen	
18 Black Holes: Engaging with Negation Through the Semiotic Chora	249
Cair Crawford	
19 Erotica and Semiotica: What's Love Got to Do with Edusemiotics?	263
Farouk Y. Seif	
20 Learning from the Unconscious	277
Inna Semetsky	
Index	291

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John Deely is Philosopher in Residence at Saint Vincent College, Latrobe, PA, USA. He also holds the Rudman Chair in Philosophy at the University of St. Thomas, Houston, Texas. He is the author of a complete history of philosophy *Four Ages of Understanding* (Toronto University Press, 2001) that traces the development of semiotics within the whole of philosophy from its ancient beginnings to the 21st century while also innovatively defining the term ‘postmodern’. Among his numerous titles are *Basics of Semiotics* (1990), *Intentionality and Semiotics* (2007), and *Purely Objective Reality* (2009). The revised edition of his earlier *Medieval Philosophy Redefined as The Latin Age* is published in 2016. Deely is the Editor of *The American Journal of Semiotics* (the Journal of the Semiotic Society of America). He served two terms as Vice-President of the International Association for Semiotic Studies (IASS), and two terms as IASS Vice-Treasurer.

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Chapter 1

Introduction: A Primer on Edusemiotics

Inna Semetsky

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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Chapter 2

Academic Culture and the Science of Signs

John Deely

Abstract Today's academy culminates in universities, the central institution of education feeding the intellectual culture of humankind. In historical context, philosophy (science in the 'cenoscopic' sense of critical control of objectivity unaided by instruments), along with literature, preceded university life, but came to form an integral part of university curriculum. But modern science (in the 'ideoscopic' sense, knowledge that could never be attained without instruments) began its distinctive development in the dawning years of the 17th century, and its acceptance within the university was anything but smooth. Intellectual advance depends on logic, but old habits have to be overcome, and such displacement is seldom easy within culture. It took more than two centuries for modern science to gain its standing—a standing so firm that students now think of the university in terms of science above all, as evidenced in the acronym STEM (science, technology, engineering, mathematics) for early 21st century attempts at a core curriculum. Where is semiotics in such a scheme? The chapter presents semiosis as the subject matter of semiotic inquiry and elaborates on semiotics as a matrix of all sciences, social and natural notwithstanding. The chapter further specifies the features of semiotic consciousness and concludes by affirming the transdisciplinary as well as predisciplinary, rather than disciplinary, character of semiotics and edusemiotics.

Introduction

Semiotics today traces back to two contemporaneous pioneers, one in the field of linguistics and one in the field of philosophy. The first of these, Ferdinand de Saussure, envisioned the possible developments under the label of semiology, a term fashioned from the Greek *semeion*. The second, Charles S. Peirce, chose the

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15

name semiotics that, while also fashioned from the Greek, was not of Peirce's own coining. Peirce derived his vision from the text with which John Locke concludes his *Essay Concerning Human Understanding* of 1690. For Saussure, the science of signs was to be a branch of social psychology and linguistics as a subspecies within that branch. Of this 'possible science' Saussure himself did not say a great deal; however, he influenced a stream of future linguists and critical theorists centered exclusively on literary texts and other artifacts of culture, which were always treated on the patterns of language. Within this tradition, the possibilities of semiotic understanding have been largely restricted to glottocentrism or logocentrism. This perspective, from the philosophical viewpoint, was entangled in the Kantian critique, according to which there is no world known or knowable beyond the phenomena constructed by our own structures of understanding. Writing within this tradition, Terence Hawkes (1977) reminds us that: "It follows that the ultimate quarry of structuralist thinking will be the permanent structures into which individual human acts, perceptions, stances fit, and from which they derive their final nature. This will finally involve what Fredric Jameson has described as ... 'an explicit search for the permanent structures of the mind itself, the organizational categories and forms through which the mind is able to experience the world, or to organize a meaning in what is in itself essentially meaningless'" (p. 18).

Indeed, at the heart of semiotics is the realization that the whole of human experience, without exception, is an interpretive structure mediated and sustained by signs (Deely 1990). So it is perhaps not surprising that much of the original semiotic development in our time has taken place along the tracks and lines of a classical idealism in the modern sense, an environment and climate of thought within which the structuralist analysis of texts and narratives is particularly comfortable. However, the tradition of semiology has been superseded by the other semiotic tradition of Poinot–Locke–Peirce. This development, unlike that of Saussure, does not take its principal and almost exclusive inspiration from human language and speech. It sees in semiosis a broader and much more fundamental process, involving the physical universe itself in human semiosis, and making of semiosis in our species a part of semiosis in nature.

Abduction, the process whereby new ideas are seized upon—ideas further to be developed deductively and tested inductively, beginning again the cycle, or, rather, an evolutionary spiral of semiosis—is first of all a phenomenon of nature. As Peirce pointed out, "what is growth? Not mere increase" (Peirce, CP 1.174): a semiotic growth presupposes novelty and creativity. Abduction works with constructed signs, but not only with constructed signs, and not with constructed signs first of all.

Thus, the cornerstone of this tradition, first articulated by John Poinot in 1632 in his *Tractatus* (Poinot 1985) and developed by Peirce, Maritain, Morris, and Sebeok, is the coming together of 'real being' (awareness-independent) and 'being of reason' (awareness-dependent), thereby defying their opposition.

We have here two paradigms, which have to a certain extent handicapped the contemporary development by existing within it under sociological conditions of opposition, an opposition not only uncalled for logically, but one which depends on

a perverse synecdoche where a part is mistaken for the whole. Semiotics forms in fact a unified whole of which semiology is but a part. According to Thomas Sebeok, semiosis as the process of the evolution of signs must be recognized as a pervasive fact of *both* nature *and* culture. This is the perspective of anti-dualism adopted by edusemiotics that as such elicits far-reaching implications for educational theory (Stables and Semetsky 2015) as well as pedagogical practice (Semetsky and Stables 2014).

Semiosis: The Subject Matter of Semiotic Inquiry

Semiotic studies, that now include edusemiotic studies as one of their main theoretical branches, investigate the action of signs. It was Peirce who saw that the full development of semiotics as a distinct body of knowledge required a *dynamic* view of signification as a *process*. Semiosis as a type of activity is distinctive in that it always involves three elements, but it is even more distinctive in that one of these three elements need not be an actual existent thing. In all other types of action, the actors are correlative; hence, the action between them, however many there may be, is essentially dyadic. Peirce calls the action as such between existent things ‘brute force’ or ‘dynamical interaction’ that may be physical or psychological. In either case, the action takes place between two subjects of physical existence and is, in a terminology we shall be obliged to both clarify and insist upon, always and irreducibly a subjective interaction. Subjective interactions, whether psychical or physical, are always involved in the action of signs, but they surround the semiosis as its context and condition, while always falling short of the action of signs proper. In other words, while the action of signs always involves dynamical interactions, dynamical interactions need not always involve the action of signs.

Peirce gives the example of the rise of the mercury in a thermometer, which is brought about ‘in a purely brute and dyadic way’ by the increase of ambient warmth. Yet for someone who happens to have a collateral knowledge of thermometers, this ‘brute fact’ will also produce the *idea* of such increasing warmth in the environment. This idea as a *mental* event nonetheless belongs to the order of *physical* existence, no more and no less than does the rising mercury and the ambient temperature in the environment. It is, as Peirce says, the ‘immediate object’ of the thermometer being a sign that *indicates* an environmental condition. The object of the thermometer as a sign is the relative warmth of the surroundings. The object of the *idea* of the thermometer as a sign is no different. The thermometer has produced a certain effect, the meaning of itself as the *interpretant*, a unique and important notion, the key to understanding the action of signs as a process or form of becoming *as well as* a kind of being, over and above the essential structure that nevertheless makes such signification possible in the first place.

The Medium of Semiosis

Dynamic processes are characterized by motion according to the classic definition of brute force that the Scholastics called ‘transitive action’, that is, action that passes from one thing to another through the production of change. In Aristotle’s categories of physical being, action and passion (say, punching and being punched) are dyadic and correlative, the one as initiating and the other as terminating. The resultant change is the action of the agent transpiring in the patient, that is, in the one undergoing the action, and its traces endure as part of the physical order itself (principally in the patient as outcome; but in the agent, too, as vestiges and clues). The action of *signs* is however entirely different. It is not productive of change *directly*. It is always *mediated*. It lacks the directness of punching and being punched. Even when the semiosis is involved with dyadic dynamicity, as it always is in varying degrees, what gives the action of signs its curiously detached and ethereal quality is precisely its indirection, what Peirce rightly characterized as its *irreducible triadicity*. The sign not only stands for something other than itself, but it does so for some third; and though these two relations—sign to signified, sign to interpretant—may be taken separately, when they are so taken, there is no longer a question of sign as a triadic entity but of direct cause to effect on the one hand and of object to knowing subject on the other. The reference to the *future* (or past) in a third element, the interpretant, is essential. Both points are recognized in edusemiotics that interrogates the very notion of the knowing subject and affirms the future-directed orientation as crucial for education.

A sign always represents, but not every representative is a sign. Things can represent themselves within experience. To the extent that they do so, they are objects and nothing more, even though in their becoming objects signs and semiosis are already invisibly at work. To be a sign, it is necessary to represent *something other than itself*. Being a sign is a form of irrevocable bondage to another, to the object that the sign is *not* but that the sign nevertheless stands for, thus represents. This is the most important fact about the sign, because it is what is most decisive for it: the quality of relativity. There are signs that are also objects in their own right, just as there are objects that are also things. But there are no signs that are not relative to some object *other than themselves*, and that object or those objects to which the sign is relative we call the signified or significate, the essential content of the sign insofar as it is a sign. Because the essential content or being of the sign is relative, the key to understanding what is proper to the sign is the notion of relativity, relation. Sign is perforce a *relative being* suprasubjectively, an *other*-representation not a *self*-representation.

The action of signs, which provides the general subject matter of semiotic inquiry, extends well beyond what we call language (that is, what is limited to verbal signs) even though it is only through linguistic communication that this range can be brought into light for us as inquirers. Linguistic signs are only one subspecies of signs properly understood. Verbal language has come to be called in Eastern European semiotic circles the ‘primary modeling system’ while the rest of human

culture and civilization is thus a series of ‘secondary modeling systems’. Sebeok, however, showed that the primary modeling system is rather the human *Innenwelt* as biologically underdetermined (see *Afterword* in Deely and Danesi 2012). There are many kinds of signs—for example, signs embodying connections that are physical before becoming also objective and social (such as the connections between clouds and rain or smoke and fire); or signs formed of connections that are objective associatively rather than physically (such as the connections between candlelight and lovers, napkins and meals); or of connections that are manipulative (such as pressing a lever and receiving a pellet of food) rather than stipulative; or social signs subsequent to language embodying connections which are only objective and cultural (such as the connection between flag and country).

The ability to grasp the actual stipulation of linguistic signs, in contrast to making associations based on their perceptible aspects, is just what is meant by ‘intelligence’ in the species-specific sense of linguistic competence, which is only a subspecies of the fully fledged *semiotic competence* that edusemiotics is designed to elucidate in the field of educational philosophy and practice. This perspective is important to edusemiotics with its attention also to such ‘languages’ as images, diagrams, graphic symbols, hieroglyphs, as well as signs portending in the world. Such broad understanding of the semiotic systems makes it clear that the notion of ‘text’ is not limited to literary. They can be of any physical structure made to embody ideas as signs. The whole of culture, in such radical sense, is a text; and so is the ‘book of nature’. In short, semiosis, as providing the subject matter of semiotic investigation, would establish nothing less than a new framework and foundation for the whole of human knowledge. This new framework and foundation would embrace not only the so-called human and social sciences (drawing mainly from Saussure) but also the so-called ‘hard’ or natural sciences because they too arise from within and depend on their development upon experience and the processes of anthroposemiosis in the holistic tradition of semiotics after Peirce. Anthroposemiosis pertains to the human use of signs and represents (see Deely 1994) a new paradigm for anthropology.

Semiotics as a Matrix of All Sciences

Semiotics was forced underground in the modern interval, called after Sebeok (1976/1985, 1979/1989) the ‘cryptosemiotic interlude’, for the very ‘epistemology’ upon which the leading modern philosophers all agreed as the starting point of human knowledge already presupposed that the Way of Signs did not exist in its own right. The Way of Signs is a path that categorically rejects the view that only mental representations of whatever sort are the immediate final terminus of knowledge. It is a path that “leads everywhere in nature, including those domains where humans have never set foot” (Emmeche 1994, p. 126). That idea did not sit well within modern theories of knowledge united in the common assumption that subjective representation is somehow the heart and essence of human knowing. The

problem with epistemology is not the existence of things in themselves. The problem rather is the theory which makes things ‘unknowable’. That is a thesis the *science* of modernity never fully bought into, unlike the philosophers. The doctors studying cancer want to know precisely what this deformation of cells is as it occurs, whether we understand it or not, precisely because only by our coming to know that can we then come to do something about it, namely, cure the cancer.

Semiotics pertains to a renewal of the foundations of our understanding of knowledge and experience and hence to a transformation of the disciplinary superstructures culturally distributing that understanding (the traditional disciplines as currently founded). In this respect the present arrival of edusemiotics on the semiotic scene as a novel theoretical foundation for education is timely. Semiotics pertains to the renewal of any single currently established discipline by way of achieving a proper understanding of the semiosis that discipline depends on. This does not mean that semiotics is usurping all of science or philosophy. It is more a question of *recovering from* the imperialism of the natural sciences, physics in particular, as the distinct heritage of positivism, and of seeing the subsets of semiosis within anthroposemiosis for what they are in relation to the whole.

Furthermore, the semiotic understanding of reality—the reality of signs—recognizes that the boundary between what is dependent upon and what is independent of human interpretive activity can never be finally fixed from within experience because the boundary itself fluctuates—being the function of the development of understanding and the evolution of knowledge whether speculative or practical, scientific or literary. The object of semiotic inquiry is not just signs but the *action* of signs or semiosis. Semiotics, therefore, contrasts with semiosis as knowledge *per se* contrasts with that which is known. Semiotics is knowledge about semiosis; it is the theoretical accounting for signs and what they do.

Demise of ‘Common Sense’ as an Unresolved Problem

In the context of intellectual culture, no revolution had greater importance than the one that took place in the early 17th century, dramatically marked by the 1633 trial and condemnation of Galileo for teaching the twin heresies that the Earth is not the universe’s center and that the Sun does not revolve around the Earth. It was a bad day—but not only for religious authorities, students of scripture, and theologians. Among the hardest hit victims of this fiasco was ‘common sense’, which still has not managed to regain a serious semblance of credibility in learned circles. The 18th century attempt by Thomas Reid to identify common sense as the test of the truth of knowledge and the morality of actions fell by the wayside, and the Enlightenment view that scientific knowledge based on systematic observation, experiment, and mathematization could ultimately replace all of prescientific opinions, became the accepted view.

Yet, there remains at the heart of human knowledge an unresolved problem that the rise of modern science serves to underscore rather than resolve: the inescapable

conundrum that unless human awareness as preceding all scientific training and refinement has some validity in its own right, then nothing even of science can truly be knowledge. For to begin study of science presupposes the common awareness of human animals out of which the development even of modern science as species-specific human becomes possible in the first place. Stjernfelt puts the matter in semiotic terms: in order for it to be true that the Way of Signs leads everywhere in nature, it must also be true that “science is continuous with everyday knowledge which is, in turn, continuous with animal cognition and so on indefinitely down the scale of evolution” (Stjernfelt 2007, p. 8).

Among the early modern philosophers this problem never came to be recognized as such. Instead, they assumed that mental representation was the beginning of all awareness, an assumption that led to the famous ‘problem of the external world’; for even though empiricists followed by preference Locke rather than Descartes, they failed to observe or comment upon the fatal assumption shared by Locke with Descartes: that the direct objects of our apprehension are mental representations formed by our own minds. The ‘problem of the external world’ arose in modernity from just this assumption: that the mind itself makes whatever is a direct and immediate object of awareness. Locke and Descartes identified this immediate object with ideas. Kant rejected this as too subjective, as ‘subjectivism’; and in proposing his alternate solution of the senses as giving rise to phenomena distinct from the things provoking sensation, he thought to preserve the universality of scientific knowledge: it is to the phenomena that reason then by its *a priori* forms contributes objective necessary structure.

Yet Kantian ‘objectivism’ proved no less idealistic than the criticized subjectivism of Descartes and Locke, inasmuch as Kant’s own view was no less divorced from an awareness ‘scientific’ in the sense of giving us an actual knowledge of the ‘way things are’ in their subjective constitution and inter-subjective relations obtaining independently of whether we are aware of them or not (Deely 2001). By way of epistemological warning of ‘roadblock ahead’, it followed that ontology and epistemology in modern parlance mean, in fact, the unknowable because unattainable (what was termed in Latin times *ens reale*) versus the knowable (termed in Latin times *ens rationis*). On this point, between Descartes and Kant there is only this difference: for Descartes *ens rationis* was conceived subjectively, whereas for Kant it was definitively objective, yet wholly determined in its knowability by human subjects.

While modern philosophy began with the universal doubt whereby Descartes had made being a function of his thinking, Peirce’s philosophy begins rather from a belief in the reality of what is more than thought. Then it proceeds by continually putting to test the contrast between thought and what is more than thought, between merely objective being and objective being which reveals also something of the physical universe. Semiotic inquiry starts at the intersection where physical universe ceases to be merely physical because it is at this point that the realm of brute force and physical interaction as such becomes caught up in the semiotic web, and the universe, as Peirce noticed, becomes perfused with signs.

Semiotic Consciousness

Semiotic consciousness is the explicit awareness of the role of the sign. The actual field of semiotic investigations exists as a demand of the *future* put on present thought—that is, on the development of the semiotic consciousness of the community of inquirers. Since, however, the whole of experience is constituted by signs it follows that the history of semiotics will be first of all a tracing of the lines which lead to that moment when role of the sign in the constituting of this very experience came to be realized. After that, the history of semiotics will be the working out of the implications of this realization both synchronically and diachronically. Diachrony, in this case, is not just a matter of retrospect, or of a sequence of discrete synchronic sections arranged as prior and posterior. The diachrony of semiotic consciousness, its historical dimension, is the formation of *future* thought as well as the transmission and comparison of *past* thought. It involves becoming aware of the demands the future makes on our present thinking. The axes of diachrony and synchrony in semiotic consciousness mark the labile intersection where the criticism of *objectivity* is exercised through human *subjectivity*. The future of thought, as well as its past, will be different as a result of the achievement of a semiotic consciousness, different in unpredictable ways because of the factor of chance present in semiosis in contrast to the determinism of classical mechanistic science with its concept of *direct* causality.

Based on Aristotle's fourfold scheme, the Latins in the later times refined the concept of causality to account for the objective order of physical phenomena thus abolishing, in a sense, the dualism between cause and reason. The external, ideal, causality—a type of blueprint, or plan, or design—is introduced from without, in contrast to the natural Aristotelian formal cause that organizes its material from within. One more causal type, however, pertains to the role of observer who exercises a type of objective causality. On the subjective side, a thinker may try to turn attention toward or away from the object; but the measure of success lies not in the subjective effort but in the objective content surviving the effort. And since presenting objects is exactly the function of signs, the action of signs is a species of such extrinsic formal causality, called 'specificative' which is irreducible to either ideal or intrinsic formal cause but is retaining, as embedded in the total system of signs, the *objective* significance for the human *subject*.

Semiotics began with the general proposal by St. Augustine that the difference between nature and culture is irrelevant to the action of signs, for whenever one thing comes to make something other than itself present in our awareness, signs are already at work. Whether the one thing or the other has its origin inside or outside of our minds and bodies, from nature or from culture, is irrelevant to the action of signs. Material objects which are also themselves signs existing outside of us presuppose cognitive qualities inside of us which are themselves already signs as manifesting something other than themselves, something they themselves are not. The wife is not the idea of wife; yet when the idea of wife fails, the woman sensed cannot be recognized as wife. So there are objects external to our bodies which can

be signs only when perceived in conjunction with concepts internal to us and which relate us to those very material objects recognized as this or that—wife, mother, lover, or whatever. But still we are not at the heart of the matter, given that sensation is a vehicle of semiosis prior to concept formation. For human beings are semiotic animals, and all animal awareness begins with sensations—not with ideas of sensations, à la Locke, but with *sensations* as that incipient experience of objectivity brought about by the action of some sensible thing upon an animal's organs of sense. Light reflects off different bodies differently, and when this differently reflected light strikes some animal's organ of sight, what the animal will 'see' depends not only upon the surface reflecting light but also upon the constitution of the animal's eye. The result will be some color. How does this color exist? Neither 'in the thing stimulating' as some medievals thought, nor 'in the eye of the beholder', as the early moderns postulated. It exists precisely *between* the two as a relation connecting one to the other, arising from the action of stimulation here and now.

There is another angle, especially decisive from the semiotic point of view. The animal sensing color simultaneously senses a shape and a position or movement: shape is not color, but is revealed dependently upon color; so the relation of color to shape and position or movement, etc., is already a sign-relation—color is the vehicle on the basis of which shape and position are revealed in sensation. There is no moment of awareness in which this action of signs is not at work, for all objects are signifiates, and all concepts are vehicles supporting interpretive sign-relations: from the very beginning of sensation, precursively (analytically and not experimentally) distinguished from perceptions and intellections, our awareness depends also upon signs that precede concept formation. This action of signs within sensation is different from the perception of a woman as wife. Whereas perception of material objects requires and presupposes concepts formed within the perceiver, sensation of basic qualities logically precedes formation of concepts and provides the very material which concepts are formed to interpret.

All animals interpret what is sensed according to a certain status: something to be sought, something to be shunned, or something safe to ignore. The human animal further creates concepts that make it possible to discover what these objects of perception are (correctly or incorrectly interpreted by the animal, as the case may be), whether awareness-dependent or awareness-independent, apart from their specific status in relation to the animal. So, intellectual concepts can make objects knowable according to what they are in themselves. But the signs of sensation, considered as prior to objects perceived and/or objects understood, objectify something of the animal's surroundings wholly and solely on the basis of the interaction of the animal's body with the surrounding bodies of the immediate physical environment. Accordingly, even though we do not experience sensations wholly separated from our perceptions, sense experience, analytically considered, differs both from sense-perception and from understanding, in that the latter two require and presuppose those psychological qualities or states that we call concepts or ideas, while sensations are prior to concept formations and presuppose only the

action of the physical surroundings upon the external sense organs of the animal body.

There are, as Poinsoot showed, no grounds for holding that external sense, prescissively distinguished as such within perception and understanding, attains directly as its proper object only an image produced by the mind itself. The semiosis of sensations gives rise to an awareness (as a nascent objectivity), which simply cannot be classified as epistemological or ontological in any modern sense, because the relations upon which objectification depends at this level are prior to any such differentiation. Thus, semiotics takes us to the very heart of the problem of knowledge, namely, how it is that signs are able to lead us everywhere in nature.

Facing the Problem of Specialization Vis-à-Vis the Modern Fragmentation of University Culture

Within the universities, in the 17th century when science in the modern sense began to take hold, specialization presented itself as a *sine qua non*, as a necessity for scientific advance in this modern or ideoscopic sense (contrasting with the principally cenoscopic medieval science) dependent upon the instrumental extensions of the environmental awareness as species-specific to human animals. As specializations required for scientific advance in knowledge took hold, general opinions of previous philosophy fragmented. By the late 19th century, diversity of specializations threatened the very notion of any unity of knowledge, and the teachers and administrators within universities began to cast about for some ways of gaining an overview, some ways of restoring, or at least minimally preserving, the intellectual development of humankind as a common heritage in which each of us shares and has a stake. The two main avenues of attempt were an introduction of so-called interdisciplinary or 'team-taught' courses, as well as programs of study based on reading 'great books'. Both approaches had their merits and limited success, but neither cut to the heart of the matter.

Interdisciplinary programs are designed to put together two or more specialists in the same classroom, offering students the dialectic of professors making sense first to one another and then, hopefully, also to the students from within specialized perspectives, while also accommodating themselves to the other perspective of specialization represented by their colleague(s) in the given classroom. Thus, 20th century interdisciplinary programs proved invariably to be personalities-dependent, gerrymandered affairs, more or less valuable depending upon the talents of the professors involved, but 'interdisciplinary' in no more than a *de facto* fashion rather than intrinsically interdisciplinary.

The 'great books' as a recrudescence of Scholasticism approach fared no better as learning was determined as based on opinions of 'authorities' back to the tradition of the Latin scholastic universities, even if a plurality of sources was replacing the centrality of Aristotle. Since the 'great books', which have shaped the

modern world within which the university today exists, come from a variety of specialists, from Chaucer and Shakespeare among the humanists to Newton and Einstein among the scientists, a great-book-based education indeed broadened students' minds and opened them to an understanding apparently beyond specialization. Yet, this approach in the end tended to feed into the split between what C. P. Snow characterized as 'the two cultures': sciences on one side, rooted in specializations aimed to interpret the book of nature, and humanities on the other side, rooted in broad reading interpreting the books written by men. Again 'interdisciplinarity' was achieved more *de facto* than *de jure*. Neither the interdisciplinary nor the 'great books' approach achieved in principle the unification of the two cultures.

This point of impasse is the entry point for the doctrine of signs, the 'one undivided science' which, as Peirce points out (CP 8.342; CP 2.227), does not depend upon new special observations, yet directly addresses that upon which all special observations and common observations alike depend, namely, the action of signs, semiosis. STEM education—education in science, technology, engineering, and mathematics—contrasts with liberal arts education as yet a further extension of C. P. Snow's two cultures. But an individual, student or faculty, who comes to understand the standpoint and perspective that semiotics engenders, can and should transcend precisely this very division.

At Indiana University, when Thomas A. Sebeok became Director of the Research Center for Language Studies in the early 1970s, among his first official actions was to change the name to the Research Center for Language and Semiotic Studies, and everyone expected him to launch an M.A. and Ph.D. program in semiotics. He did not. Instead, he introduced what he called a Certificate in Semiotics, which students could acquire only after, or in conjunction with, graduate study in an established discipline, be it linguistics, anthropology, biology, English, physics, sociology, or whatever. His argument was that semiotics is not so much a discipline in its own right as it is a field including all the disciplines, inasmuch as 'all thought is in signs'. As a consequence, Sebeok considered that semiotics as an area of study within the academy ought not to be treated as one more specialization but rather needs to be seen as that which makes specialization in the first place possible, because it establishes the experiential ground from which—first in sensation and then also in conception—the whole of human knowledge springs! Thus, someone on their way to mastering a given subject matter—physics, chemistry, literature, or sociology—would discover on turning to semiotics that their chosen specialization already depends upon (albeit is not reducible to) the action of signs as revealing and distinguishing the very subject matter which is the object studied by the specialization.

Hence, students of semiotics are made to realize that in seeing signs at work within a given academic discipline, they are seeing something that is true of all specialized disciplines, because true of the whole of human knowledge, namely, that underlying all else in awareness and in the background always is the action of signs, thanks to which it becomes possible to know objects in the first place, let alone differences between objects which define different disciplines as still fragmented areas of specialization.

Conclusion

Once it is understood that the subject-object dichotomy prevalent in classical science is rendered nugatory within the perspective of a doctrine of signs, new possibilities of understanding are opened up that require a comprehensive theoretical foundation. That foundation can be provided only by an understanding of the being with its consequent causality and action proper to signs in their universal role. It is thus that the *history* of semiotics and the *theory* of semiotics are only virtually distinct, forming together the actual whole of human understanding as an achievement, a *prise de conscience*, in process and in community. For if the *anthropos* as semiotic animal is an interpretant of semiosis in nature and culture alike—that can only be because the ideas of this *subject* that itself functions as a sign have the universe in its totality as the *object* of a semiotic inquiry.

Semiotics thus is maximally postmodern in a double sense. It shows the way beyond the epistemology of modern philosophy and, at the same time, enables us to see the unity of human understanding beneath and within development of specializations essential to the establishment of modern science. It “investigates what all the other disciplines seem to take for granted” (Taylor 2008, p. 6). Semiotics, as knowledge that results from the thematic study of the action of signs, is not only interdisciplinary but transdisciplinary (cf. Nicolescu 2002; Semetsky 2009) while also being predisciplinary in providing the common ground of animal awareness out of which humans as semiotic animals come to realize within the biosphere a unique ethical responsibility that includes education in semiotics. Sebeok, in reference to the 20th century achievements in semiotics, used to say that the movement toward the definition of semiotic thinking in the biological and anthropological framework of a theory of evolution represents the only genuinely novel and significantly holistic trend in the development in this field. The 21st century, I hope, will bear this out, and we will see an end to the unfortunate and sad fact, referred to by Sebeok, that the contemporary teaching of semiotics is severely, perhaps cripplingly, impoverished by the utter, frightening innocence, to say the least, of most practitioners of semiotics about the natural order in which they and it are embedded. What edusemiotics intends to do is to bring the natural order as such to the attention of the global community of inquiry.

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Chapter 3

‘Diagrammatic Teaching’: The Role of Iconic Signs in Meaningful Pedagogy

Catherine Legg

Abstract Charles S. Peirce’s semiotics uniquely divides signs into: (i) *symbols*, which pick out their objects by arbitrary convention or habit, (ii) *indices*, which pick out their objects by unmediated ‘pointing’, and (iii) *icons*, which pick out their objects by resembling them (as Peirce put it: an icon’s parts are related in the same way that the objects represented by those parts are themselves related). Thus representing *structure* is one of the icon’s greatest strengths. It is argued that the implications of scaffolding education iconically are profound: for providing learners with a navigable road-map of a subject matter, for enabling them to see further connections of their own in what is taught, and for supporting meaningful active learning. Potential objections that iconic teaching is excessively entertaining and overly susceptible to misleading rhetorical manipulation are addressed.

Introduction

What is it to teach? Teaching is a distinctively human activity, and as such is sometimes said to be a process of conveying to students not just *data*, or *information*, but *knowledge*. Sharp distinctions between these terms are difficult to draw, but Fred Dretske (1981) has made two useful observations. First, knowledge only exists when located in a broader cognitive framework which gives it significance. So for instance a string of printed numbers constitutes information, but only in an astronomer’s interpretation of these numbers as ‘a new quasar’ does it become knowledge. Second, whereas information is generally thought to consist merely in some kind of meaningful representation, knowledge is generally thought to be *true*. So although ‘Paris is the capital of France’ and ‘Berlin is the capital of France’ are both meaningful sentences which could be stored as information, only the former constitutes knowledge (Dretske 1981).

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What is it to teach well? Teaching is arguably ‘good’ to the degree that it renders some knowledge *meaningful* to the student. Such meaningfulness tends to appear in phenomena such as students being engaged by their time in the classroom, wanting to learn more, and continuing to use the knowledge after the teaching (and examining!) of it has ceased. If we wish to submit meaningfulness in education to serious study, then the discipline to turn to is arguably *semiotics*: the theory of signs. This is broader than merely a study of meaning in *language*, as meaning is conveyed by many other kinds of signs than words: consider, for example, facial expressions, mathematical diagrams or street signs. Here I am following the broad outlines of the semiotics developed around the turn of the 20th century by Charles Sanders Peirce, which I consider to be extraordinarily rich and fruitful.

Vincent Colapietro offers what is arguably an alternative high-level understanding of education to that above, describing it as a system of “self-interrogating practices” (Colapietro 2013, p. 712). To this intriguing alternative emphasis semiotics is obviously also relevant, as an interrogation constitutes some kind of process of putting questions and receiving answers, which must (it seems) also be performed in signs. Once again it bears emphasis that these signs are not necessarily linguistic, since painters (for example, the Impressionists) and musicians (recall the rivalry between The Beatles and The Beach Boys) may be observed ‘interrogating’ and inspiring each other via pictures and songs.

Peirce made profound contributions to semiotics, founding the discipline entirely independently of Saussure, with a different (significantly, triadic) set of foundational concepts. As part of his deep investigations into signs’ structure, purpose and functioning, he was naturally led to speculate (philosophically) about teaching and learning. As a number of scholars, including Lizska, Colapietro and Strand, have highlighted in the 2013 special issue of *Educational Philosophy and Theory* this came directly out of his interest in *speculative rhetoric*, understood as the study of what makes signs spread and develop. Consequently, while there is much truth in Torill Strand’s claim that “Peirce never unequivocally addressed education as an autonomous field of theory or practice” (Strand 2005, p. 309), his semiotics contains a number of concepts of immense value for thinking about education.

In this essay, I will focus on a topic not yet explicitly thematised in this regard, although a notable exception may be Semetsky’s (2013) work on the edusemiotics of images—the *icon*, which Peirce defines in contrast to the *index* and the *symbol*. The icon is the kind of sign that signifies by itself possessing the qualities that it represents. A common example is a map, which represents some geographical feature by itself having (in miniature) a similar shape. This isomorphic functioning renders the icon the only sign capable of conveying *structure*. I will explore a number of ways in which structure is a vital ingredient in effective pedagogy. It is worth noting that—interestingly—structure itself comes in a number of varieties. The kind of structure found in a landscape painting (which we might call ‘pictorial’) differs from that in a mathematical diagram (which by contrast is abstract, ‘idea-tional’). Below I will examine three kinds of structure that I believe to be relevant to teaching, and distinguishable from one another: *logical structure*, *narrative structure*, and *a structure of conversation between interlocutors*.

Peirce is also famous for his pragmatic maxim, which urges that if we wish to make a concept clear we must imagine specific examples of it in use and in its 'practical bearings'—warning that if we cannot do this, we do not really understand the concept. In the spirit of this recommendation, I will include in this essay a number of specific examples from my own experience as an educator. These examples will specifically concern teaching in Philosophy, mainly because that is my own area, but I see my discipline as sufficiently general to render its example broadly applicable.

Peirce as Teacher

To begin with, though, I would like to devote a few words to what we might call 'Peirce and Teaching: the Actuality'. Peirce's tempestuous and in many ways tragic academic career is the stuff of legend (Houser 1986, 1987) and in a number of accounts (notably Brent 1998) he is portrayed as a kind of mentally disturbed wild man pacing the halls of 19th century institutions of higher learning. But if one examines more contemporaneous accounts, Peirce would appear to have demonstrated some admirable gifts in the classroom.

Shortly after Peirce's death the testimonial "Charles S. Peirce as Teacher" was written by Joseph Jastrow, the noted experimental psychologist, whom Peirce taught at Johns Hopkins University in the mid-1880s. Despite 30 years having passed, Jastrow describes vividly and passionately his teacher's pedagogy and its effect on him.¹ He states, "Mr Peirce's courses in logic gave me my first real experience of intellectual muscle", and, "He had the pedagogic gift to an unusual degree, as some men handle a pencil, and others the bow of a violin." For our purposes, we will take two further remarks about Peirce's teaching as particularly worthy of note. First, Jastrow writes: "The irrelevant was discarded, the significant composition revealed. The chips fell away and the statue in the block appeared" (Jastrow 1916, p. 723). Here Jastrow seems to be suggesting that the knowledge that Peirce taught him had some kind of *overall shape* which Peirce as teacher was highly skilled in revealing. Second, Jastrow praises the way in which Peirce did not merely lecture to him but trusted him to perform research alongside him. He remarks that Peirce did this by assigning tasks which excelled at "adding a moderate insight to a growing capacity" (p. 724). I believe that this places Peirce in the camp of *active learning pedagogues*—more on this, and how it relates to iconic signs, below.

¹In the same volume Peirce's former student Christine Ladd-Franklin also wrote a testimonial which was more critical, noting an "apparent aloofness and air of irresponsibility", but adding that *in the classroom*, "[h]e got his effect...by creating the impression that we had before us a profound, original, dispassionate and impassioned seeker of truth" (Ladd-Franklin 1916, pp. 716–717).

Icon, Index, Symbol

In this section, I will isolate and define Peirce's concept of an iconic sign, and explain in more depth how it functions (cf. Legg 2008). Peirce's distinction between *icons*, *indices* and *symbols* is broadly influential. It defines three kinds of relationship between a sign and its *object* (e.g. Lizska 1996; Short 1997; Jappy 2013). *Symbols* signify their objects by some learned convention (or, in some cases drawn from biology, a natural habit) that is *arbitrary*. So for instance we must learn that in English the letters 't', 'r', 'e' and 'e' combine to make a word which picks out a certain kind of plant. Leaving aside etymological derivations, there is no special reason why we should use those letters to pick out that thing. Most human words are symbols; we might say that this is the most modern sign-form.

On the other hand, *indices* signify objects by being in some way directly connected with them. If I point to a tree and say "Look at this!", then with my word 'this' I am 'indicating' that particular plant, and my interlocutor must perceive my pointing action in order to make the connection with the object meant. In this example the connection which creates the indexical sign is a kind of *co-presence* between my pointing and the tree (although this determination of co-presence may need to factor in the direction of my pointing if I am standing some distance from it). Another form of direct connection which may be harnessed to create indexical signs is *causal relations*. So for instance, as fire reliably causes smoke we take smoke to be a sign of fire, even if the smoke has drifted away from (and is no longer co-present with) the fire which caused it. What distinguishes both these kinds of signs from symbolic signification is that the direct connections on which they depend are not mediated by convention or habit. It is not possible to redefine relations of co-presence or causation arbitrarily—or if it is, any signs resting on those relations are no longer purely indexical.

Finally, *icons* signify objects by resembling them. We have noted that a simple example is a map. If we look at a map of New Zealand, we can learn that it consists of two main islands not by being told this in propositional form but by directly inspecting the shape and size of the representations of the land-masses concerned. In fact, if we carefully inspect a map of New Zealand, we may discern more features and spatial relationships between its different parts than could have ever been consciously thought of by the map-makers, or captured by any set of propositions, however large. (So it is said that a picture is worth a thousand words.) I will call this feature of iconic signs *relational excess*, and it will be important later.

It is sometimes protested against the whole idea of iconic signification that 'what resembles what' is a wholly subjective affair, since everything resembles everything else in *some* respect to someone with sufficient imagination, and therefore resemblance is too shaky a basis on which to define a rigorous semiotic concept. Whilst Peirce would most likely not deny that everything resembles everything else *in some respect*, he is not vulnerable to this criticism. First of all, he scrupulously avoids defining the fundamental concepts of his semiotics in terms of what sign-users *do* think, in favor of what they *should* or *will* think. This is his

anti-psychologism, which he shared with the most progressive logicians and philosophers in the 19th century such as Frege; see, e.g., Stjernfelt (2007, p. 50) for a very helpful discussion with respect to the role of the imagination in iconic signification.

Secondly, Peirce gives his concept of an iconic sign a specific and objective basis by noting that what is most characteristic of it is that its *parts are related in the same way that the objects represented by those parts are themselves related* (CP 3.363). So, returning to our map of NZ, if Huntly lies between Auckland and Hamilton in the North Island, then on a normal map of NZ, the representation of Huntly will lie between the representations of Auckland and Hamilton. The form of resemblance Peirce is interested in capturing with his notion of the iconic sign might be called *structural resemblance*. So although our popular idea of an 'icon' is of some kind of *picture*, Peirce's icon is defined more broadly. Although every picture is a structural mapping, not every structural mapping is a good picture. (Think of the famously 'iconic' London Tube Map for instance.) Peirce expresses the point well: "Many diagrams resemble their objects not at all in looks; it is only in respect to the relations of their parts that their likeness consists" (CP 2.281).

Peirce is famous for delighting in the number three as the basis for triadic analyses of a wide range of phenomena. Our three sign-types may be analyzed under this rubric:

- Symbolic signification is essentially *triadic*, as it involves the sign, the sign's object and the arbitrary convention or habit that brings the two together.
- Indexical signification is essentially *dyadic*, as it involves a direct connection between an indicator and what it indicates.
- Iconic signification is essentially *monadic*, as the quality by means of which an icon resembles its object is *something the icon would possess whether or not the object existed*. (A cloud which is shaped like the Eiffel Tower—and thereby iconically signifies the Eiffel Tower to certain people—would have the same shape if the Eiffel Tower had never existed.)

It is important to note that these three categories are not mutually exclusive. So for example the small aeroplane-shaped road-sign that appears in many cities is symbolic insofar as we must learn the convention that it signifies an airport rather than, say an aeroplane factory; it is indexical insofar as it points the way towards an actual airport; it is iconic insofar as it looks enough like an aeroplane for an aeroplane-mad child to get excited. At the same time, the three sign-types have very different functional roles to play in communication and thought, and part of the power of Peirce's semiotics is the way in which he clarifies these roles, and delineates them from one another. A very rough outline of these differing roles would be that symbols, due to the repeatability of their defining conventions, give us general concepts. Indices, due to the brute actuality (directness) of their pointing function, connect us with particular objects in the world which we wish to talk *about*. If symbols give us the general and indices give us the particular, what is left

for icons to signify? Icons, precisely due to the fact that their objects may or may not exist, enable us to exercise our *imagination*, and think about *what is possible*:

The value of an icon consists in its exhibiting the features of a state of things regarded as if it were purely imaginary. The value of an index is that it assures us of positive fact. The value of a symbol is that it serves to make thought and conduct rational and enables us to predict the future (Peirce, CP 4.448).

Why Use Iconic Signs in the Classroom?

We have just seen that Peirce claims that the value of an icon consists in its exhibiting the features of a state of things regarded as if it were purely imaginary. One might wonder what such a kind of sign is useful for—fantasizing and enveloping oneself in a dream-world? By contrast I will now argue that the wise deployment of icons is absolutely crucial for effective teaching about reality, for a number of reasons.

The Road-Map

First of all (perhaps ironically, given that this is the sign-form that represents pure possibility) icons, and only icons, can provide the framework, the structure, which we earlier noted differentiates knowledge from mere information. Recall our two key observations of Peirce's pedagogy by Jastrow. He spoke of the knowledge that Peirce revealed to him as resembling a statue with a clear overall shape. What makes a statue recognizable as, for instance, a man is that the statue has clearly recognizable parts which have the same relationship to one another as do the parts of an actual man (arm-parts, leg-parts, and so on). But although icons cannot demonstrate (as indices do) that their object *exists*, by the integrity of their structure they can demonstrate that their object is (at least insofar as it is represented by the icon) *consistent*, and thus *possible*:

The Icon does not stand unequivocally for this or that existing thing, as the Index does. Its Object may be a pure fiction, as to its existence. Much less is its Object necessarily a thing of a sort habitually met with. But there is one assurance that the Icon does afford in the highest degree. Namely, that which is displayed before the mind's gaze – the Form of the Icon, which is also its object – must be *logically possible* (Peirce, CP 4.531).

In fact, Peirce notes astutely that strictly speaking icons are the only signs of the type that can '*show*' anything, since showing someone something must involve presenting some kind of intelligible structure (not as in the case of the index, a mere pointing at something, or in the case of the symbol, a continuation of an already established and defined habit). He points out that within every proposition this kind of showing is the function of the *predicate*:

The only way of directly communicating an idea is by means of an icon; and every indirect method of communicating an idea must depend for its establishment upon the use of an icon... The idea which the set of icons... contained in an assertion signifies may be termed the *predicate* of the assertion (Peirce, CP 2.278).

Relational Excess

Earlier I pointed out that one major criterion of meaningful education is that it leads students to keep seeing *more* in the knowledge imparted to them. The concept of the iconic sign provides the semiotic undergirding for this insight. This is because, as already noted, only icons possess intelligible structure *in the sign itself*. Therefore only they can provide the opportunity to inspect that structure and discover new relations between its parts. Peirce explains why the other two sign-types cannot perform this function—symbols (qua sign) are already fully defined, and indices as pure pointers are 'blind' to the qualities of what they are pointing at:

since symbols rest exclusively on habits already definitely formed but not furnishing any observation even of themselves... Indices, on the other hand, furnish positive assurance of the reality and the nearness of their Objects. But with the assurance there goes no insight into the nature of those Objects (CP 4.531).

Peirce notes that the relational excess which characterises iconic signification is perhaps most evident in mathematics, which he argues has been gravely misunderstood as an activity governed by mechanical rules, when in fact it is in essence a process of *creatively* viewing diagrams (where this term is understood very broadly to include for instance algebraic equations) and *creatively* observing new and hidden connections between their parts (CP 3.641).

Active Learning

The third reason why iconic signs are useful in the classroom is their role in active learning. Let us turn again to Jastrow's second observation about what he valued in Peirce's teaching: the tasks which Peirce set continually added 'a moderate insight to a growing capacity'. In terms now outlined we may see that active learning has an indexical character insofar as it connects learners directly with real-world situations with which they interact in unmediated ways. This indexical or 'realistic' dimension is what has been most celebrated about active learning. For instance Liszka (2013) explains in depth how active learning indexically connects students not only to the subject matter of a discipline, but also its tradition and history, and the living practices of its current communities of inquiry. A recognition of this is present in the broader context around Jastrow's quote, where he says that Peirce's

pedagogy “*made the student feel the reality of the discussions by adding a moderate insight to a growing capacity*” (1916, p. 725).

However, successful active learning also has an iconic dimension insofar as the learner’s series of tasks are chosen to relate both to each other and to the learner’s current state of knowledge, to create an ever-building intelligible structure. It was noted earlier that such a structure provides a useful road-map of a subject area. But it is even more than that, as *the learner herself* has a place in the map, through her own *agency*. Importantly, by contrast to symbolic signification, this map’s structure is *not* arbitrary, but is dictated by the subject matter itself. Here we return to our initial insight that knowledge must not just be intelligible but also true; a Peircean pragmatist operationalizes the concept of truth by finding ways to relate to it and use it to fix belief (as opposed to merely postulating its existence, as do so many ‘metaphysical realists’).

The assumption that all signification is symbolic ran deep in 20th century philosophy. It was present in the analytic tradition where the logical positivists and Quine in their rush to eliminate metaphysics argued that all *a priori* knowledge was analytic (seeking to sweep away with a few strokes of the pen the synthetic *a priori* knowledge on which Kant labored) and that all analytic knowledge was a matter of the definitions of words, which derived from linguistic convention. Large and ambitious projects in philosophy of language and associated epistemology ensued (e.g., Carnap 2002; Quine 1976; Lewis 1969). But the assumption that all signification is symbolic was equally present in the Continental school of semiology where Saussure (1916) took ‘the arbitrariness of the sign’ as axiomatic, and a large number of theorists followed him in this without question (Stjernfelt 2007, p. 51). From the perspective of Peirce’s semiotics this valorization of symbols at the expense of indices and icons seems absurdly unhelpful.

This lop-sided philosophy of signification has inevitably seeped into philosophy of education, where it has arguably done harm. We have seen that the purpose and functioning of the symbol is to provide access to general concepts. Correspondingly, we should expect that an overemphasis on this form of signification will generate a pedagogy that purveys excessive abstractions. Such educative practices will present ideas that are easily generalizable, but the neglect of the *index* will mean that these ideas frequently lack application to concrete, real-world contexts. The neglect of the *icon* (our concern here) will mean that in the spreading, ‘habit-forming’, matrix of symbolic meaning presented to learners it will be difficult to discern an overall shape.

To some degree the message of this chapter that iconic signs are of signal importance in teaching might seem to be nothing new—an education-philosophical cliché, since of late much educational theory has embraced the use of diagrams and ‘multimedia’ with a vengeance (e.g., Mayer 2014). But due to the late recognition of the value of Peirce’s thought as an integrated system, that was systematically addressed in the field of educational theory only in 2005 (Semetsky 2005), this has happened in a manner relatively untheorized by the rich conceptual resources in his semiotics, apart from some very recent research in Peirce- and Dewey-based edusemiotics (e.g., Semetsky and Stables 2014; Stables and Semetsky 2015).

A much deeper understanding of the functioning of iconic signs can be provided by looking first to the way Peirce developed his semiotics to undergird the theorizing of language, thought, perception, logic, and a host of other areas in his elegantly interrelated philosophical 'architectonic'. Secondly one can look to the relationship of his icon-index-symbol distinction to further framing concepts of his semiotics, such as his distinctions between two kinds of sign-object (immediate and dynamic) and three kinds of sign-interpretation (emotional, energetic and logical). Here we might say that Western philosophy 'dropped the ball' in largely failing to realize the *philosophical* significance of Peirce's semiotics over the past 100 years. This arguably constitutes a profound missed opportunity when so much important educational innovation took place during that time. This is particularly poignant considering that a great deal of this educational innovation was prompted by classical pragmatists—most notably John Dewey. Sadly, Dewey himself never engaged seriously with Peirce's semiotics (Hoopes 1998).

Varieties of Educational Structure

Once more, pragmatism suggests that one may think one understands a concept expressed in general terms, but it is in concrete examples that much of the learning lies. So I will now outline some examples taken from my teaching of a second-year metaphysics course at University of Waikato (NZ). Appropriately for our current topic, the course is entitled *Possible Worlds*. I will discuss four different ways in which I attempt to iconically represent philosophical content in this course (the first three will be followed by a specific example and accompanying notes).

Lecture Material: Documents Versus Slides

First and most obviously, I have gradually replaced the largely discursive (albeit in 'proto-iconic' point form) lecture notes which I used to hand out in class with power-point slides. These slides I enrich more and more each year with images, and sometimes YouTube videos. I have heard some academics deplore such developments as rendering the classroom experience 'just like Facebook', where this is taken to be a bad thing. We might 'turn around' this mismatch in expectations with respect to the presentation of course content between ourselves and our students, however, in order to inquire: do students and their enthusiasms have something to teach us about how to present material so that it best catches human attention? (But this criticism will be discussed further below.)

My first example (Figs. 3.1 and 3.2) comes from a lecture introducing Derek Parfit's views on personal identity—specifically, his claim that whether someone is the same person across time is actually not a 'substantive question' (i.e. answerable by discovering facts):

Parfü: “Personal Identity Nihilism”

Reading for this lecture:

Parfit. “Personal Identity”

Today we continue a theme we began last Monday:

- Is the question of personal identity a *substantive question*? In other words:

Is asking, “Is person X the same person at time t_1 [e.g. age 3] and at time t_2 [e.g. age 30]?” any more interesting or significant than asking, for instance, “Is country X the same country at time t_1 [e.g. 1830, for NZ] and at time t_2 [e.g. 1990, for NZ]?”

Questions about ‘country-identity’ are arguably not substantive. Is New Zealand the *same country* in 1990 as it was in 1830? Well yes and no – it depends what you mean by ‘country’. It is the same land-mass, but it has a very different political system...and so on. But quarrels about the issue surely turn on semantics only, not fact.

- Is the question of personal identity any different to the question of country-identity?
Are there any facts which can settle this question?

Fig. 3.1 Lecture handout, 2006

Week 11

Warm-up exercise:
(Groups of 3-4)

- 1) Is New Zealand **the same country** that it was in 1830?
- 2) What are the possible answers to this question?
 - Yes, absolutely!
 - No, not at all
 - [Other, please specify...]
- 3) Why is this question being asked?



BACKGROUND INFO:
In the early 1830s there were perhaps 200 permanent European residents in New Zealand. Māori contact with Europeans, while increasing, was still rare. The Treaty of Waitangi was signed (by those it was signed by) in 1840.





Fig. 3.2 The same lecture, 2015

NOTES

- (i) In the 2015 material the representations of paintings from 1830s NZ are designed to stir students' imaginations and intuitions regarding their homeland, while some background information about that time is provided in order to fill out the 'picture'.
- (ii) The 2015 exercise more clearly separates for students the task of discerning their own intuitions on 'whether NZ is the same country now as it was in 1830' from the task of learning what Parfit claims about this. In mixing these, the 2006 lecture is arguably less perspicuous.
- (iii) The 2015 lecture invites students to not only answer the question about 'country-identity' but also identify *why* it is being asked. This is designed to give them a more active role in determining the argumentative structure of the lecture. (The students of 2015 proved quite capable of answering this question.)

Tutorial Questions

As well as attempting to present lecture material as perspicuously and diagrammatically as possible, I use tutorial time to ask students specific questions—often concerning imagined scenarios—designed to require *them* to take a position on specific philosophical issues. I have found that choosing the right examples and questions here is something of an art form. Ideally I need to discern what students currently understand, and on that basis what questions if sincerely pursued could bring them to new levels of understanding or insight—although of course, this being philosophy, the greatest 'progress' might consist in further difficult questions. Once again we may reference Jastrow's key phrase: adding a *moderate* insight to a *growing* capacity.

The next example presents three questions from a tutorial which also concerns Parfit's theory of personal identity (Fig. 3.3):

- (i) Does Parfit's concept of q-memory make sense? Are memories copyable? Are memories "just information"?...In thinking about this issue, it might be helpful to read William Gibson's story, "The Winter Market" and consider the question – when Lise calls in the morning, will the voice on the other end of the phone be *her*?
- (ii) What exactly are the implications of split-brain experiments for personal identity? Are our minds more like a coral reef than a single 'thinking thing'? What does Parfit say? What do you think?
- (iii) Parfit says that the question of personal identity is not a *substantive question*. What does he mean by that? If we did give up the idea that the question is substantive, what would follow from that?

Fig. 3.3 Tutorial questions

NOTES

- (i) I find Gibson's short story *The Winter Market* quite bleak and moving. Its strong narrative structure is designed to elicit a noticeable emotional reaction in the students who read it. But it is important to also encourage students to integrate this emotional reaction philosophically (more on this issue below).
- (ii) The lovely metaphor of human mind as coral reef was suggested by a student in the previous lecture. I picked it up and used it as a powerful enabling image for thinking about a particular philosophy of mind. (In the tutorial in which we considered these questions the student remarked that the fact that I had noted and used her casual remark in class was meaningful to her.)
- (iii) Once again I invite the students to explicitly distinguish between what Parfit thinks and what they think—thereby seeking to establish some structure of conversational interlocutors.
- (iv) In the third question I invite the students to try to build out further logical structure from Parfit's claims (in asking, 'what would follow from that?').

Narratives

We have noted that the structure that constitutes an iconic sign may be narrative in character. So for instance, 'Frodo's journey to cast the Ring into Mt Doom' functions as one large overarching sign within the rich semiotic structure of *The Lord of the Rings*—a sign which holds profound meaning for many people. For undergraduate students, narrative can be a particularly vivid and engaging form of structure, while also being used to generate and motivate philosophical questions. For this reason I show a series of films in class through the semester (Table 3.1), also using science fiction stories as further readings for a number of topics.

Sure, this classroom use of alternate media could be viewed as a pedagogical evasion. But once again we should also ask if traditional text-based (and thus, inevitably, strongly symbol-based) philosophy instruction could benefit by drawing more of the human being into discussion, thereby obtaining a more 'complete picture'. Let us consider the issue in Peircean terms. It was noted earlier that Peirce distinguished *emotional*, *energetic* and *logical* interpretation of signs (e.g., CP 5.475). In fact he considered these an ordered set of stages in any interpretation. As an example, imagine that I view an adulterous text (an intelligible sign, like any other, alas) on my partner's phone. Interpretation might then proceed as follows—emotional: feelings of shock and grief; energetic: throwing their belongings out the

Table 3.1 Films and associated philosophical questions in the Possible Worlds course

Film	Philosophical questions
Terminator I	Is time-travel possible? (And what do we mean by possible?)
Sliding Doors	What role do 'counterfactuals' (what might have happened, but didn't) play in human life? What does fatalism mean, and is there any truth in it?
The Prestige	If I copy my body atom for atom, is the end-result 'me'?
Memento	What role (if any) does continuity of memory play in creating personal identity?

window; logical: a reasoned decision to end the relationship.² Now narratives often trigger emotional interpretation. This in itself is neither a good or bad thing—it will be discussed further below.

Class Conversations

Yet another kind of meaningful structure which may be harnessed pedagogically is the differing viewpoints of students on topics discussed in the course. Both the similarities and contrasts between students' views on course content provide it with an articulation which may be highly meaningful in context. This articulation is not the same as *logical* structure insofar as the different views frequently arise from personal preferences and are not always supported with reasons. It is not the same as *narrative* structure either, though, insofar as students occupy a range of different positions at any given time, and there is not necessarily any notable diachronic unfolding in their views. Of course there might be, however, and this raises the very interesting question: to what degree can one kind of iconic structure *scaffold* or *bring into being* another in education? So for instance, transfiguring a structure of conversational interlocutors into compelling narrative structures is arguably one of the most notable achievements of Plato's dialogues (think of the *Gorgias*, and the *Apology*). That Plato is ultimately engaged in transfiguring both of these into logical structure *as he understands it* should not be ruled out either.

Conversational structure is arguably the most difficult of the three for a teacher to work with pedagogically as there is so much going on at any one time, if one's class time is reasonably interactive, and it is fleeting and easily forgotten. Mapping class

²Of course this is an emotionally charged example and one might wonder what are the limits of this model of interpretation? Could it be applied for instance to mathematics? Yes, even here Peirce claims that all three stages of interpretation are operative and vital. Hence the widely-acknowledged role of aesthetic appreciation (emotional interpretation) at the highest levels of mathematics, driven by an eros (energetic interpretation) not toward deductively valid arguments, which are a dime a dozen in the field, but so-called 'elegant solutions'.

discussions on the board as they unfold can really help (and of course this can transform some conversational structure into logical structure). It is important to slow down the process as much as possible. Something I have noticed is that when discussion is flowing, students sometimes amplify or defend points made in comments by other students that I have not noticed, or dismissed. This is humbling for me as a teacher as it reminds me that there is always much more going on in my classrooms than I am consciously aware of.

In the final section of this essay I will consider and respond to some likely objections.

Objections and Replies

Teaching as Entertainment

It might be argued that in seeking to render one's pedagogy 'more iconic' one risks transforming it into something of a 'passing show'. It is not uncommon lately to hear complaints about a certain kind of student who spends class time passively gazing at the lecturer like a TV set, promptly forgetting everything they have heard. (In other words, the educator becomes the "poor fool...who struts and frets his hour upon the [lecture theater] and then is gone...."). In seeking to give our teaching a more vivid and compelling structure, won't we be merely strengthening this tendency? Will we not be giving students less work to do in their studies, and thereby making our teaching *less*, not more meaningful? As we have seen, in Peircean terms —this would be allowing emotional interpretation to crowd out the other two.

First, I believe that it is important to acknowledge that these *are* risks. All of the three sign-types have their strengths and weaknesses, and Peirce's pragmatism teaches that there is no infallible path to gaining or imparting knowledge. But Peirce's semiotics itself also suggests some potential mitigating techniques.

One important technique is just: *more and better icons*. To the degree that 'iconic teaching' does give rise to problems of epistemic passivity, due to too much entertainment, I would urge that this is caused by icons that are too discrete from one another and not themselves iconized within larger intelligible structures. One might say that it is important to put 'legs' from the icons of today's class into classes in the past and future, and also into students' lived experience and problems with which they genuinely grapple.

'Lying Icons'

Recall once again the distinction between mere *information*, which consists of data points which are frequently decontextualized and when suitably interpreted may

even be false, and *knowledge*, which consists of statements in context which will turn out to be true. (This phrasing may sound odd, but is just meant to capture that statements which turn out not to be true will turn out not to have been knowledge, according to Peirce's understanding of truth; cf. Legg 2014). A further objection to the educational use of iconic signs is that they are such a powerful tool for transforming information into knowledge that they can easily be used to trick or mislead. As every tabloid magazine knows, a *picture* of a pair of celebrities apparently on a clandestine date is more liable to deceive the public and 'go viral' than a discursive description of the same thing, precisely because of the perspicuousness which was earlier argued to be the icon's great strength. This kind of 'deception by vividness' is of course what Plato was worried about when he took 'the poets' to task in his great work *The Republic* (in contrast with frequent misunderstandings of late such as that Plato thought that the fabric of society might be undermined by people writing rhyming verse—and aren't we lucky that liberalism now allows every citizen to pursue special interests without intolerable state interference?).

Peirce acknowledges this downside of icons: "Each Icon partakes of some more or less overt character of its Object. They, one and all, partake of the most overt character of all lies and deceptions – their Overtness" (CP 4.531). But he immediately goes on to say, "Yet they [icons] have more to do with the living character of truth than have either Symbols or Indices." Why does he say this? Recall the statement cited earlier, *which in fact continues this quote*: "there is one assurance that the Icon does afford in the highest degree. Namely, that which is displayed before the mind's gaze – the Form of the Icon, which is also its object – must be *logically possible*" (CP 4.531).

We have learned that the role of the icon is that by demonstrating consistency within an overall structure it shows us what is possible. Once one is possessed of a suitably rich iconic understanding of a given topic, any false statements made about it will sooner or later fall foul in respect of consistency with that understanding. This is particularly so given that, as noted, iconic signs always contain more potential relations than previously apprehended or imagined. The relational excess of iconic signs is famously the bane of liars for the way in which it can retrospectively expose their mendacity, however much they try to 'manage' the consequences of what they have previously said. For this reason individuals who are inclined to be deceptive often demonstrate a general drive away from perspicuousness (strong overarching icons) in all their communications. In this way, then, iconic signs are revealed as functioning to guard truth rather than betray it.³

To put the same point another way: icons have to do with the living character of truth because tightly interlaced around all of our knowledge lies *logical form*, which is only properly represented by them (for further technical elaboration see Legg

³Yet again a reference to Plato's philosophy is irresistible at this point—namely the claim towards the end of the *Meno* that what differentiates knowledge from mere belief is that it is 'tethered' so that it cannot 'run off'. Indeed, perhaps Plato's *eidos* or Form, with its strong (yet today strangely unremarked) visual connotations might have been precisely a *semiotic* concept reaching towards Peirce's icon—rather than a useless entity sitting 'in Heaven' inviting Ockhamist elimination.

2008). We began this chapter by noting that in educational contexts, as in others, knowledge may be differentiated from mere information first by its surrounding conceptual structure and second by its truthfulness. The iconic sign, wisely used, delivers both of these desiderata in spades.

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Chapter 4

Semiotics in Mathematics Education: Topological Foundations and Diagrammatic Methods

Rocco Gangle

Abstract The question of mathematical pedagogy depends on the perceptual and intellectual capacities of teachers and students on the one hand and on the intrinsic demands for abstract understanding and rigorous formal proof on the other. The chapter sketches a semiotic sequence from metaphysics through category theory to topology to applied topology; and revisits the philosophies of Plato, Deleuze and others to elucidate the relevant mathematical problematics. While mathematics is intrinsically caught up in the dialectic of sense and idea, edusemiotics takes this distinctive feature of conceptual knowledge and learning into account. The use of diagrams as a semiotic tool is shown to be an essential component of any mathematics teaching and learning. An edusemiotic approach to processes of teaching and learning mathematics demonstrates that topological concepts of continuity and free variation support a diagrammatic framework for experimenting with and appropriating mathematical knowledge. This framework, consistent with the intuitive approach and formal notation of category theory, helps cultivate both ‘upward’ and ‘downward’ transits between abstract and concrete domains.

Introduction

In *Mathematics as Sign*, philosopher Brian Rotman (2000) links the semiotics of material inscription (writing), creative fiction (imagination) and iterated memory (counting) in order to develop an approach to mathematical practice that remains sensitive to both the concrete modes of mathematical reasoning employed by embodied human subjects and the uniquely abstract status of the objects that mathematics investigates. Rotman shows how formal and material technologies determine the historical modes of the ‘mathematics-world interface’ and how semiotic theory provides a unified and synthetic approach that does justice to both of these necessary sides of mathematical activity. To treat mathematics from a

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semiotic perspective as Rotman does is to take a relatively unorthodox point of view with respect to mainstream philosophy of mathematics, one pioneered in the early 20th century by Charles S. Peirce (2010). As the work by Peirce and Rotman demonstrates, conceiving of fundamental problems in philosophy of mathematics in semiotic terms has the distinct advantage of situating mathematical truth and cognition in a quite general space of human sign-usage common to multiple disciplines and types of practices, thus opening natural connections between mathematics and other fields of human endeavor: from science and engineering to art and religion. In particular, the semiotic approach to mathematics provides a way to think the continuity of substantive questions of mathematical truth on the one hand with inquiries into the social context of its propagation and use on the other.

The present chapter examines the issues that arise when considering mathematical teaching and learning in the broader context of edusemiotic pedagogy (Semetsky and Stables 2014). It begins by distinguishing between the strictly mathematical problem of logico-formal foundations and the pedagogical problem of cognitive foundations. The usage of diagrams as both an educative tool and a formal notation indicates certain lines of research for how these otherwise distinct problems might be bridged. In particular, from an edusemiotic point of view it is the phenomenologically rich topological features of diagrams that are most useful for encouraging an explorative and creative environment for learning and applying mathematics. However, this emphasis on topo-phenomenology raises the problem of the specifically abstract and non-phenomenological character of mathematical cognition. A sketch of a possible educational sequence passing from philosophical metaphysics through the abstract foundational domain of category theory to topology and applied topology shows how the use of diagrams may respond to this problem by enveloping in a unified manner both phenomenological and formal considerations in mathematical edusemiotics.

Pedagogical Foundations in Mathematics

We are concerned with the foundations of mathematical learning. By stressing the term *foundation* we are confronted with the homonymous term as used in the philosophical problem of the foundations of mathematics (Marquis 2009). In this more common usage, the ‘foundations’ of mathematics, if existing at all, are the ultimate terms of recourse for grounding mathematical truth in the formal structures of proof and for obtaining general constructions within which various distinct mathematical domains may be modeled. The two most important contenders for the status of foundations are set theory, based ultimately on discrete structures, and category theory, based on holistic systems of relations. This chapter uses edusemiotics as a conceptual framework, but as will emerge below, seemingly distant concerns with purely mathematical foundations are not completely separable from the ways in which mathematics is effectively learned, taught, and applied.

One of the core ideas of edusemiotics is that background metaphors of what teaching is and how it works enter in subtle ways into the concrete practices that actually implement teaching and learning and that revisions of these metaphors in favor of better ones may elicit improved understanding (Pesce 2014; see also Danesi's chapter in this handbook). A common educational metaphor is that of direct transmission. Teaching is considered, traditionally, as communicating a message. But of course a message is only transmitted if a common code is shared between sender and receiver. What if the core of a certain type of teaching is precisely to instill not just a code but a unique *type* of code that might be incommensurate with other semiotic codes previously understood by the student? In this case a better metaphor would be that of learning as a kind of apprenticeship akin to magnetism:

When an external magnetic field is applied to a ferromagnetic substance, the item "absorbs" some of the external field: when the external field is removed, the magnet will maintain some of the structure that was imposed on it via the field – it becomes magnetized. The substance changes magnetic phase. This change in phase of a ferromagnetic material is sometimes referred to as memory, because it resembles the learning process with which each of us is familiar. Ferromagnets are like entities that learn, in that the changes wrought in them via the "teaching" episodes outlast the duration of the training process (Thalos 2013, p. 98).

Mathematical learning from this somewhat non-standard point of view would be best understood as an apprenticeship in abstract relations. In a given pedagogical context the corresponding problem of mathematical foundations would be less about establishing formal grounds for expressing theorems and proofs in terms of a single mathematical language than of establishing an experiential and cognitive baseline that could be assumed common to all the students involved. As classroom contexts vary, so too would the relevant 'baseline foundations' of pedagogical support. Context is considered a 'situational variable' in edusemiotics. This is evident in the case of different levels of instruction, as for the assumed differences in students' skills and competencies in different topics. Yet this kind of difference is also important for distinct student constituencies engaged in one and same mathematical topic. Introductory calculus courses at an inner-city high school, an elite liberal arts college and an adult-education community college evening course might require different pedagogical approaches based on what is assumed to be common knowledge even under the hypothesis that exactly the same material is being taught and the same assessment tools utilized in these courses.

One of the aspects of mathematics that makes it unusual, if not unique among core curricular disciplines, is that in principle the background knowledge required to grasp mathematical concepts and techniques extends no further than the most fundamental structures of experience. Such indifference to history, language, and culture is part of the source of mathematics' universality. That's why mathematics is uniquely positioned among human semiotic codes in terms of its ease of communication across different cultures. Nonetheless, in actual classroom practice vast differences emerge at all levels of learning and grasping new concepts. Mathematical truth is not meant to be dependent on anything other than its form,

but in teaching mathematics one must instill the very passage from the experiential richness of content to the purity of form.

This disjunction of content and form is not only a mathematical issue, but has been one of the core features of the Western metaphysical tradition at least since Plato. Importantly, it is precisely this feature of mathematics that originally suggested to Plato the alignment of mathematics with the universality of philosophical truth. Not only are mathematical truths eternal from a Platonist perspective: importantly, they serve as the ultimate model for all intelligible structure that may be found in the sensible world. Mathematics is thus not only the paradigm but also the transcendental condition of all truth. Its status is not only universal (true for everyone) but ubiquitous (true everywhere). It might seem then that in a decidedly (for the most part) post-Platonic epoch the grounding of truth in mathematics would have become a mere historical curiosity. Yet if anything the importance of mathematics in its purely formal power has only increased, and the basic Platonic problem of abstract form is all the more foregrounded in its contemporary technological employments. For instance, Rotman (2008) emphasizes the importance of new computer technologies in mathematical study and the rise of computational models, simulations and digital mathematics.

From our present perspective, the relevant cross-section of this rich and multi-dimensional problem is how it impacts mathematical edusemiotics. On the one hand, the mathematics teacher is faced with an embarrassment of riches. At least at introductory levels, easily intuited examples from a great variety of different domains are readily available, and arithmetic can be taught with any materials that may be counted. Euclidean geometry quite naturally arises from consideration of the basic shapes taught in early childhood: circle, square, triangle. Calculus lends itself to application in a wide variety of scientific disciplines as diverse as physics and economics, and elementary examples drawn from these disciplines are often useful ways to introduce new concepts and techniques.

On the other hand, mathematics instruction quickly moves beyond the realm of intuition, and examples may then come in short supply. It is perhaps for this reason that so many students seem to ‘hit a wall’ in their mathematical development, beyond which no amount of study enables them to move forward. The proper aim of mathematics pedagogy is a certain familiarity and flair for working with abstractions. In elementary and applied mathematics, it is primarily a matter of developing skills in the back and forth movement between abstract structures and concrete models. In ‘pure’ and typically more advanced mathematical topics, the space of mathematical abstraction is investigated in its own right. But the cognitive act of abstraction permeates mathematical study in a way that distinguishes it from all other areas of learning. So while the problem of finding a common baseline of shared knowledge in the mathematics classroom does not pose the same kinds of challenges that confront the teaching and learning of history or literature, it reappears in a different register as the problem of finding a common capacity, a skill at performing a certain type of cognitive act. One of the greatest challenges for mathematics pedagogy is to draw attention to this very act of abstraction, which is by definition non-representational. It is one thing to teach and to learn via examples;

it is something else entirely to teach and to learn how examples as such exemplify. This understanding involves a passage from the concrete to the conceptual, common to mathematics and philosophy.

Diagrammatics and Phenomenology

From an edusemiotic perspective, the specific difficulties in the teaching and learning of abstract objects may be expressed in terms of the variable degrees of iconicity of the signs used in communicating about such objects. In Peirce's familiar trichotomy of signs, an *icon* is "a sign of which the character that fits it to become a sign of the sort that it is, is simply inherent in it as a quality of it" (Peirce 1998, p. 306). An icon is a type of sign that signifies by virtue of what it is and the particular properties it has, as distinguished from *indices* which are signs related to their objects by means of causal connections—an index is "a sign which is fit to serve as such by virtue of being in a real reaction with its object"—while *symbols* signify by means of conventional rule or habitual regularity: a symbol is "a sign which is fit to serve as such simply because it will be so interpreted" (Peirce 1998, pp. 306–307). An icon expresses the very qualities that it signifies in its object, a typical example being any figurative image. Unlike the words 'NUAGE' (French) or 'CLOUD' (English), none of which looks anything like a cloud, a child's appropriately rounded doodle shares at least some relevant perceptual characteristics with actual clouds. For this reason, such a doodle is an icon, while the culturally specific linguistic signs—words as symbols—are not.

Iconic signs are essential tools for grasping abstract forms instantiated in experiential data. Central in this regard is the prominent usage of diagrams throughout mathematics pedagogy. In Peircean semiotics, a diagram is an iconic representation of relations that through manipulation and experimentation becomes capable of generating new knowledge concerning its represented object (Stjernfelt 2007; Gangle 2016). Thus a diagram is an epistemically oriented sign that builds relevant relational aspects of its semantics into its own syntactical form. Peirce (2010) insists that diagrammatic thinking is at the very heart of mathematical method and mathematical reasoning is in essence the discovery of necessary consequences entailed by arbitrary hypotheses made manifest through experimentation on diagrams. The intelligibility of Peirce's view depends upon the breadth he accords to the notion of diagrams. Diagrams are not only sketches drawn on paper or some other two-dimensional surface, but are instantiated systems of relations that share epistemically relevant structural or qualitative features with their intended object domain. As Peirce points out, even the most apparently non-iconic forms of mathematical notation such as syntactical strings representing algebraic equations still rely at some level of abstraction upon relational homologies between what they represent (the notational sign) and what is represented (the mathematical structure at issue).

One of the strengths of iconic diagrams is their pedagogical utility. Because they rely on relations of iconicity linking the sign to its object, the semiotic structure of a diagram includes *within itself* both the problem and the partial solution of how to communicate concerning abstract objects! The abstract and typically underdetermined system of relations that constitutes the object of a diagram is given in an evident and immediately realized way by the instantiated relations of the diagram *per se*. Yet the proper understanding and use of the diagram attends not to the particular qualities of the instantiated relations, but only to their general character as relevant to a given interpretation. For instance, the sketch of a parabola on a board certainly has a *particular* size and shape, but understood correctly it represents not *these* characteristics but rather the invariant symmetry and differentiable curvature *common to any and all* parabolas. As Stjernfelt (2007) has demonstrated, Peirce's conception of diagrammatic experimentation bears remarkable similarity to Husserl's phenomenological method of eidetic intuition via controlled imaginative variation and thus establishes a possible line of connection between semiotic and phenomenological approaches to cognition and learning.

The pedagogical utility of diagrams is not limited to attaining the abstract and general by way of the concrete and intuitible. Just as the abstract nature of mathematical objects allows them to range universally across disparate concrete domains, the relatively concrete character of the diagrammatic sign allows it to vary in its significance across multiple abstract spaces of interpretation. Importantly, the way that one and the same diagram may serve as an iconic sign in different ways in independent contexts is not simply a consequence of its abstract character. It is rather a function of the interpretative selection of which features are to be considered relevant and what they are chosen to represent in whatever context happens to be at issue. This selection is at once dependent upon the concrete character of the diagram and equally the shared space of the diagram together with its community of interpreters. The fundamental type of relation in play is thus not that between abstract generality and concrete particularity (types and tokens), but rather of *mappings* between concrete structures and possible models of those structures that vary in a compositionally ordered way from parts to whole across interpretative contexts (Caterina and Gangle 2015). In a context of a particular classroom, this selection is typically a matter of communal deliberation and agreement. Even the authoritative stipulation of a teacher (e.g., "All of these points are equidistant from this one here") depends upon a general context of agreement in which such stipulations can become meaningful. A more semiotically-aware teacher might instead ask: "Can we all agree that these points here may be understood to be equidistant from this one?"

As an embodied, sensually rich activity, mathematics is essentially semiotic and diagrammatic, a fact that is especially evident at the most elementary stages of learning and understanding. The basic cognitive practices at the root of mathematical thinking are typically engaged through the semiotics of counting. This approach privileges arithmetic as the 'natural' basis of mathematics from which more advanced topics might be built up in turn. From a strictly semiotic point of view, it is worth noting that the practice of counting is primarily visual. It requires

both distinguishing objects and keeping track of them. The closely related semiotics of rhythm—for instance in music and dance—is in general insufficient for developing arithmetical skills because the bodily dynamics of repetition here take precedence over the ‘stack memory’ required by addition and subtraction. Good drummers do not necessarily make good arithmeticians. They just keep counting the same beats over and over! When we count, we fix the discrete objects of a world.

It is helpful to compare standard pedagogical models with less familiar and thus less habitual ones, thus situating the standard models in a larger and more variable space of possibility. In this case, in contrast to counting it is useful to consider the semiotics of *covering* as a possible base model for conceiving mathematical learning. In contrast to the predominantly visual character of counting, the sensible correlate of covering is primarily tactile. To slide one’s finger along a surface is to trace a continuous line by covering a singular path across it. This is not to say that there are not visual metaphors for covering. Indeed, a highly significant aspect of the visual field is that non-transparent objects typically ‘cover’ whatever is behind them. Consider the phenomena of shadows.

The abstract relations of counting correspond structurally to the mathematics of arithmetic and algebra. Algebraic relations link discrete objects of a mathematical domain operatively in order to generate other objects via these operations themselves. The abstract relations of covering, on the other hand, correspond more closely to topology. Topological spaces are naturally expressible in terms of mathematical ‘coverings’ of open sets by collections of other open sets (Hatcher 2001). From this perspective, the key characteristics of mathematical objects are their intersections and overlaps, their continuities and invariances under controlled deformations rather than their fixed identities.

The relations of covering and the corresponding topological mathematics, because of their natural connections to all of the aspects of human embodiment (not only visual representations of objects), seem to be an especially appropriate and underappreciated foundation for mathematical pedagogy. In this regard, the work of Sha Xin Wei is an important touchstone. Sha’s explicit focus is not pedagogical, but it concerns especially the relationships between lived experience, which edusemantics indeed posits as one of its important characteristics, and mathematical models. For Sha, mathematics is organized not inductively in terms of formal abstraction from the concrete details and multiplicities of ordinary experience, but rather abductively as the continually self-correcting motility of the embodied and active human subject in space (cf. Semetsky 2015). Sha’s core insight is that whereas mathematics and the formal codings prevalent in computers and other technological media are structured discretely, the experiential matrix of space and time, sensual qualities and manipulated objects is essentially continuous:

As I lift my hand to pick up a cup or to wave hello, it does not jerk discontinuously from point to point and moment to moment, at least not in ordinary experience. And it is ordinary experience in its boundless density with which I am concerned ethico-aesthetically, technically, and conceptually. Of course, for reasons of efficiency and economy, we have built logical and algebraic systems of discrete representation of various ontological strata of the

world (phyletic taxonomies, the periodic table, grammar), and processes and institutions that discipline practices to these fixed representations. But the practical challenge I set is to see how to articulate continuous processes in our art and our technology, given how continuous, material process is pervasive in our lived experience (Sha 2013, p. 123).

In other words, Sha's program is to find modes of continuous representation that accord most naturally with the continuities of space, time and quality inherent to everyday experience. While Sha's concerns are primarily with technological interfaces and aesthetic environments disposed to creative exploration, these very concerns indicate the relevance of his work to the learning of mathematics. Again, the development of cognitive facility with abstraction and abstractions requires a semiotically rich, habit-forming training in a multitude of experiential passages from the material to the formal, from the sensual to the structural and back.

The learning of mathematics requires not only a phenomenologically appropriate environment for gaining intuitions of mathematical concepts. It also requires mastery of the conceptual leap beyond initial intuition and the intellectual grasp of abstract structures as dynamically determined in their own native environment. It is here that the edusemiotic needs of mathematics students (and all of us, even the most gifted professional mathematicians, remain students of an abstract universe of thought only the tiniest fragment of which has been explored) may be partially met by turning to the other abstract intellectual discipline: philosophy.

In *A Thousand Plateaus* Deleuze and Guattari (1987) complain of typical formalist linguistics that it is "not abstract enough" (p. 90). The point is not that in their view the formal characteristics of linguistic theory remain too dependent on sensual intuition or are insufficiently technical. It is rather that the specifically philosophical character of linguistics—its power to make of the regional science of language a mode of access to universal problematics of ontology and conceptual creation—resides not in its formalization but rather in its concrete affective and pragmatic character. Only an analysis in terms of the 'abstract machine' as a feature of language captures what is of greatest philosophical interest. Similarly, Deleuze's earlier work *Difference and Repetition* in its detailed conceptual study and philosophical generalization of differential calculus implies that mathematics in its own way fails to be sufficiently abstract (Deleuze 1994). Paradigmatic in this regard from an edusemiotic perspective are the field extension theorems proved by Galois, which Deleuze describes as a radical reversal in the problem-solution relation:

The theory of problems is completely transformed and at last grounded, since we are no longer in the classic master-pupil situation where the pupil understands and follows a problem only to the extent that the master already knows the solution and provides the necessary adjunctions. For [...] the group of an equation does not characterise at a given moment what we know about the roots, but the objectivity of what we do not know about them. Conversely, this non-knowledge is no longer a negative or an insufficiency but a rule or something *to be learnt* which corresponds to a fundamental dimension of the object (Deleuze 1994, p. 180).

Much of the motivation for Deleuze's overall philosophical project stems from a principled rejection of phenomenology—at least in its canonical Husserlian form—and

the requirement of a form of thought that would exceed its merely representational empirical dimension. What reappears in Deleuze from the present point of view is the undeniable force of the Platonic problematic within philosophy *at least with respect to mathematics*. Mathematical truth and the philosophical relevance of mathematics go beyond the quotidian application of mathematical form to experiential content. The long-standing dichotomies of form and content, abstract and concrete, immanence and transcendence, or idea and materiality that have governed philosophical conceptions of mathematical truth at least since Plato—to say nothing of auxiliary problems in metaphysics, ethics and other areas of philosophy—still remain in force in the contemporary philosophical context, and more importantly continue to privilege in one way or another the form-, abstraction-, and idea- poles of these dichotomies themselves, even if the understanding of these dichotomies has been radically transformed.

The upshot for the edusemiotics of mathematics is that encouraging semiotic training in the passage from the concrete and sensuous to the abstract and formal is a necessary but not sufficient condition for truly grasping the internal dynamics of mathematical truth. Equally important is the logically-dual passage from the abstract to the concrete, from the ideal to the material. It is in this movement, paradoxically, that a dichotomy of categories can be overcome because of establishing a semiotic ‘double-sided’ relation. If following the ‘upward’ arrow oriented towards pure mathematical structure must undoubtedly become a habitual cognitive act of students apprenticed to mathematics, so too must learning to trace in thought and practice the oppositely oriented ‘downward’ arrow from structures to models and from abstract forms to material realizations.

From Metaphysics to Applied Topology: An Edusemiotic Proposal

If the fundamental problematics in play are those of the dialectic of phenomenological sense and abstract mathematical truth as well as the coordination of intuitive models with axiomatic structures, it seems clear that any concern with the semiotics of mathematical pedagogy must engage these problematics first and foremost from the side and with the prejudicial bias—relatively—of phenomenological sense and illustrative intuition. Classrooms are concrete places and students of mathematics at all levels, but particularly at undergraduate levels, require concrete interactions with teachers, diagrams and exemplary cases in order to come to the cognitive facility with abstract structures defining mathematical understanding. Yet the genesis of more highly determined structures out of less determined ones as specializations of the latter, such as building concrete models of various systems of axioms, represents in an important sense the most natural order of mathematical truth as well as the proper form of cognitive understanding capable of grasping that truth. So the edusemiotics of mathematics appears to be confronted with a sort of deadlock or

double bind. The proper direction of mathematical understanding moves in principle from the abstract and general to the concrete and particular, yet the usual semiotic path of mathematical learning proceeds from the sensuously concrete to the merely formal. Iconicity must instead be cultivated in *both* directions. What follows is an outline of what teaching from the abstract to the concrete (specializing or concretizing) rather than from the concrete to the abstract (abstracting or generalizing) might actually mean.

Consider an introductory undergraduate college-level course in topology. Topology studies the structures of spaces that remain invariant under continuous deformations, such as the stretching and bending of a flexible material (but not its puncturing, gluing or tearing). It is for this reason that topology is often described colloquially as rubber sheet geometry. Of course, the mathematics of topology extends far beyond the obvious intuitions of rubber sheets. Historically, topology developed out of the study of the behavior of continuous functions in local neighborhoods of chosen points in the functions' domains. A residue of this historical trajectory remains active in the semiotics of its standard pedagogy. Topology is usually taught as a generalization of the behavior of continuous functions in local regions of a space, as if it naturally—and not only historically—grew out of the differential calculus.

However, as in many, if not most, mathematical fields, the modern formalism and axiomatic treatment of topology conceives of its subject matter independently of its historical origins and in advanced topics and cutting-edge research agendas is often focused on those aspects of topology that reach beyond the restrictions of spaces defined by point-sets; restrictions which in the contemporary context appear as artificial limits on the genuine scope of topological mathematics. This is part of why the question of mathematical foundations is important. Whatever the actual status of such foundations, such as how exactly mathematics may be grounded in set theory or category theory, it is clear at any rate that the historical development of mathematics has not typically been 'downward' in abstraction from more to less foundational disciplines but rather 'upward' from more specialized and concrete domains to more abstract and general ones. Pedagogy typically follows history in this regard. Is it possible to trace the opposite movement edusemiotically?

Consider the sequence presented in Fig. 4.1 on the top left. From 'top' to 'bottom' one passes from metaphysics to category theory and from there to topology and then finally to applied topology, represented by such diverse applications as robotics, experimental art environments, data analysis and economics. This represents a proposed sequence of study that would encourage students to grasp the downward movement from more to less abstract domains from the very beginning, thus proceeding in the opposite direction from the typical one of generalization and abstraction. The sequence begins with the abstract domain of metaphysics. What place is there for metaphysics in a mathematics classroom? It would be inappropriate and counterproductive to attempt to treat metaphysics in its full range and scope, as this would be to defer indefinitely the purpose that semiotically governs the learning process. Instead, it is a matter here of introducing

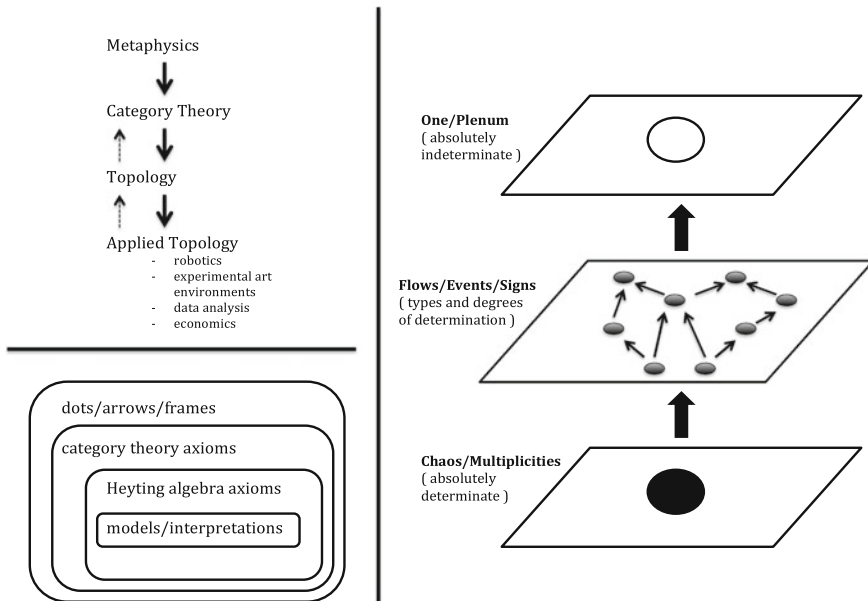


Fig. 4.1 Progressive determinations from metaphysics to applied topology

merely some elementary notions that might give rise to certain basic shared understandings in the classroom.

The diagram on the right in Fig. 4.1 portrays three levels of determination represented as distinct ‘frames’ or ‘planes.’ The plane at the bottom represents the absolutely determinate, the wholly fixed. For instance, common sense notions of reality often assume that there is an ultimate way that things are, defined for any particular instant of time. In the image of classical physics given by Newtonian mechanics, for example, every object in a system at a given time T has a wholly determinate position and momentum. Whether or not this view is in fact correct (it almost assuredly is not!), it is very useful to have in hand a shared diagram for representing and experimenting with this idea clearly and succinctly. In Fig. 4.1 it is pictured simply as a single dot, which iconically represents the non-variable structure of a determinate unity, for instance, a deterministic chaotic system. One level up, the middle plane is intended to represent systems of whatever type involving various degrees of determination, for example systems of flows, causes, events, signs and so forth. According to the conventions introduced and agreed upon by the teacher and students in the classroom, such systems may be pictured with diagrams of dots and arrows, where dots represent states or elements of whatever system is at issue and arrows represent determinations of one such state by another. Finally, the top plane represents the polar opposite of the bottom plane. Whereas the bottom plane pictures the absolutely determinate, the top plane portrays the absolutely indeterminate. Here, the ‘same’ diagram (but the real identity of

a diagram, as discussed above, includes the specific context of its interpretation and use) represents the pure metaphysical plenum, an absolute potentiality for determination that totally lacks any internal differentiation or articulate structure. For example, in Peirce's system of Existential Graphs the role of the uppermost plane is played by the blank Sheet of Assertion, the sheer determinability of a given universe of discourse being prior to any actual statement made within it.

In the context of a philosophy course and a philosophy classroom, the degree of metaphysical clarity, and specificity invoked here, would surely be insufficient. Just three ordered levels: absolutely determinate and absolutely indeterminate at the extremes, with the 'mixed state' of determination and indetermination situated between them. To most philosophers this probably looks like a pasteboard caricature of bad Platonic metaphysics! Yet it is precisely the pedagogical utility of such a diagrammatic caricature *for mathematical ends* that is here in question. Having established this shared 'notation' for sketching some intuitive notions of metaphysical determination—a process that would most likely take up a class period or two—it would then subsequently become possible to refine and specialize this notation for properly mathematical purposes. In particular, the intuitional pump will have been primed, so to speak, for understanding in a concrete diagrammatic way the otherwise highly abstract axiomatic basis for the foundational mathematics of category theory. In passing from metaphysics to category theory, one simply refines in this way what is meant by 'determination' by means of introducing *formal* rules governing the interaction and identity of the dots and arrows previously used in an *informal* fashion as the notation for metaphysics. In fact, the axioms of category theory are simple to formulate in this way (Lawvere and Schanuel 2009). They may be easily grasped by students of nearly any level of training—even children—with only a modicum of explanation. Of course the full ramifications of these axioms remain only implicit!

Yet having introduced the axioms of category theory in this way (and leaving aside any further development of category theory as such), it then becomes relatively straightforward to further refine these rules and requirements so that they then become the elementary axioms of topology understood as lattices of open sets subject to the basic restrictions that characterize complete Heyting algebras. To be sure, this step takes a bit more pedagogical work. Lattices must first be categorically defined via meets and joins understood as limits, and the intuitive notions of inclusion and implication must be formalized accordingly. But note that these mathematical concepts have already been 'prepared' by the far more informal diagrams of metaphysical determination and the less numerous and more intuitive dot-and-arrow axioms of categories. The extreme generality and abstraction of category theory is thus smoothly transformed into the more specific, yet still abstract, domain of topological spaces. From here, the more traditional back and forth movement between the formal axiomatic approach with its concomitant theorems and constructions on the one hand and the various regional applications of these latter in statistics, robotics, communications-systems design, etc., on the other becomes a repetition of an already established pattern of successive levels of abstraction and determination. The relation between pure and applied topology thus

appears not as an absolute dualism between formal structures and material instances, but instead as itself just one case of an iterated sequence of relative ‘abstract-concrete’ bipolar structures (sign-relations) that each determine the various levels or stages of a much richer and more differentiated domain that envelops ordinary experience, mathematical structures and philosophical concepts.

The primary advantage of this approach is that by the time students are ready to engage the relationship between the more abstract and more concrete aspects of topology, they are already thoroughly familiar in a diagrammatically, cognitively and habitually embodied way with the practice of transit from one space of diagrammatic and conceptual determination to another, the reversible passage back and forth from the relatively abstract to the relatively concrete. What appears in the sequence from metaphysics to applied topology is thus the reciprocity of two ‘pathways’ in mathematics learning: an upward movement of abstraction and a correlative downward path of concretion or realization. Thus the mathematical notation of category theory functions in this schema in a twofold role, both informal and formal. Dots and arrows are highly iconic modes of representation that very intuitively and naturally depict systems of objects and relations relatively stripped of their irrelevant properties and reduced to their selected structure. But they are also the basic elements out of which the formal diagrammatic notation of category theory may be built up.

Sha considers category theory as an ambient mathematical environment for modeling the topological dynamics of phenomenological experience, but he rejects it as being “a *description*, not a mode of articulation of material” and as saying “nothing about the dynamics of physical, or living, affective material” (Sha 2013, p. 112). But it seems that this point of view does not consider the possibility that the standard diagrammatic notation for category theory might *also* serve as an informal phenomenologically-intuitive method for tracking degrees of determination at multiple levels. It is here that the formal and the material at once intersect and remain conceptually distinct as a genuine paradox pertinent to edusemiotics.

Conclusion

The results of the preceding analysis may be summed up in the following sequence of claims:

- (1) An essentially Platonic philosophical problem remains in force throughout nearly all aspects of mathematical pedagogy. Mathematical ideas are intrinsically caught up in the dialectic of sense and idea, and mathematical edusemiotics indeed takes this distinctive feature of conceptual knowledge and learning into account.
- (2) The use of diagrams as a semiotic tool is an essential component of any mathematics teaching and learning.

- (3) For both semiotic and phenomenological reasons, the topological features of diagrams as correlates of experiential continuities are likely to be especially effective in cultivating mathematical understanding.
- (4) Ironically enough, the very pedagogical effectiveness that makes the use of diagrams and topo-phenomenological interfaces so important for mathematical edusemiotics risks obscuring the specifically abstract character of mathematical objects and the modes of knowing that correspond to them.
- (5) The ‘two paths’ of mathematical edusemiotics—‘upward’ from concrete to abstract and ‘downward’ from abstract to concrete—are both necessary for genuine mathematical comprehension.
- (6) The mathematics of category theory appears nicely situated for addressing the pedagogical challenges of both paths in an intuitively diagrammatic yet nonetheless potentially rigorous formal way.

In conclusion, then, it should be clear that the edusemiotics of mathematics is not wholly exterior to the subject matter and fundamental questions of mathematics itself. Mathematics is not a mere instrument—of whatever degree of complexity—to be applied mechanically to human interests and worldly ends. Mathematics is, like every serious intellectual endeavor, a project of simultaneously personal, political and cosmic-universal significance. The ultimate aim of the edusemiotics of mathematics is, or ought to be, to clarify how these dimensions or strata of mathematical experience exfoliate from the primary data of human ordinariness to encompass broader domains of social and natural reality and finally the most fundamental aspects of the physical cosmos as well as the possibly somewhat more extensive domain of the purely intelligible (cf. Semetsky 2013). Part of what we humans always do, what we must do and yet what we must always still learn to do is to negotiate the interface—at its heart a semiotic one—between the concrete and the abstract, the sensible and the intelligible. The conclusion to be drawn from the above example of topology may seem a counterintuitive one: it can be better from a strictly pedagogical perspective to begin at least in some cases from more abstract structures and to conceive of mathematics primarily in terms of the successive specializations of structures to increasingly differentiated, that is, individuated domains. Plato may have been right after all about the incommensurable duality of sense and form. Yet the fundamental problem in this respect, from the point of view of mathematical edusemiotics, may be not so much looking for any escape from the materiality of the Cave but rather of strategically cultivating formal methodologies of projection, materialization, and descent.

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Chapter 5

Metaphors, Models, and Diagrams in Educational Theories and Practices

Marcel Danesi

Abstract In his classic 1962 study, Max Black showed convincingly how scientific theories are constructed through unconscious metaphorical reasoning, thus linking them to the experiences of the scientist, the social and historical contexts in which they emerge, and the image schemata that are established within specific scientific domains. Some works have looked at this representational phenomenon within education, but only sporadically. This chapter focuses on metaphorical arguments and how they guide the construction of educational theories that lead to models and diagrammatic strategies, which in turn guide the derivative educational practices. It will then examine the possibility that metaphor itself can be incorporated into actual teaching practices, illustrating how this can be done in the teaching of mathematics and second languages. The chapter, by documenting the connection between metaphors, models, diagrams, and learning theories, addresses edusemiotics in its both theoretical and empirical aspects.

Introduction

Educational theories and the specific practices that derive from them are invariably founded on specific premises. If these are examined closely, they typically reveal a pattern of metaphorical reasoning that led to their ideation. A classic example is that of learning in general as either a ‘mental training’ process akin to body training or as a ‘mental organization’ process akin to computational or algorithmic systems. The former metaphor is characteristic of behaviorist theories in psychology and the latter of cognitive ones. The conceptual difference between the two manifests itself in several concrete ways: (1) in the discourse inherent in both theories, whereby

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learning is described as a process of positive habits that are reinforced or strengthened in behaviorism, while in cognitivism it is described as involving analysis, retrieval, and storage; (2) in the actual learning models that each one implicates, leading to specific kinds of research methodologies; and (3) in the development and elaboration of specific educational and pedagogical practices, such as habit-formation (including repetition, imitation, pattern practice, and so on) or procedural practices (critical analysis, classification into categories, and so on).

As part of professional educational culture, theorists then attempt to verify their models with appropriate experiments and studies that are themselves devised rather unconsciously on the basis of the initial metaphorical image. This can be called the *Metaphor-as-Theory Hypothesis (MTH)*. All this does not mean that educational theories are unimportant or that any one theory is as good as any other; rather it means that understanding the unconscious metaphorical reasoning involved in theory construction and its attendant practices can give us better insights into education itself as a semiotic, cultural process rather than as a purely cognitive process based on purported innate laws of learning. Clearly, the implication of all this is that the study of metaphor in educational theorizing is a vital one.

Another implication coming out of the research on metaphor can be called the *Metaphor-as-Practice Hypothesis (MPH)*. This term indicates that the relevant research can be used to devise ways of incorporating it directly into educational practices, that is, to teach mathematics, language, and so on. If the structure of human learning is largely metaphorical, as some would claim, then the pedagogical input should be synchronized with this structure. For the present purposes this MTH can be formulated specifically as follows: Does metaphor play a role in learning and if so how can it be incorporated into educational practices?

This chapter has, in fact, a twofold purpose: (1) to discuss the *Metaphor-as-Theory Hypothesis* and (2) to consider how the findings from the study of metaphor might be adapted to actual teaching, or the *Metaphor-as-Practice Hypothesis*. Today, the topic of metaphor is no longer exclusive to linguistics, having migrated to various cognate fields and thus constituting an interdisciplinary pivot for understanding diverse psychological and cultural phenomena. It is particularly applicable to education and, as such, it is a perfect target for consideration within edusemiotics that addresses educational theories and practices from the foundational position of semiotics (Semetsky 2010b; Semetsky and Stables 2014). The objective here is to argue that the age-old neglect of metaphor within education has rendered educational theories and practices irregular and in constant flux. However, this situation is changing rapidly ever since Lakoff and Núñez's (2000) key text showed how mathematics education, like language learning, is based on metaphor, and since the emergence and rise of edusemiotics as a discipline and a foundational philosophy of education.

Metaphors, Models, Diagrams, Theories: The Metaphor-as-Theory Hypothesis

The word *model* is used across disciplines with a seemingly infinite array of meanings. Upon closer scrutiny, it becomes obvious that each model is essentially a metaphor in disguise, so to speak. As Max Black argued in his classic study of science and mathematics in 1962, models result from metaphorical-inferential mental processes which, in turn, guide the formulation of scientific theories. A classic example is the theory of the atom as a miniature solar system—a metaphorical construct that has produced different scientific models of the atom each of which has subsequently led to diverse theories and experiments (Sebeok and Danesi 2000). At the turn of the 20th century, Ernest Rutherford put forth a model of the atom consisting of a spherical core called the nucleus, possessing a dense positive charge, with electrons rotating around it. This was an obvious metaphorical inference that atomic structure has the same structure as the solar system—that is, an atom could be conceptualized as a miniature solar system. Later physicist Niels Bohr extended Rutherford’s model, claiming that electrons traveled in orbits around the nucleus. Then, Erwin Schrödinger placed the electrons in specific spaces in his derived model. In 1932, James Chadwick suggested that the atomic nucleus was composed of two kinds of particles: positively charged protons and neutral neutrons, and a few years later in 1935, Hideki Yukawa proposed that other particles, dubbed mesons, made up the atomic nucleus. After that, the initial ‘metaphorical picture’ of the atom grew more and more complicated as physicists discovered the presence of more and more subatomic particles. In 1955, Owen Chamberlain and Emilio Segre discovered the antiproton (a negatively charged proton), and in 1964, Murray Gell-Mann and George Zweig proposed the existence of so-called quarks as fundamental particles, claiming that protons and neutrons were composed of different combinations of quarks. In 1979, gluons (a type of boson) were discovered as carrying a powerful strong force. This force, also called the strong interaction, binds the atomic nucleus together. In 1983, Carlo Rubbia discovered two more subatomic particles—the W particle and the Z particle, suggesting that they are a source of the weak force, also called the weak interaction.

Now, the point here is that such theorizing, accompanied with relevant research and findings, would have never occurred without Rutherford’s initial metaphorical insight and other models it subsequently engendered. In essence, the Rutherford Model envisioned the atom space as a tiny solar system; the Bohr Model added quantized orbits to the Rutherford Model; and the Schrödinger Model posited the idea that electrons are in specific locations in the atomic space. Scientific theories such as these, Black argued, involve modifying metaphorically-based models about things often unavailable to sense-perception: we cannot directly observe, hear, or touch atoms, gravitational forces, magnetic fields, and the like. So scientists use their ‘metaphorical eyes’ to take a look. Today, the models above are being revamped and even discarded because, according to quantum mechanics, it is impossible to precisely describe both the location and the momentum of a particle at the same instant.

If we describe a particle's location with great precision, its momentum is left to description in terms of a system of complex numbers. In effect, we must 'force' the electron to absorb and then re-emit a photon so that a light detector can 'see' the electron. We know the precise location of both the photon source and the light detector. But even so, the momentum spoils our attempt. The absorption of a photon by the electron changes the momentum. The electron is therefore in a new direction when it re-emits the photon. Thus, detection of the re-emitted photon does not allow us to determine where the electron was when it absorbed the initial photon. If one carefully examines the language used in such theories, it is easy to detect the unconscious presence of metaphor. For example, no one really knows what the word *direction* means when it comes to atomic structure. All we can do is imagining it as if it applies to our sense of direction in our everyday real space.

As the foregoing discussion suggests, science does not progress in a linear fashion of objective approach; it moves forward through theoretical shifts and paradigm changes guided in part by metaphorical modeling, which helps scientists reformulate their theories and hypotheses. It is a manifestation of the MTH, which also suggests that scientists are unaware of the metaphorical processes involved. As one model breaks down under the weight of new facts, it is discarded and replaced with a new one. This process was called *falsification* by philosopher Karl Popper (1935, 1963). As he aptly put it, "Every genuine *test* of a theory is an attempt to falsify it, or to refute it. Testability is falsifiability; but there are degrees of testability: some theories are more testable, more exposed to refutation, than others; they take, as it were, greater risks" (Popper 1963, p. 34). In other words, it may take one counter observation to falsify an existing theoretical model.

Given the significance of metaphorical reasoning in theory construction, it is useful to review some of the essential notions that apply to the modern study of metaphor. Today, metaphor is seen not only as a figure of speech, but rather as a creative force, manifesting itself in verbal and nonverbal forms. This force is guided initially by lived experience. It enriches experience with imagination and this, in turn, suggests metaphorical ways of turning the experience into models. Edusemiotics acknowledges the leading role of experience in the informal learning process. It is not a coincidence that the theories of the atom discussed above were devised by scientists who lived in a world where heliocentric cosmology was the trigger behind the miniature solar system metaphor. Every metaphor implies a mental visualization of some inference or hunch. This is called an image schema in current theories of metaphor (Lakoff and Johnson 1980, 1999; Lakoff 1987; Lakoff and Núñez 2000). It is an imaginary outline that gives a visual form to the metaphorical thought. So, for example, in the solar system metaphor, the image schema consists of the outline of a central sphere with orbiting spheres around it. These then suggest various *diagrammatic representations* that give it a physical (concrete, visual) form. Image schemata are thus versions of what Charles S. Peirce called Existential Graphs, that—being externalized (expressed) models—he saw as more powerful than language because of their similarity of relations between the parts of some different set of entities in other domains. Therefore, a diagram displays what a metaphorical thought 'looks like' in the mind, that is, it shows the very

process of metaphorical thinking *in actu* (Peirce, CP 4). Peirce described his graphs as moving pictures of thought because through them one can literally see a given argument. It is “graphic language [that] allows us to experience a meaning visually as a set of transitional states, where the meaning is accessible in its entirety at any given here and now during its transformation” (Kiryuschenko 2012, p. 122).

The process is summarized as follows. A metaphorical hunch is connected to a mental image schema. Once formed, the schema can be expressed in outline form by a diagram. Each diagram then suggests a model—the Rutherford Model, the Bohr Model, the Schrödinger Model. Each of these models is not random or entirely novel; they are connected to previous models or other types of knowledge, constituting elaborations or modifications. Once these have been established, the model can be articulated as specific theory. Once the theory is established, it can be formalized in mathematics and articulated in language. From this, experiments, discussions, debates, and so on ensue. The process of theory-making, which undergirds the MTH, can be schematized as per Fig. 5.1.

Given their connection to metaphor, it comes as little surprise to find that the study of diagrams in science and mathematics in particular has become a productive area of investigation in recent years (Shin 1994; Chandrasekaran et al. 1995; Hammer 1995; Hammer and Shin 1996, 1998; Allwein and Barwise 1996; Barker-Plummer and Bailin 1997, 2001; Kulpa 2004; Stjernfelt 2007; Roberts 2009). Cumulatively, the research suggests that imagistic-metaphorical thinking is

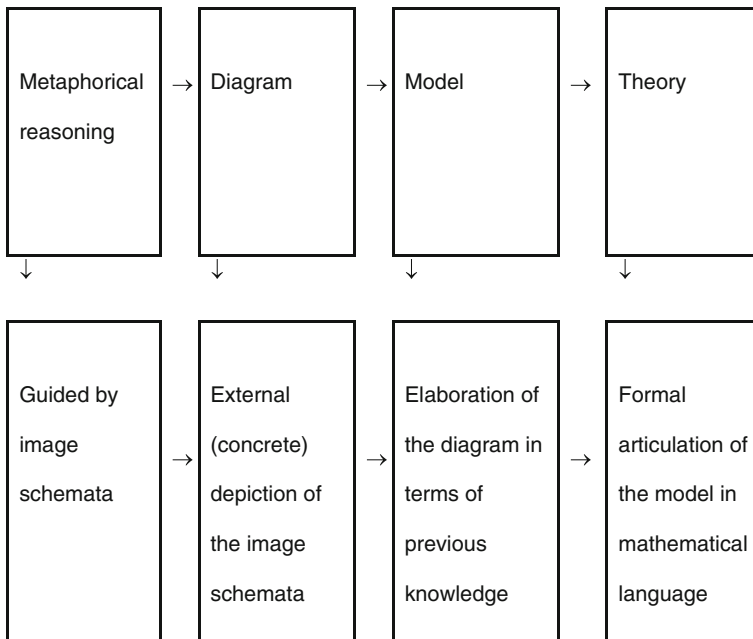


Fig. 5.1 Theory-making process

at the core of knowledge-making generally—an insight that was prefigured by Peirce’s notion of phaneroscopy, which he described as the formal analysis of phenomena apart from how they appear to interpreters and of their actual material content.

Expressed in language, we would literally not be able to *see* the possibilities that a diagram presents to us through its visual structure. To use Susan Langer’s (1948) concept of discursive-versus-presentational representation, it can be said that a diagram is a presentational form: it tells us much more than a statement because it literally presents the structure inherent in something, fleshing it out as an abstract visual form. We do not read a diagram, a melody, or an equation, she emphasized, as made up of individual bits and pieces (notes, shapes, or symbols), but presentationally, as a totality. Such is a holistic structure, the meaning of which is greater than the sum of its parts. Describing it in language (with sentences) is, instead, a discursive process, forcing us to think of the relevant insight or information in a different, semantically-constrained way. In other words, diagrams *show* relations that are not apparent in language and the latter cannot possibly do so without resorting to metaphor (Barwise and Etchemendy 1989; Allwein and Barwise 1996).

A diagram is the visual schema of a metaphor and, vice versa, a metaphor suggests the schema in the first place. Diagrams are inferences (informed guesses) that translate metaphorical hunches (raw guesses) visually. These then lead to what Peirce called abductions (insights). The process of cognition is complete after the ideas produced in this way are organized logically into a theory by deduction (Fig. 5.2).

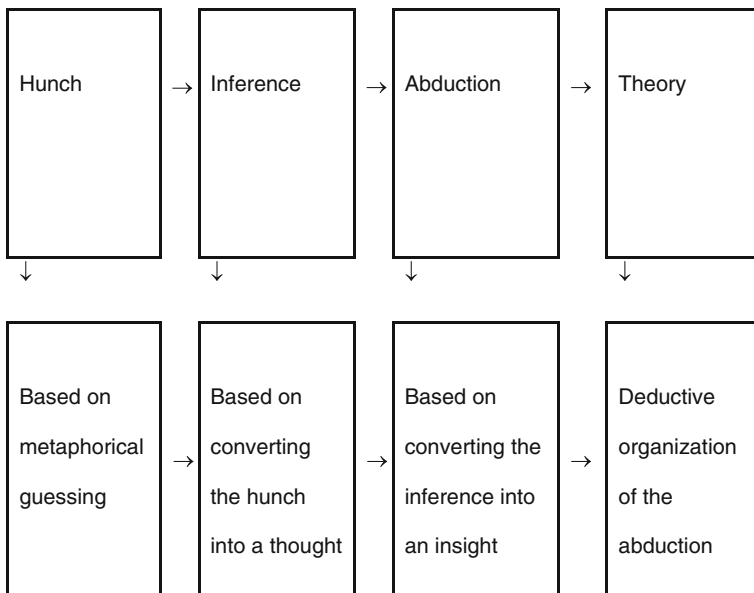


Fig. 5.2 Model of theory-making

Note that a diagram-model had to be used to portray how theories come about, making it evident that it is impossible to discuss any theory—including a discussion about what a theory is—without resorting to modeling. In sum, metaphor reveals how we interpret the world around us—the *Umwelt*—and imprint it into our models of that world—the *Innenwelt* (Uexküll 1909). It converts sensory and other experiences into internal image schemata and their derived conceptualizations. Cognitive linguists today differentiate metaphor from metonymy. Needless to say, metonymy also plays a role in theory formation, but at a more advanced, secondary, cognitive level. This does not mean that it does not figure into the construction of theories; but it does so subsequent to metaphor. Metaphor is a connective force in cognition; metonymy—a selective one, that is, it does not function to create knowledge through connective reasoning, but rather it allows us to cast specific light on certain situations so as to be able to make some comment on them. It is a modeling process that allows relations to be made explicit. As Marcus (2012) notes, it cannot be relegated to the margins as a cognitive force in science and mathematics:

Complementary to metaphorical thinking is metonymical thinking. The former is related to iconic thinking, the latter, to indexical thinking. Metonymy is everywhere in mathematics, either as *pars pro toto* or as in *if-then* thinking. The whole mathematical enterprise is metonymical, since mathematics is looking for a suitable representation of infinity by countable forms, then to reduce the latter to a finite representation and after that to reduce the large finite to the small finite. There is the claim that mathematics is the science of approximations; but approximation is a metonymical notion. Most real numbers have essentially infinite representations (decimal or by continuous fractions) and we try to capture finite parts of them, as large as possible. This process never stops. A famous example is the constant effort to capture the decimals of the number π . This began with Archimedes and is continued today in computer programs and by clever procedures such as those found in the notebooks of Ramanujan. The basic metonymy, *if-then*, is at the root of the deductive thinking essential in the final presentation of mathematical proofs. It is the main tool to validate a mathematical theorem (Marcus 2012, p. 146).

Since it is often not clear whether metaphor or metonymy is at work in some theory, the Metaphor-as-Theory Hypothesis can be renamed as the Metaphor-or-Metonymy-as-Theory Hypothesis (MMTH). This related hypothesis will not be discussed directly here, since for the present purposes the MTH will suffice.

Educational Theories

Educational theories are the result of the same cognitive process described above for theory-making in science. In effect, they are guided by the MTH. To use just one example, consider second language learning theory, which was guided by several metaphors throughout its history. One of these was the interference metaphor based on the everyday observation that speaking a new language generally implies enlisting the mechanisms of the native language. The evidence for this is the presence of interferences in learner speech. A simple example is what we colloquially call an accent, implying an interference with attempts to speak the target

language. The metaphorical hunch in this case can be expressed by a simple diagram (L_1 = native language, L_2 = target language): $L_1 \rightarrow L_2$. This diagram shows a unidirectional flow of information, from the known language to the language to be learned.

The diagram then suggests a model of language learning, whereby the habits of the L_1 are transferred to the learning of the L_2 . This model then leads to the so-called transfer theory and specific pedagogical practices. This theory did not come out of nowhere; it dovetailed with the spread of behaviorism in psychology and education in the 1930s and 1940s, which stressed habit-formation, imitation, and transfer. By the 1950s, this approach became a mainstream one, leading to a whole new method of language teaching in classrooms across North America and influencing the making of textbook materials that fit the model. The pedagogical insights came from the principles of induction into learning which are, in turn, based on the training metaphor discussed in the introduction above. So, the new pedagogy:

- stressed imitation, repetition, drills, and other kinds of habit-formation techniques (as in body training)
- emphasized the development of the four skills in sequential order—listening-speaking-reading-writing (much like the sequential phases in muscle-training exercises)
- stressed the formation of proper pronunciation habits from the very outset, even using ‘nonsense words’ to make sure that this goal was met
- stressed the use of the target language for everything except explanations of grammar
- introduced the ‘language laboratory’ so as to allow students to listen to pre-recorded tapes and respond to cues, thus assessing their pronunciation and comparing their efforts to those of native speakers.

The creators of this theory rejected previous theories, such as the one which claimed that L_2 -learning followed the same developmental path of L_1 -learning. The metaphor in this case was not $L_1 \rightarrow L_2$, but rather $L_1 \longleftrightarrow L_2$ or $L_1 = L_2$. Transfer theory saw the L_1 as a source of interference determining the ways in which students perceived and assimilated the L_2 . As the linguist Charles Fries (1927, 1945) observed, the motivation for transfer theory grew out of the common observations of the errors students typically make, along with the predictable difficulties they experience, especially during the early learning stages. Transfer theory led to the development of a new analytical technique called contrastive analysis, which language teachers used as the basis for designing textbooks and organizing the teaching syllabus. By ‘contrasting’ the target and native languages, they identified which features of pronunciation, grammar, and vocabulary would require more emphasis and which would not. Those L_2 features that were identical or similar to corresponding L_1 ones, would receive less pedagogical emphasis because the transfer process in this case—known as positive transfer—would allow the students to acquire them automatically. Those that differed radically would instead receive much more instructional salience because the

transfer process—negative transfer—would interfere with the student's efforts to learn the new habits and categories. In this way, positive transfer could be maximized and negative transfer minimized through pedagogical means. Those L₂ features that involved positive transfer would be taught at the start of a course of study, while those that were identified as dissimilar, and potentially involve negative transfer, would be taught later on.

As this theory embedded itself into pedagogical practices, it started, much like the early atomic theories above, to show inconsistencies with observed learning behaviors and with collected data. Robert Lado (1957, 1964) was among the first to see the need to incorporate cultural patterns into a course of study, since these were largely ignored in syllabi in the textbooks in educational psychology. If we teach Spanish language forms but refer to American cultural meanings, values, and patterns of behavior, we are not fully teaching Spanish, but rather English culture clothed in Spanish words (Lado 1964). Thus, a conversation at cross-purposes may continue indefinitely until it becomes blatantly obvious that something has gone awry. Aware of the shortcomings of transfer theory, given that it could not predict cultural transfer, many abandoned it, even though Lado had suggested ingenious ways to incorporate culture into the model and theory. But transfer theory left various residues.

One of these was Error Analysis (EA). Because of its focus on interferences, transfer theory made it obvious that it was necessary to distinguish between errors and mistakes. The latter are the blunders that students make, but which they can easily correct themselves because they are aware of the mistakes; the former, however, are predictable and explainable *deviations* caused by gaps in linguistic competence and thus the students are not aware of them. EA led shortly thereafter to interlanguage theory—the view that student discourse is characterized above all else by predictable, recurring errors (Selinker 1972). This is an offshoot of transfer theory. EAs of interlanguages made it obvious that there are two general types of errors committed typically by learners: (1) interlinguistic, which are caused by negative transfer; and (2) intralinguistic, which are caused by the same general learning mechanisms that characterize L₁ acquisition, that is, by generalization, analogy, simplification, and so on. An example of a typical interlinguistic error committed by English-speaking students of Italian is: *Io aspetto per Maria* = I am waiting for Mary. The correct form is *Io aspetto Maria*. The source of this error is the negative transfer of English *for* to the formation of the Italian sentence. In Italian the verb *aspettare* is transitive, whereas in English *to wait* is intransitive (requiring the preposition *for* before the object). Intralinguistic errors are caused instead by general processes intrinsic to language acquisition in general. They are very similar to the developmental errors that children manifest as they speak their L₁. Thus, for instance, when a non-native student of English produces the form *goed* (for *went*), he or she is guessing intelligently on the basis of what he or she already knows about past tense morphology (*play = played, try = tried, etc.*). Similarly, when a non-native student of Italian pluralizes *problema* (problem) as *probleme* (rather than *problemi*), he or she is guessing that the rule of *nouns ending in -a are pluralized by changing the -a to -e* applies to *problema*—but it does not!

The story above can be repeated throughout education, from math education to instruction in the humanities. Transfer theory led to interlanguage theory and this has led to many other contemporary theories. All of these are ultimately traceable back to transfer theory. This does not mean that transfer theory is ‘real’ in neuroscientific or psychological sense. It means that it has proved itself useful, in a semiotic pragmatic sense, and thus that the initial metaphorical hunch was partially valid because sure it was based on observation and experience. Other models exist, of course, within second language learning derived from different metaphorical hunches. The point is that there is no theory without an originating metaphor. Tracing the source of that metaphor and the empirical and pedagogical practices it has entailed is part of research in edusemiotics and exposing how metaphorical semiosis operates in the domain of theory-making.

Pedagogical Practices: The Metaphor-as-Practice Hypothesis

If metaphor is a large part of how we think and learn, then the implications for education are enormous—leading to the Metaphor-as-Practice Hypothesis (MPH). Lakoff and Núñez’s (2000) theoretical claim is that language and mathematics share neural processes converting bodily experiences into metaphorical systems of knowledge—a fact being confirmed by relevant research (Danesi 2016a). Body ‘turns’ into mind in accord with the major anti-dualistic postulate of edusemiotics. We prefer number systems based on ten because the human body has ten fingers, which we use instinctively to count. Lakoff and Núñez trace these representational tendencies to ‘linking metaphors’ or mental states that transform bodily processes into abstractions. Examining how these metaphors can be articulated in language, illustrated with diagrams, and used to teach problem-solving comes under the rubric of the MPH.

Mathematics involves the recruitment of everyday metaphorical mechanisms that give specific form to the mathematical imagination (Fauconnier and Turner 2002). Basically, this means that our brain is predisposed to understand things through metaphor and its offshoots (diagramming, modeling and so on). Diagrams permeate mathematics, both as heuristic devices and as models for illustrating theorems, conducting proofs, and so on. This is saliently evident in geometry where a diagram of a figure is itself an intrinsic part of a theorem or proof, guiding its logical demonstration and leading to further ideas and discoveries. Diagrammatic layouts such as the binomial expansion and the diagonal demonstrations by Georg Cantor, among others, are examples of diagrammatic models or proofs showing hidden structure that could not be envisioned or discovered in any other way. There is no mathematics without diagrams and diagrams, as discussed, are really visual image schemata.

In previous work (Danesi 2003, 2007) a project was designed to help teachers impart skill at solving word- or story problems onto elementary school students living in the Greater Toronto Area who were identified as experiencing ‘severe difficulties’ in this area of math learning. In those studies, it was claimed that if the work on metaphor and image schemata had educational relevance, then the incorporation of metaphor theory into math pedagogy should produce significant effects on the children’s learning capacities (English 1997). The project took place over seven years, with the aid of several research assistants at the University of Toronto who were trained in metaphor theory and especially on how to translate image schemata into heuristic diagrams that could purportedly help the students become more efficient at solving story problems. Math teachers in three local schools participated in the project by helping the research team identify the subjects for the project. The students named by the teachers were given a two-hour test consisting of 10 typical elementary level story problems. This allowed the team to ascertain that the students were indeed candidates for the project. Those who scored less than 20% solving capacity were selected—that is, they were able only to solve 2 out of 10 problems successfully. Seven students per year, ranging in age from 12 to 14, were chosen in this way. There were 49 students in all who were used as subjects over the period of the project.

Each student met with a member of the research team for 15 min after school hours on a specified day of the week during the first term of school. The same problems used in the classroom were taught again to each student using insights from metaphor theory: that is, the student was shown how to represent the problem with an image schematic diagram by converting the language into a graphic model. The progress of each student was charted on a regular basis. At the end of the school year, the actual math scores that each subject obtained in story problem-solving in class were compiled and assessed. At the end of the project, the average score for the group of 49 students went up from 20% success to an accumulated average of 82% (standard deviation of 2.3%)—an increase of over 400%. Although such incredibly positive results could be attributed simply to the fact that the students received extra individual attention, they nevertheless provided a clear basis for investigating the use of metaphor theory further in math education. After all, the students had been given special attention even prior to the intervention of the research team by their regular teachers and by special educators in the schools, with only minimal success.

Indirectly, this project indeed corroborated the MPH. The image schemata inherent in the language of the problems were given diagrammatic form and the students were taught how to flesh out these schemata and to diagrammatize them appropriately. In this way, the students have literally *seen* the relation between algebra and the diagrams. For example, the conceptual metaphor of time as quantity was shown with boxes as containers of time units—since this metaphor came up regularly in solving problems involving time. The specific type of diagrammatic strategy that was appropriate in each specific case was left up to the individual research assistant. But the underlying principle was the same—the diagram translated the image schemata used in the problem in a visual way. The edusemiotic

principle of the translation of signs, across words, images, numbers and diagrams demonstrated itself in practice. Over the seven years, virtually all study participants required no subsequent intervention in representing such problems after learning how to represent them metaphorically.

In the case of second language learning, an analogous type of pedagogical approach, based on the MPH, has established itself more generally under the rubric of conceptual fluency theory (Danesi 2016b). In general transfer theory, discussed above, the basic model shows that L_1 knowledge is transferred to the learning of the L_2 . As Lado pointed out, this theory holds for the transfer of strict linguistic habits, but it fails when cultural-metaphorical thinking is involved. This kind of transfer is conceptual—that is, it is a transfer process whereby learners put together the words and grammatical categories of the L_2 into sentences whose meanings reflect L_1 concepts. Simply put, students tend to ‘think’ in their L_1 while ‘speaking’ the L_2 . This guides their choice of words and other structures in the formation of sentences and utterances. If the thoughts and the language for them coincide, then the students display conceptual fluency; if not they show a lack of it (Danesi 1995). If the research discussed here is correct, then many concepts have a metaphorical structure; thus, the main implication is that metaphor must be incorporated directly into language pedagogy if native-like proficiency is to emerge in students. Early on, the teachability of conceptual fluency came under critical scrutiny. Valeva (1996) and Kecskes (1999) questioned whether it could be taught directly in a classroom setting. Valeva also argued that literal concepts cannot be ignored in the early stages of pedagogy. While her critique is certainly well founded, research has shown that conceptual fluency training is not stage-dependent, but situation-based (Kecskes 2000a, b). Thus, it can be incorporated into any phase of learning so as to make it conceptually realistic, rather than artificial, as in the abovementioned ‘nonsense word’ stage of behaviourism.

The issue thus comes down to identifying metaphorical content (differentiated conceptual systems) from other kinds of content. For example, in Italian to say ‘I am hot (weather)’ entails the image schema of the container—*Io ho caldo* (literally, ‘I have heat’). This means that the thought pattern involves using a noun rather than adjective. If the container is the environment, then the equivalent of ‘It is hot’ is *Fa caldo* (literally ‘It makes hot’). By analyzing grammatical structures (adjectives, verbs, and so on) in this way, one is *ipso facto* identifying the image schemata involved in a language and this is something that can be easily taught at any stage of learning (Hinkel 2006; Holme 2004, 2009, 2012). Cognitive linguistics that studies metaphor in language provides the relevant insights into devising appropriate pedagogy:

Cognitive Linguistics (CL) makes the functional assumption that form is motivated by meaning. CL also analyses form-meaning pairings as products of how cognition structures perception. CL thus helps teachers to fit language to the nature of the cognition that learns whilst devising modes of instruction that are better attuned to the nature of the language that has to be learnt...facets of a new approach are starting to emerge and that these can be broadly isolated according to four principles that comprise: embodied learning, conceptualization, the lexico-grammatical continuum, and usage. The principles interact one with

another to consolidate the use of some older classroom methods and to point towards new ways of analyzing and presenting English lexis and grammar. They also set down key principles to direct research into classroom learning (Holme 2012, p. 6).

Concluding Remarks

The MTH and the MPH are essentially notions that are meant to alert us to the role that metaphor plays, or should play, in education. The present foray into how metaphor undergirds educational theories and how it can be incorporated into pedagogical practices is really an edusemiotic one. The edusemiotican would (or should) ask: How does information become knowledge? It is in the modeling of information through sign-forms (metaphors, models, or diagrams) that we can get a glimpse into how this comes about. In effect, studying information in itself is useless unless we also study how we transform it into something meaningful to us. It is, as its etymology suggests—from Latin *information* meaning sketch or outline—nothing more than a *schema* without semiotic *form*. To give it a form is significant (cf. Semetsky 2010a). Conversely, deriving *content* from this form requires knowledge of how it was conceptualized, modeled, and used. The relation between the modeling of information and the information *per se* is intrinsic, and it is often impossible to differentiate between the two.

Edusemiotics can take us closer to solving the enigma of how we learn by positing experiential and experimental models (e.g., Semetsky 2007) and emphasizing the evolutionary process of the transformation of signs. This chapter, by documenting the connection between metaphors, models, diagrams, and learning theories, provides an insight not only in the nature of how education works, but in ourselves as signs who produce new theories, also signs, to be further interpreted in practice.

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Chapter 6

Education and Reasoning: Advancing a Peircean Edusemiotic

John Quay

Abstract Reasoning is central to education and to semiotics, however the contribution that semiotics has made over years to our understanding of reasoning has only recently come to focus with the inception of edusemiotics. In this chapter, the author tackles the question of the relevance of semiosis to education and introduces the reader to the basics of Peirce's semiotics from an educational perspective. Such an approach brings reasoning into focus addressing the basic features of semiotics that support the conduct of reasoning. Central here are signs, interpretants and the three basic kinds of reasoning: abduction, deduction, and induction. These together offer a theory of inquiry. The author concludes by suggesting that much more research needs to be done to connect education and semiotics as regards teaching and learning. All of this work falls within the purview of edusemiotics, which promises to bring together what have to date been rather disparate efforts aimed at achieving similar ends.

Introduction: Education and Semiotics

Why is semiotics important for education? This is a question which I must deal with first, in order to qualify the need for educators to embrace yet another term that purports to enrich our understanding and practice. It is also necessary in order to justify my framing of the basic features of the semiotic theory developed by Peirce that forms the second part of this chapter. Etymologically, the term "*semiotics*" derives from the ancient Greek words for sign and signal" (Danesi 2010, p. vii). But why are signs and signals so significant for education? And why are they so significant that the term "*edusemiotics*" (p. vii) may be coined?

Danesi (2010) points out that edusemiotics is born from "the idea of amalgamating signs with learning theory and education" (p. vii). Interest in such an amalgamation, embracing the work of Peirce especially, has been gaining ground

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since 2005, marked by research that appeared in two special issues of major journals in the field of philosophy of education, *Educational Philosophy and Theory* and *Studies in Philosophy and Education*; yet the profession continues to be puzzled over why signs, broadly understood, are so important to teaching and learning. The key connection is that signs are employed in reasoning. In fact Peirce regards signs as indispensable to all reasoning. It follows that we must understand how signs work in order to understand how reasoning works because we reason with signs. Writing on edusemiotics, Semetsky (2015) draws attention to this fact and the importance of the philosophical work of Peirce in comprehending the connection between semiotics and reasoning, and hence the pertinence of identifying edusemiotics as a branch of semiotics specifically focused on educational issues.

Peirce understood this connection between reasoning and education. Anderson (2005) has argued eloquently for the relevance of Peirce's work in this regard. I continue in the same vein as Anderson while also providing more detail in relation to Peirce's semiotic, thereby contributing to the development of our understanding of Peirce's work in the context of edusemiotics.

Peirce's Scenarios of Teaching

In exemplifying the relevance of Peirce's work to education, I employ a specific passage from Peirce within which he narrates a constructed account of possible educational scenarios, each aimed at conveying the importance of teaching reasoning in school. Peirce was not enamored with the current state of such teaching, noting that, "owing to several peculiar circumstances, good instruction in reasoning is exceedingly rare" (CP 1.657). His account exhibits four of these peculiar circumstances, with the first showcasing a pedagogical situation wherein a teacher's poor understanding of how reasoning works results in an inability to assist a student. Here, Peirce takes the teaching and learning of mathematics as an example, noting that the chief value of mathematics education lies in the teaching of deduction. And yet the logic and psychology which sit at the heart of the teaching and learning of such reasoning escape this teacher.

How few teachers understand the logic of mathematics! And how few understand the psychology of the puzzled pupil! The pupil meets with a difficulty in Euclid [geometry]. Two to one the reason is that there is a logical flaw. The boy, however, is conscious only of a mysterious hindrance. What his difficulty is he cannot tell the teacher; the teacher must teach him. Now the teacher probably never really saw the true logic of the passage. But he thinks he does because, owing to long familiarity, he has lost that sense of coming up against an invisible barrier that the boy feels. Had the teacher ever really conquered the logical difficulty himself, of course he would recognize just what it was, and thus would fulfill the first condition, at least, of being helpful. But not having conquered the difficulty, but only having worn out the sense of difficulty by familiarity, he simply cannot understand why the boy should feel any difficulty; and all he can do is to exclaim, "Oh, these stupid, stupid boys!" (Peirce, CP 1.657).

Peirce acknowledges that “in mathematics, the reasoning is frightfully intricate” (CP 3.560), thereby requiring a teacher to have worked through this intricacy in order to be able to share experience of any logical difficulty encountered by a student. This shared experience of reasoning is critical in teaching. Being able to empathize with the reasoning of another person embraces many of the ethical aspects of teaching. However, it is not mastery of the mechanics of any particular logical difficulty which Peirce is trumpeting.

In the second scenario, we have a very different teacher, one who is an expert in reasoning. The teacher employs this expertise to induct students into better reasoning, but in such a way that the teacher’s care for reasoning outweighs concern for students’ long term growth. In this sense they are taught reasoning as if it is a mechanical exercise, perfecting techniques relevant to particular problems. In relation to these problems they are experts, thereby instilling a level of arrogance. But they do not have the expert’s ability to make their own judgments in connection with logical problems of a type they may not have yet encountered.

But suppose, by some extraordinary conjunction of the planets, a really good teacher of reasoning were to be appointed, what would be his first care? It would be to guard his scholars from that malady with which logic is usually infested, so that unless it runs off them like water from a duck, it is sure to make them the very worst of reasoners, namely, unfair reasoners, and what is worse unconsciously unfair, for the rest of their lives (Peirce, CP 1.657).

Peirce’s account in this second scenario is somewhat cryptic. The malady he refers to is most likely the one explained in the first scenario. The students are led through this logical malady in a script-like way by the teacher’s teaching. However, the logical problems they may confront when beyond the teacher’s aid are then positioned as either: (1) easy—running off them like water off a duck’s back—because falling within the gamut of the mechanical processes they have been taught; or (2) difficult—making them the worst of reasoners—because these students haven’t actually learnt to reason independently but just apply logical rules. Their arrogance leaves them unaware as to their lack of independent reasoning ability. This is different in the third scenario, however, where the teacher does not merely teach them the formalities in order to provide a way through logical problems, but instead takes the time to induct students into independent reasoning, thereby arming them with the capacity to make their own reasoned judgments in situations they may not have previously encountered.

The good teacher will therefore take the utmost pains to prevent the scholars getting puffed up with their logical acquirements. He will wish to impregnate them with the right way of looking at reasoning before they shall be aware that they have learned anything; and he will not mind giving considerable time to that, for it is worth a great deal (Peirce, CP 1.657).

The good teacher of reasoning is most concerned with the growth of students, especially aware that this continues beyond the time spent with the teacher. For this a more general approach to logic is required, beyond the teaching of mere rules to the incorporation of the capacity to make judgments. In the fourth scenario, Peirce highlights how this aim is often thwarted as students, their parents, and others

involved with education look towards assessment outcomes that are measured in the short term in order to gauge educational success. It is interesting that this aspect of the educational situation has spanned more than a century of educational experience, at least.

But now come the examiner and the pupil himself. They want results, tangible to them. The teacher is dismissed as a failure, or, if he is allowed another chance, he will take good care to reverse the method of his teaching and give them results—especially, as that is the lazy way (Peirce, CP 1.657).

Teaching to the test does not require students to struggle towards a well developed grasp of reasoning, nor does it require as much from the teacher. These are some of the problems with schooling that stand in the way of developing good reasoners. In order to rectify this situation it would seem necessary to assist teachers to develop a much deeper understanding of reasoning. This is a primary goal of edusemiotics, which emphasizes such understanding as supportive of the theory-practice nexus.

Semiosis as Experience

What Peirce does not mention through these educational scenarios is the detail of his semiotic theory, his theory of signs, his theory of logic (all of which mean basically the same thing), which would presumably be requisite knowledge for the good teacher of reasoning. For Peirce, “logic, in its general sense, is only another name for *semiotic* ({{sêmeiōtiké}}),” which is the “doctrine of signs” (CP 2.227), or “the doctrine of the essential nature and fundamental varieties of possible semiosis” (CP 5.488). This emphasis on semiosis highlights a broadening of the traditional ‘business’ of logic to include “ascertaining methods of sound reasoning” (CP 2.200). So, he suggests, “in studying logic, you hope to correct your present ideas of what reasoning is good, what bad” (CP 2.191). This seems like sound advice for a teacher. However there is further justification.

Peirce positions logic as one of “five theoretical sciences” (CP 2.120), the others being mathematics, phenomenology (philosophy), aesthetics and ethics. “All the other sciences but those five ... depend upon Logic,” which “does not mean merely that they practice logical reasoning”; more than this, “they draw principles from the theory of logic” (CP 2.121). This suggests that the subject disciplines which make up the academic curriculum in schools all draw on logical theory, for they are, in Peirce’s classification, “special sciences” (CP 1.184); they are not foundational in a theoretical sense. The connection of logic with each special science is through reasoning, through thought, which requires signs. Peirce considers logic to be “the theory of self-controlled, or deliberate, thought” (CP 1.191). And with “all thought being performed by means of signs, logic may be regarded as the science of the general laws of signs” (CP 1.191). Therefore logic sits underneath the school curriculum as a point of common foundation for each subject, although it is more

often than not reduced to mere analytic reasoning. Missing here is the breadth that Peirce perceives, that is, logic understood as semiotics.

Semiotics does not so much concern itself with the cleverness of the rules of logic, as the teacher, expert in reasoning, was apt to expound. Instead, as semiosis, logic is the science of “true representation, so far as representation can be known without any gathering of special facts beyond our ordinary daily life” (CP 1.539). In short then, it is “the philosophy of representation” (CP 1.539). This reference to ‘our ordinary daily life’ is crucial to comprehending the experiential underpinnings of Peirce’s semiotic, constructed, as it is, philosophically. Philosophy, for Peirce, is confined “to the universal phenomena of experience; and these are, generally speaking, sufficiently revealed in the ordinary observations of every-day life. I would even grant,” he continues, “that philosophy, in the strictest sense, confines itself to such observations as must be open to every intelligence which can learn from experience” (CP 3.428). It is evident that Peirce uses “the word ‘experience’ in a much broader sense than it carries in the special sciences” (CP 7.538). In contrast to these special sciences, “for philosophy, which is the science which sets in order those observations which lie open to every man every day and hour, experience can only mean the total cognitive result of living, and includes interpretations quite as truly as it does the matter of sense” (CP 7.538).

Experience is the philosophical origin of semiotics. And in connection with our exploration of a Peircean edusemiotic, it is apt for him to acknowledge that “experience is our only teacher” (CP 5.50); for semiotics embraces “the characters of all signs used by a ‘scientific’ intelligence, that is to say, by an intelligence capable of learning by experience” (CP 2.227). This experiential learning is impressed upon us by the actuality of experience, which can be described as a brute two-way interaction between things. It is important to recognize that Peirce’s philosophy of experience, and thus his semiotic, is underpinned by his universal categories of experience, which he names Firstness, Secondness and Thirdness; Secondness is the category pertaining to experience comprehended as brute interaction. However a detailed exposition of these categories lies beyond the scope of this chapter. My interpretation of these categories may be accessed in Quay (2013).

Peirce acknowledges that “all dynamical action ... physical or psychical, either takes place between two subjects [whether they react equally upon each other, or one is agent and the other patient, entirely or partially] or ... is a resultant of such actions between pairs” (CP 5.484). However he also points out the central caveat of semiosis: that it involves “a cooperation of three subjects, such as a sign, its object, and its interpretant, this tri-relative influence not being in any way resolvable into actions between pairs” (CP 5.484). Peirce refers to this tri-relative influence as semiosis because the meaning of this word conveys the sense that signs *act* in this tri-relative manner. Such action is meaningful, and ultimately intelligent: it is not just brute, mechanical interaction.

Peirce’s philosophical (phenomenological) investigations illuminate the phenomenon of experience as involving not only the brute actuality of interaction between *two* as a pair, but also the interpretation of this interaction, which engenders *three*. He stresses that such triadic relation pertains to *genuine* signs,

meaning that “its three members are bound together by it in a way that does not consist in any complexus of dyadic relations” (CP 2.274). In other words, semiosis captures ordinary living experience as a phenomenon; it is not a drawn out series of steps but an immediate event which includes a cognitive component. This is not ‘awareness of an object’ *then* ‘awareness of object as a sign’ *then* ‘interpretation of that sign as something’ thereby giving the object. Semiosis *can* confusingly appear as a series of steps in a process, but this is not the immediacy of one single unit as a triad comprising sign-object-interpretant. Instead, steps are an extension of semiosis wherein one thought (as sign-object-interpretant) can lead to other thoughts (as sign-object-interpretant). Thus semiosis is a dynamic process that involves a continuous interpretation of signs, ensuring a string of representations as the growth of reason *per se*—but more on this later. For now the important point to comprehend is that, in living experience, the sign acts as the object (we say that it represents the object) understood in a particular way, this understanding being the interpretant. All three—sign-object-interpretant—are contemporaneous. Hence semiosis *is* living experience, because living experience is constituted by the activity of signs.

In the following sections I introduce the basic features of Peirce’s semiotic. These include: (1) signs and their three basic types when considered in relation to objects; (2) interpretants and their three basic types when considered in relation to objects; and (3) reasoning and its three basic forms when considered in relation to signs and interpretants. However, in introducing these basic features of Peirce’s semiotics, I am very aware that I have barely scratched the surface of the complexity of inter-connections that may accrue to these basic features. The categories Firstness, Secondness and Thirdness are the “conceptions of complexity” (Peirce, CP 1.526). Peirce’s work is replete with accounts of these added layers of semiotic complexity, but even he acknowledged himself “a pioneer ... in the work of clearing and opening up ... *semiotic*” (CP 5.488). There is much still to be done in semiotics, and current work in edusemiotics intends to pick up where Peirce has left off.

Sign-Object-Interpretant as Semiosis

Most of us are generally familiar with what a sign is. By a sign Peirce means “anything which conveys any definite notion of an object in any way” (CP 1. 540). Hence, in the other direction, “that thing which causes a sign as such is called the object” (CP 5.473). In another definition which seems to twist these three around each other, Peirce claims that a sign is “anything which determines something else (its interpretant) to refer to an object to which itself [the sign] refers (its object) in the same way” (CP 2.303). Unraveling this twisting reveals a sign, an object and an interpretant all functioning together in living experience. Introducing one of his many neologisms, Peirce labels a sign *per se* a *representamen* so as to capture the fact that a sign represents an object, but in a representing, which happens in the immediacy of living experience. In other words, “the sign is almost (is representative of) that thing” (CP 5.309). Acknowledging the immediacy of semiosis as the

action of signs, one could say that a sign does not *re*-present an object but just simply presents it, already interpreted in a particular way. So, in living experience, the sign is (representative of) the object, which, Peirce points out, may take a variety of forms, three to be exact; in each the sign is “determined to some species of correspondence with that object” (CP 5.473), and hence he identifies “three kinds of signs” (CP 1.369) which he considers to be indispensable to all reasoning. It is important to note that by identifying these three kinds of signs—icon, index and symbol—Peirce is highlighting that not all signs are verbal (symbolic). Semiotics surpasses linguistics.

The first kind of sign is the “diagrammatic sign or icon” (Peirce, CP 1.369). The icon is distinguished because it is similar or analogous to that which it represents. The second kind of sign is the “index” (CP 1.369). An index points to the intended object, however it does nothing more than this; for instance, like a pronoun, it points to but does not describe the object. The third kind of sign is the symbol. This sign offers a description of the object through an “association of ideas or habitual connection between the name and the character signified” (CP 1.369).

This division of signs “into Icons, Indices and Symbols depends upon the different possible relations of a Sign to its Dynamical Object” (CP 4.536). A similar division into three kinds also applies to the interpretant, suggesting three different ways in which interpretants may act as the interpretation of signs. In broad terms the interpretant is the manner in which the ‘definite notion of an object’ is comprehended. In other words an interpretant is the interpretation that goes hand in hand with the immediacy of semiosis—sign-representing-object—in living experience. Peirce describes interpretants as “proper significate effects, of signs” (CP 5.475), the plural indicating the possibility of more than one kind of interpretant, of which there are three: emotional interpretants (to do with feeling), energetic interpretants (to do with acting) and logical interpretants (to do with thinking).

The first proper significate effect of a sign is a feeling produced by it. There is almost always a feeling which we come to interpret as evidence that we comprehend the proper effect of the sign, although the foundation of truth in this is frequently very slight. This “emotional interpretant,” as I call it, may amount to much more than that feeling of recognition; and in some cases, it is the only proper significate effect that the sign produces (Peirce, CP 5.475).

Peirce does not mean to suggest that we are always aware of the way we feel. Rather, his point is that living is always imbued with feeling, with emotion: semiosis is emotional (due to the ever-presence of Firstness). As an example of an emotional interpretants Peirce offers the feeling conveyed through a musical performance at a concert which, interpreted as a sign (here an icon), “conveys, and is intended to convey, the composer’s musical ideas; but these usually consist merely in a series of feelings” (CP 5.475). Feeling in a particular way, as emotional interpretant, is the already existent, even if subtle and not cognitive, interpretation present in genuine signs.

Now “if a sign produces any further proper significate effect” beyond such feeling, “it will do so through the mediation of the emotional interpretant, and such

further effect will always involve an effort” (CP 5.475). This point about ‘mediation’ is important as it highlights how the emotional interpretant, and concomitantly the sign’s iconic character, is always there in some form, even if unperceived. However Peirce’s use of the word mediation here can be confusing when such mediation is immediate; and Peirce indeed acknowledged such paradoxical, semi-otic, logic in terms of “mediated immediacy” (CP 5. 181) as a quality of genuine signs (cf. Semetsky 2005).

Any effort or action that accompanies the emotional interpretants Peirce calls the “energetic interpretants,” acknowledging that this action may be just muscular or physical; but more usually it is a “mental effort” (CP 5.475). This muscular and/or mental action, as interpretant, is a habituated understanding of the sign. The energetic interpretant is a “single act” (CP 5.475) which goes hand in hand with the index. ‘Single’ points to the act being particular, immediate, and not yet intellectualized: it is not thought through for its meaning, purpose or any other aspect. This is the actuality of experience.

Continuing Peirce’s example, the signification of a particular piece of music is emotional in some way, such as joyous, whilst also possibly being accompanied by action in some form, such as dancing or reminiscing (single muscular/mental act only). Dancing and reminiscing are two examples of possible energetic interpretants, yet there may also exist a third type of interpretant which Peirce calls “the logical interpretant” (CP 5.476). While the emotional interpretant is a feeling and the energetic interpretant is an action (that in its causal or functional sense constitutes an index), the logical interpretant is “a thought” (CP 5.476). This may seem confusing when we have just spoken of reminiscing, which most would consider a form of thinking, but as an energetic interpretant reminiscing is a single act, not the thought itself. A logical interpretant is the habituated thought that accompanies a sign in the three-way connection between sign, thing signified, and cognition produced in the mind.

Recapping these basic features of Peirce’s semiotic, we have the activity of signs, semiosis, occurring through the triadic relations as sign-object-interpretant. A sign is called a representamen because it represents an object. This representation can be of three basic kinds. Signs may be icons, where they convey an object by way of similarity or analogy; they may be indices which basically point to an object; or they may be symbols which represent an object in thought. An interpretant is the interpretation connected with a sign, and thus is the way an object is understood. Interpretants may also be of three kinds. Interpretants may be emotional, where a sign is interpreted via feeling; energetic, where a sign is interpreted via action; or logical, where a sign is interpreted as a thought or idea. These are some of the basic features of Peirce’s semiotic. In the next section I explore how Peirce’s conception of semiosis works in reasoning through the capacity of the logical interpretant to itself act as a sign.

Semiosis and Reasoning

Important in connection with development of edusemiotics is Peirce's claim that "all learning is virtually reasoning; that is to say, if not reasoning, it only differs therefrom in being too low in consciousness to be controllable" (CP 7.536). Reasoning employs semiosis: the active tri-relative dynamics of sign-object-interpretant. It accomplishes this through the logical interpretant, which, being of thought, can itself be a sign and thus its capacity for representation can be extended beyond the immediacy of living experience (which holds emotional and energetic interpretants captive). It is through this capacity of thought that the complexity, or better intricacy, of semiosis is made available as, specifically, *reasoning*.

In explaining the nature of logical interpretants, Peirce is clear that concepts, propositions and arguments may be logical interpretants. Each of these, as logical interpretants, may be "general" in relation to their "possibilities of reference" (CP 5.486). This means that the logical interpretant—a concept, proposition or argument—can move beyond the immediate experience of the triad of sign-object-interpretant encountered in the 'real' world and itself function as a sign in thought, a sign which can *generalize in its connection with objects and interpretants*. The tri-relative structure of sign-object-interpretant still holds in the immediacy of thought, however it is freed from its dependence on any particular object in the 'real' world, with the logical interpretant now being the object represented by a new sign with a new interpretant. The range of possibilities open to semiosis thus expands greatly. This added intricacy is visible in much of Peirce's more detailed work on semiosis. Here I share a representative quote from Peirce (complete with classificatory neologisms) to show what begins to open up in the realm of the logical complexity that underpins human reasoning. Notable is the extent to which this exceeds our usual conception of rationality inherited from Descartes.

A Term is a sign which leaves its Object, and *a fortiori* its Interpretant, to be what it may. A *Proposition* is a sign which distinctly indicates the Object which it denotes, called its *Subject*, but leaves its Interpretant to be what it may. An *Argument* is a sign which distinctly represents the Interpretant, called its *Conclusion*, which it is intended to determine. That which remains of a Proposition after removal of its Subject is a Term (a rhema) called its Predicate. That which remains of an Argument when its Conclusion is removed is a Proposition called its Premiss, or (since it is ordinarily copulative) more usually its Premisses... (Peirce, CP 2.95).

This level of complexity lies beyond the scope of this chapter, and so I will not even attempt to explain the rich semiotic detail embedded in the abovementioned passage from Peirce. Suffice to say that Peirce considers every thought to be a sign, which reveals how important it is to grasp how signs work, thus contributing to research in edusemiotics. But significantly, this capacity does not apply to action. Action cannot be a logical interpretant, "because it lacks generality" (CP 5.491). This has ramifications for emotional and energetic interpretants.

Both emotional and energetic interpretants, feeling and acting, are held in the immediate moment of living experience in the 'real' world of sign-object-interpretant

relations—what Peirce calls the outer world as opposed to the inner world—whereas a logical interpretant, a thought (which could very well be a thought about feeling and/or acting), can be itself taken as a sign and thus have its own logical interpretant. Each thought is a mental sign which “must itself have a logical interpretant” (CP 5.476), or at least the possibility of same. For “it is not to be supposed that upon every presentation of a sign capable of producing a logical interpretant, such interpretant is actually produced” (CP 5.489). The capacity of logical interpretants to act as signs creates a situation where “one thought brings forth another” (CP 2.229), revealing the dynamic character of semiosis in its full force. Thoughts (concepts) act as signs that offer generality in their connection with objects and interpretants, leading to further thoughts (concepts) which act as signs that offer generality in connection with objects and interpretants, seemingly *ad infinitum*.

The process of signs (thoughts) being transformed into other signs (thoughts) demonstrates the presence of abduction sitting alongside deduction and induction as one of “three elementary kinds of reasoning” (CP 8.209). Abduction is extremely important for reasoning because it is the only logical operation which introduces new ideas. Abductive inference is the “process of forming an explanatory hypothesis” (CP 5.171). Abduction is distinguished from induction, which “does nothing but determine a value,” and deduction, which “merely evolves the necessary consequences of a pure hypothesis” (CP 5.171). Deduction is the form of reasoning which is “applicable only to an ideal state of things, or to a state of things in so far as it may conform to an ideal” (CP 8.209). Deduction infers (deducts) particular instances from a theoretical position, using the theory to see if particular instances work. In contrast, induction infers (inducts) a theoretical position using particular instances, using particulars to see if a certain theory works (as in experimentation). However neither deduction nor induction can enable us to posit a theory. Induction “sets out with a theory and it measures the degree of concordance of that theory with fact” (CP 5.145). But induction never originates an idea, and neither can deduction. This is where abduction comes in: it is “Abduction [that] makes its start from the facts, without, at the outset, having any particular theory in view, though it is motivated [sic] by the feeling that a theory is needed to explain the surprising facts” (CP 7.218). In this sense “abduction ... is merely preparatory. It is the first step of scientific reasoning, as induction is the concluding step” (CP 7.218).

The method of either is the very reverse of the other’s. Induction makes its start from a hypothesis which seems to recommend itself, without at the outset having any particular facts in view, though it feels the need of facts to support the theory. Abduction seeks a theory. Induction seeks for facts. In abduction the consideration of the facts suggests the hypothesis. In induction the study of the hypothesis suggests the experiments which bring to light the very facts to which the hypothesis had pointed (Peirce, CP 7.218).

Embedded in this account is Peirce’s logical study of the theory of inquiry as his “general theory of how research must be performed” (CP 2.106), which is, of course, immensely important to edusemiotics. Addressing educational research methods is one of the current tasks of edusemiotics. For Peirce, inquiry requires reasoning, however it is often instigated by surprise, as “it is by surprises that

experience teaches all she deigns to teach us” (CP 5.51). Surprise forces its way into our recognition when we may be expecting a different result. In this way the element of surprise is “efficient in breaking up associations of ideas” (CP 5.478), thereby breaking open an existent *structure* of the sign-object-(logical) interpretant triad and enabling reasoning to initiate a *process* of inquiry consisting in interpreting and creating new signs.

Abduction having suggested a theory, we employ deduction to deduce from that ideal theory a promiscuous variety of consequences to the effect that if we perform certain acts we shall find ourselves confronted with certain experiences. We then proceed to try these experiments, and if the predictions of the theory are verified, we have a proportionate confidence that the experiments that remain to be tried will confirm the theory (Peirce, CP 8.209).

Hence “all the ideas of science come to it by the way of Abduction” (CP 5.145). And where abduction involves development of theory to explain facts, induction is concerned with the testing of theory through experimentation. Peirce’s theory of inquiry, initiated in experience by surprise, moves through three kinds of reasoning—abduction, deduction and induction—by employing the dynamics of semiosis. Within reasoning, thoughts build on thoughts, however Peirce is aware that we can sometimes get lost in thought in this way, lost in over-generalization. At some point thought must reconnect with action beyond thinking, with a habit that acts in the ‘real’ world, which can be tested through induction. “Thus the formation of a habit is an induction” (CP 5.297).

In pursuing this reconnection of thought with action, Peirce acknowledges that the “concept which is a logical interpretant is only imperfectly so” in that “it somewhat partakes of the nature of a verbal definition, and is as inferior to the habit, and much in the same way, as a verbal definition is inferior to the real definition” (CP 5.491). In other words, the concept may take the form of a verbal definition *or* a ‘real’ definition, which is the living (*enacted*) definition. A merely verbal definition as plain naming is still separate from the meta-level of practical action; while a real-life definition is the “most perfect account of a concept that words can convey” because it consists in a “description of the habit which that concept is calculated to produce” (CP 5.491). Hence when the concept is of the form of a real or living definition, it is “a description of the kind of action to which it [the concept] gives rise” (CP 5.491).

Adding further to this characterization of the logical interpretant, Peirce claims “that it [a logical interpretant in the form of a concept, proposition or argument] cannot be the final logical interpretant, for the reason that it is itself a sign of that very kind that has itself a logical interpretant” (CP 5.491). The logical finality that Peirce is seeking here is one that will enable a thought to *impact* on action, rather than just on future thoughts. For this, the logical interpretant must be more than a concept, proposition or argument; it must be considered a law, for a law is a living description of action, the logical counterpart of a habit. Hence a “law never can be embodied in its character as a law except by determining a habit” (CP 1.536). And conversely, “every habit has, or is, a general law” (CP 2.148).

Here Peirce is working to overcome the general tendency to consider thought as disconnected from action in “the real world” (CP 1.348). He does this by highlighting the importance of thought to human conduct. This is a central plank of his pragmatism (or pragmaticism) which has a close bearing on edusemiotics in regard to overcoming what has been a persistent knowledge-action dichotomy. This connection between thought and action implies that a law, as a “true general” cannot exist unless there is some possibility that it could, at some time, be “embodied in a fact” (CP 1.304) or, in other words, have a ‘real’ world existence. Thought is *embodied* in action: the central tenet of edusemiotics (Stables and Semetsky 2015). Reasoning is a production of mental signs, the final of which in any series has a law, a new law, as its logical interpretant. And a new law (in thought, that is, still at the level of theory) means the formation of a new habit (manifesting in our action at the level of practice).

The conclusion of inquiry is a habit, of which a previous version was the real beginning of inquiry. Surprise opens up the semiosis which constitutes a habit enabling the various configurations of sign-object-interpretant at the heart of this semiosis to be rethought through abduction, deduction and induction. The capacity to *alter* habit through thought is central to Peirce’s semiotics, a key contribution of which is his insight that signs *act*. This is “learning by experience” (CP 2.227) which is the activity of inquiry, employing reasoning to connect thought with habit and “*habit-change*” (CP 5.476) via the use of signs as sign-object-interpretant.

Conclusion

In this chapter I have only scratched the surface in relation to all that Peirce achieved in fleshing out and articulating his semiotic. More work needs to be done connecting the finer detail of his semiotic with education, and indeed extending it, as Peirce hoped would occur. For even he admitted to the “the field” being “too vast, the labor too great, for a first-comer” (Peirce, CP 5.488). And if the importance of such work to education is recognized, aptly labeled edusemiotics, then the teaching of reasoning also becomes a central concern. However the challenge remains as to how to best incorporate such teaching into the curriculum of schools, as Peirce indeed appreciated more than a century ago.

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Chapter 7

No Surprise in the ‘Surprise Effect’ of Values Pedagogy: An Edusemiotic Analysis

Terence J. Lovat

Abstract Data from the Australian Values Education Program, a series of school-based research-on-practice projects that ran through 385 Australian schools from 2003 to 2010, demonstrated enhanced holistic effects in students evaluated across wellbeing, maturation and academics. This oft-termed ‘surprise effect’ represents a challenge to traditional Western educational logic that considers learning as resulting principally from cognitive effort and concentration; with affective, social, moral, spiritual and aesthetic concerns being of less importance, if relevant at all. The chapter traces different theories of knowledge: from logical positivism, to Quine, to Habermas, to Damasio. The data collected and analysed in the course of the Australian Values Education Program showed that concentration on all developmental measures, while focusing on values of the learning environment and discourse, elicited an enhanced learning effect, including academic diligence. It is argued in this chapter that the research data in values education serve to illustrate that the unhelpful but still dominant Western educational logic is being superseded by new insights in epistemology, neuroscience, and complex systems science that parallel edusemiotics as a new theoretical foundation for education.

Introducing the Australian Values Education Program

The dimension of values is prominent in edusemiotics—a conceptual framework that overcomes the dualism between subject and object, between body and mind, between cognition and emotion. It also problematizes the long-standing goals of Western education that prioritize academic success over moral development. In this respect, the Australian Values Education Program, a federally funded set of research and practice projects, serves as a notable predecessor. The program began with a pilot study in 2003 (DEST 2003), followed by the development of a National Framework for Values Education (NFVE) in 2005 (DEST 2005) and a series of

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school-based projects from 2005 to 2010, the most substantial being the two-stage *Values Education Good Practice Schools Project* or VEGPSP (DEST 2006; DEEWR 2008) and the *Project to Test and Measure the Impact of Values Education on Student Effects and School Ambience*, abbreviated as T&M (Lovat et al. 2009). It concluded with the *Values in Action Schools Project* or VASP (DEEWR 2010).

385 schools were involved across all projects, covering all stages of learning; and across all major sectors, government, private and religious. 316 of the schools, comprising some 100,000 students, 5000 teachers and 50 University researchers were involved in the two stages of VEGPSP. There were 51 clusters of schools, with each cluster engaged in a values education implementation of its own choosing, design and management, as approved and overseen by the research team. Such approval required each implementation to be able to demonstrate that it was in accord with the central principles espoused in NFVE, consisting of core values that would be elicited in implicit ways (e.g., student-teacher relationships, overall school ambience) and explicit ways (e.g., in assembly and classroom discourse and curriculum interpretation). Findings illustrated the connection between values education and ‘good practice pedagogy’ with positive effects across a range of educational goals: emotional, social, moral and academic. Many of the reports from the school-based projects identified a greater sense of calm and improved behavior and communication among students and between students and teachers. Reports spoke of enhanced reflectivity on the part of students, greater responsibility demonstrated over local, national and international issues, enhanced student resilience and social skills, improved relationships of care and trust between students and students and teachers, with students claiming a greater sense of belonging, connectedness and resilience. Reports from teachers, school principals and university researchers referred to the improved ambience for learning leading to demonstrated advances in intellectual engagement, more focused work habits and strengthened academic diligence. Typical of such reports was one that summarized the effect in the following way:

Everyone in the classroom exchange, teachers and students alike, became more conscious of trying to be respectful, trying to do their best, and trying to give others a fair go (be fair and just in treatment of others). We also found that by creating an environment where these values were constantly shaping classroom activity, teachers and students were happier, and school was calmer ... student learning was improving (DEST 2006, p. 120).

In the T&M evaluation study (Lovat et al. 2009), a sample of the data underpinning the reports was subjected to formal instrumentation and measurement in order to ascertain whether the positive effects of a values education intervention, such as had been widely claimed in the projects, could be ‘tested empirically and observed reliably’. The testing and measuring focused on four factors related to student achievement such as school ambience, student-teacher relationships, student wellbeing and academic diligence. A particular effect on academic diligence is summarized as follows:

Thus, there was substantial quantitative and qualitative evidence suggesting that there were observable and measurable improvements in students’ academic diligence, including increased attentiveness, a greater capacity to work independently as well as more cooperatively, greater care and effort being invested in schoolwork and students assuming more responsibility for their own learning as well as classroom “chores” (Lovat et al. 2009, p. 6).

Hence, the case seemed to be substantially made that values education, when implemented in the way described, could serve as an effective holistic pedagogy, rendering positive effects on the vital range of indicators associated with student achievement and overall wellbeing. As these effects were first noted and then accumulated from the pilot study to the final project, the parlance of ‘surprise effect’ became common. Especially early on, it was as though there must be more to it than merely values education as the driving pedagogy, or what we would eventually refer to simply as *values pedagogy* (Lovat et al. 2011a). One senses that the surprise that a values-filled ambience together with a values-oriented learning discourse could have such an impact, results from a set of assumptions about learning that have possibly complicated rather than facilitated it, constituting a kind of blind spot in Western education. It is such blind spots that edusemiotics is designed in part to uncover, inform and enlighten.

In the case of the surprise effect that surrounded the impact of values pedagogy, I argue that two of the blind spots pertain to assumptions about what constitutes the process of knowing and, in a related sense, about the ways the human brain functions. It is to the epistemological and neuroscientific research domains that I now turn addressing each one separately, and then in conjunction; in the spirit of edusemiotics as a holistic philosophy of education that as such inclines toward holism in its appraisal of *any* phenomenon.

Assumptions About Knowing: Empirical Versus Complexity Science

Classical empirical science has exhibited a monopoly on all knowledge claims since the 19th century and arguably before. It centers on a narrow conception of what constitutes knowledge and truth. Alfred J. Ayer, a British philosopher, was one of the more articulate architects of the conception of logical positivism in parallel to the method of empirical science. Ayer (1936) maintained that there were only two types of genuine propositions regarding knowledge, namely, the analytic and the synthetic: “a proposition is analytic when its validity depends solely on the definitions of the symbols it contains, and synthetic when its validity is determined by the facts of experience” (p. 105). In a word, apart from the propositions of mathematics and logic, the only other propositions that should be considered to be valid truth claims are those about the real world confirmed by means of empirical verification, essentially meaning by observation and/or experimentation. Typically, the propositions of science can be tested in this way, whereas the propositions of the arts, humanities, religion, morality, aesthetics and the emotions cannot be tested by

observation or experiment and therefore, being non-provable, cannot count as true knowledge. I might believe in a God, or that killing is wrong, or that I am in love—but because I cannot prove it, I cannot demonstrably know it with certainty. This type of knowledge is rendered by Ayer (1936) as literally meaningless, at best described as ‘pseudo-propositions’ (p. 48).

The impact of such logic on education was profound. For a start, it promoted the idea that mathematics and science were more important parts of the curriculum than anything else because they constituted ‘high status knowledge’ (cf. Apple 2004), while history and the languages were of medium importance, and art, religion, moral education and personal development were of little significance owing to the fact that there was no verifiable knowledge-base to them. In many ways, Ayer’s thinking played fairly naturally into an education system that was becoming more and more enamored of the sciences for what they could contribute to employment and economic growth and prosperity. But has anything really changed in educational thinking and associated priorities? And if we answer no, then are we already seeing dimly why the holistic effects of pedagogy designed around a non-empirically verifiable datum like *values* might be surprising to a system structured according to logical positivism and the knowledge economy? We will come back to this point; for now, there is more to the story.

Ludwig Wittgenstein (1974) began a slow dismantling of the hegemony of logical positivism when he noted that good science must always do what Immanuel Kant (1964) said it should, namely observe what is there rather than what it thinks should be there. Otherwise, science can fall into the very trap that logical positivism had set up for art, religion, morality and emotion, namely believing what one wishes to believe rather than what stands up to the evidence. Wittgenstein suggested that this was precisely what the logical positivists had done when they denied meaning to these areas of knowledge claims when, quite clearly, people did find meaning in them. What had happened, he said, was that the logical positivists had taken the language that serves well the empirical sciences and extended it to have guardianship over ordinary language and all knowing. For him, in all irony, that was a supremely unscientific thing to do. Language, like everything else the scientist encounters, has to be taken at face value and within the context and the purpose it is meant to serve. So to judge the language of faith, morals, love or any emotion by criteria appropriate to the methodology of objective science was poor science and could only serve to reduce the power of knowing and, by implication, weaken the priorities that any education system might set for itself. Are we gaining more clues about why the surprise effect of values pedagogy was indeed surprising? But wait, there is more!

Frederick Ferre (1982) went even further in dismantling the logical positivists’ claim to the method that could stand guard over all knowing when he suggested that the ‘facts’ of science (as empirically verifiable propositions) are really no more than theories, that is, products of the conceptual organizations of the mind; as such these ‘facts’ are no different from those rendered by religion, art, morality or emotion: “all facts of whatever kind are relative...to the system in which they play a key role... facts...depend for their confirmation on the adequacy of the system in which they operate” (1982, p. 161).

Willard V. Quine (1953), in his *Two Dogmas of Empiricism*, in many ways completed the dismantling of Ayer’s views. Quine proffered that logical positivism reduced the relation between a statement and the experience that would confirm or disconfirm it to one of direct report, that is: for every proposition, there is an immediate, external referent, or every utterance relates directly to something ‘out there’. Hence, when scientists say, ‘there is a gravitational force between Neptune and the Sun’, they mean there is something (‘gravitational force’) in the world: it is real, observable and, importantly, testable at least in principle if not in practice. For the logical positivist, the problem with so-called non-scientific language was that the direct correspondence was absent. When the theologian says, ‘God loves all people’, or the moralist says, ‘Murder is wrong’, there is nothing ‘out there’ that is objectively real, observable or testable, even in principle.

Logical positivism placed enormous store on sensory human experience as the arbiter of the validity of language and truth. For Quine, this was a naïve oversimplification as he considered sense-data to play only a minor part in knowledge claims. The truly powerful forces in confirming such claims are the principles, laws and beliefs of a total *system* of thought constructed over a long period of time and for a variety of reasons, only some of which are pure and unadulterated, while many preserving vested interests: “The ‘totality’ of our so-called knowledge... is a man-made fabric which impinges on experience only along the edges” (Quine 1953, p. 42). The theory-laden statement tells us a great deal about the traditions and beliefs of the scientific community with regard to this statement; yet—in contrast to logical positivism—it is telling us nothing about human experiences, least of all of ‘direct report’ between this statement and the ‘fact out there’. Empirical science thus is replete with beliefs, many if not most of them untested by observation and experimentation. Quine’s insights have been confirmed in more dramatic fashion than even he could have imagined in the area of modern astrophysics and cosmology where scientists regularly make the point that what is, or may be, ‘out there’ is as much a matter of speculation and ‘faith’ in our current scientific methods as it is of reliable empirical verification. Talk of an infinite universe, possibly infinite ‘multiverses’, shows how far science has grown from the simplicity of Ayer’s assumptions and beliefs (deGrasse Tyson 2014). Just how far education has grown in this regard remains however the nagging question.

Just as a narrow epistemology can restrict a theory of what education should be, including what should be prioritized, included or excluded in the curriculum, so a broad approach to knowing can broaden thinking around these things. Such was the educational theory of Paul Hirst and Richard S. Peters who suggested that education was conceived as “too much in terms of a set stock of information, simple skills and static conformity to a code” (Hirst and Peters 1970, p. 37). They insisted that creativity, autonomy and critical thought should be priorities in education. The related seven obvious ‘forms of knowledge’, they said, underlay any learning experience; and it was vital for any learner to know well which form s/he was dealing with at any given time. These forms comprise mathematics and logic, physical sciences, human sciences, literature and fine arts, history, philosophy and religion, with each having an appropriate procedure or methodology that would render

knowing within its domain. Thus, empirical observation was the procedure most appropriate for dealing with the knowledge in the physical sciences, while the human sciences demanded the learner to become closely involved with people, their feelings and dreams. Knowledge of the fine arts required a ‘feel’ for the aesthetics; and knowledge of religion demanded familiarity with the nature of symbol and myth.

According to the forms theory, the most disastrous thing a learner could do was to confuse appropriate methodologies. To expect that art could be handled in the same way as mathematics or that religion should be judged by the methodologies proper to the physical sciences, was bound to lead to faulty judgments and knowledge claims. But this is precisely what Ayer had done! In terms of Hirst and Peters’ criteria, Ayer had failed to understand the comprehensiveness of knowledge types, declaring that the first two alone comprised all of knowledge; while all other claims to knowledge (regarding religion, the arts, ethics, etc.) remain meaningless because they could not conform to the methodology appropriate to his privileged two forms. Hirst and Peters’ philosophy is important because it broadens the scope of knowledge. This is crucial to understanding both the place of values in education and values education as pedagogy. The curriculum will only be constructed to deal with knowing that is considered to be legitimate. If mathematics and science are regarded as the only two authentic forms of knowledge, then the curriculum will be heavily dominated by those if not exclusively given over to them. Historically, Hirst and Peters’ perspective was especially important in modern attempts to inculcate a ‘values’ pedagogy.

Even more crucial perspectives, however, include those of John Dewey and Jurgen Habermas: were education guided by the assumptions held by their respective philosophies, there would have been no blind spots concerning the surprise effect of values pedagogy.

For Dewey (1916, 1929), whose educational philosophy is inspirational for developing and advancing edusemiotics as a novel concept (Stables and Semetsky 2015), education was principally a means of producing moral judiciousness and, in that sense, all education was effectively moral education. Hence, moral education was seen as the means by which students could engage most effectively with learning and social life. Dewey interrogated the modernity’s quest for certainty and proposed logic as a theory of *inquiry*. He spoke of the innate hazards of overly instrumental forms of education and the overarching need for a way of knowing in education that cultivated teachers’ mindset as self-reflective, while simultaneously directed toward instilling reflectivity, inquiry and moral capacity in students. Richard Peters (1981), similar to Dewey, was a major force in proposing that moral education lay at the heart of all authentic education. His concern was with the notion of the ‘educated man’ and how this might be best conceived and safeguarded in a world of competing demands and politics. The central plank of his argument was in the conjunction of the ‘knowledge condition’ and the ‘value condition’. He was arguing for a distinction to be made between instrumentalist and holistic education, with values being such a distinguishing feature. It was only education related to ‘what is of value’ that allowed education to be of value at all!

Habermas’ (1972, 1974) epistemology has the strong value of the theory of social engagement. Habermas (1984, 1987) spoke of authentic knowing leading to communicative capacity and, ultimately, communicative action—a concept stressing personal commitment, reliability and trustworthiness that spills over into practical action as *praxis*. This is the kind of education that aims to transform thought and practice and so make a difference to the way the human community coheres. It is supremely a moral education of the kind that reflects on the values pedagogy. Habermas’ epistemology is built around a ‘ways of knowing’ theory that is holistic and complex and may be considered as compatible with complexity theory or what could be described as a ‘complexity science’ (Jorg et al. 2007; Lovat 2008) located at the opposite end of the spectrum from empirical science. The compatibility between the complex systems science and edusemiotics is strong: for both the minimal unit of analysis is a system as a whole (cf. Semetsky 2008) rather than its individual parts.

Habermas suggests that knowing does not accord with forms of knowledge as reified disciplinary entities but rather is a function of ‘cognitive interests’, depending on the way the human mind works. First, the cognitive interest in control renders a way of knowing described as empirical-analytic or a technical knowing of the facts and figures. This type would accord with logical positivists’ claim to the totality of knowledge. For Habermas, however, this is only the beginning of the knowing journey. Building on the cognitive interest for control is the historical-hermeneutic way of knowing concerned with understanding the *meanings* of any technical data. Implicit in Habermas’ thinking is a veritable moral hierarchy: empirical-analytic knowing is important for forming the bases of knowing but is of a relatively low moral order, in many instances not even requiring the direct intervention by humans, increasingly able to be done by computers and even more efficiently so. Historical-hermeneutic knowing is of a higher moral order: it requires human intervention of interpretation and includes an inter-subjective debate and dialogue. These are clearly the features pertaining to edusemiotics. The more sophisticated this interpretive process becomes, the further it is from the logical positivists’ claims. Beyond historical-hermeneutic knowing lies what for Habermas is the ultimate human knowing that requires the highest levels of human intervention and presumably could never be supplanted by computers. This is critical self-reflectivity that edusemiotics proclaims to be one of its important characteristics representing an intrinsic property of the structure of a genuinely semiotic system.

For Habermas, the cognitive interest pertaining to self-reflectivity lies in emancipation whence one is maximally free and least constrained by misinformed sources, bias, bigotry or other blind spots, both one’s own and belonging to others. This is the knowing that is most critical of facile claims to finite truth and that ultimately has to come to terms with one’s own comfort zones as those things we might prefer to ‘know’ for certain because they protect interests, make me more acceptable to those from whom I need approval, or accord with my most guarded beliefs and values—yet might not be true. How can I know where my blind spots are if I do not know myself? That ‘there is no knowing without knowing the

knower' could well connote the pinnacle of Habermas' (and edusemiotic) approach to the knowing process; and it is clearly of the most profound moral order because the knower has to confront and evaluate one's most deeply held beliefs and values in order to authenticate or reevaluate them.

Clearly, Habermasian epistemology renders the notion of values-neutrality in education misguided, nonviable and inherently immoral. Yet this is precisely what the logical positivist wished to do with education. Habermas' approach entails a values-laden pedagogy positing values-filled environment coupled with explicit teaching practice that engages with values-related content and can induct students into personal empowerment over their own stated and lived-out values. Habermasian epistemology challenges the notion that values education connotes merely a moral option among various approaches to education, perhaps more suitable to religious than to public schooling. On the contrary, Habermasian epistemology confirms the view that values education is best understood as holistic pedagogy aimed at the full range of developmental measures. Rather than connoting a mere moral or least of all religious option, values pedagogy presents an effective and indispensable way in which learning should proceed in any educational setting. Habermas offers a most comprehensive and convincing justification for values pedagogy and he does this through the approach of a complex, multi-leveled, science that illustrates well the impoverished state of taken-for-granted methods of empirical science and the inherent blind spots the latter generates in any educational system subjected to its assumptions. Importantly, and in our context of the supposed 'surprise effect' of values education, Habermas' notion of cognitive interests closely relates to the recent research in neuroscience. It is to that field that I now turn.

Complexity Science and Neuroscience

Regarding the educational implications of neuroscience, Mary Immordino-Yang and Antonio Damasio (2007) write:

Modern biology reveals humans to be fundamentally emotional and social creatures. And yet those of us in the field of education often fail to consider that the high-level cognitive skills taught in schools, including reasoning, decision making, and processes related to language, reading, and mathematics, do not function as rational, disembodied systems, somehow influenced by but detached from emotion and the body (p. 3).

Damasio's (1995, 2003) main research interests have been in the neurobiology of the mind, especially concerning consciousness, memory and emotion. His work is associated with the cognition/affect/sociality nexus as a way of conceiving of emotion, feelings and social competence not separate from reason, but being inherently part of all rational process (thereby implicitly confirming the major postulates of edusemiotics). His work thus relates to complexity science. The scientific rigor of his experimental work should be causing all educators and

educational systems to rethink their assumptions about a range of learning issues—because the dominant conceptions of rationality with insufficient regard for emotional and social factors in their approach to the ‘foundations of teaching’ (Lovat et al. 2011b) would have proved false. Indeed, the taxonomic notion that cognitive learning outcomes can be separated from affective ones has long been called into serious question (Bloom et al. 1956; Krathwohl et al. 1964; Krathwohl 2002). Damasio’s work implies a refutation of the pessimism that the old foundations unwittingly imposed on the potential of teaching to break through barriers of disadvantage. It projects optimism that the holistic approach enhances the potential to engage the interests and attention of those not typically engaged, thus being disadvantaged. After all, it is the many issues of emotionality and sociality related to heritage, disadvantage and disability that serve to block the learning interest of many students, rather than merely a raw and isolated cognitive ability or the lack thereof. Teaching that is sensitive to and addresses these realities has been shown to be more effective in drawing in such population as well as making learning more engaging for all (Benninga and Tracz 2010; Rowe 2004), and this feature is central to the alleged ‘surprise effect’ in the values pedagogy (Lovat et al. 2011a).

Martin Seligman (2004) is a psychologist who revised many of the earlier assumptions in light of insights in neuroscience. Known best for his work in positive psychology, he is heavily critical of traditional psychology addressing the negative, helpless or pessimistic thinking that leads to depression and feelings of hopelessness. For him, psychology must become more conscious of and adept at positive thinking in order to engender feelings of optimism and control. Recently, he has done work in applying his theory to schools and education where he clearly sees the negative impact of earlier foundational thinking. Such a perspective has potential to contribute to understanding why it might be that the emphasis in values pedagogy on the positivity of the ambience of learning, together with the positivity of values discourse in the learning environment, could have such a surprise effect as to impact so positively on student achievement and wellbeing.

Immordino-Yang (2011) became one of the clearest voices articulating the need to reconcile traditional educational paradigms with emerging evidence from neuroscience; while Patricia Churchland (2012) employs a range of findings from neuroscience to proffer that morality is not merely the result of religious or social formation but emanates in part from hormonal activity in the brain. The anti-dual relation between cognition and affect, while posited conceptually in edusemiotics, is thereby confirmed experimentally in the research in the field of neuroscience. Thus the ramifications for moral education as an essential element in effective education begin to emerge (cf. Semetsky 2009, 2010). The same line of thought is seen in Darcia Narvaez’s work (2010, 2013, 2014) regarding moral education as a means to potentially activate emotional and social areas in the brain that influence sound reasoning associated with efficacious learning (Lovat and Fleming 2015).

Such research insights are highly pertinent to the quest to find why the surprise effect of values pedagogy might not be any surprise at all. They illustrate the inherent weakness in narrowly constructed, linear, or instrumentalist pedagogies. Good practice pedagogy must be directed to the whole person based on the

understanding that learning relies on the mind being stimulated across the range of emotional, social and moral impulses, and engaging teachers who cater for students' needs while establishing trusting, caring and values-filled ambiances of learning (Newmann et al. 1996; Bryk and Schneider 2002; Rowe 2004). Such complex multidimensional approach can transform the habitual patterns of feelings, behavior, resilience and diligence. Much of such evidence is found in the research and practice of the projects emanating from the Australian Values Education Program (Lovat 2010, 2011, 2012, 2013; Lovat and Clement 2008, 2014; Lovat and Hawkes 2013; Lovat and Toomey 2009; Lovat et al. 2010a, b, c, 2011a, b). The effectiveness demonstrated by values education should come as no surprise to those who understand the implications of the complexity science compatible with Habermasian epistemology and neuroscience; and consistent with the insights rendered by edusemiotics.

Concluding Remarks: Why the Surprise?

It is beyond the scope of this chapter to provide a complete critical analysis of current assumptions and practices of educational systems. Suffice it to say that anyone who knows the 'mind' of the average system, its political masters and educational bureaucrats, will likely recognize far more of A.J. Ayer's beliefs about knowledge and related curriculum priorities than those stemming from Habermas' critique, neuroscience, or edusemiotics. Furthermore, they will likely recall times when these assumptions and priorities were being revised and/or expanded and some light was apparently being shed on the darkness. Then, as quickly as it had come on, the light was turned off again by a new politician or bureaucrat 'getting tough' on literacy and numeracy, re-prioritizing their country climbing the ladder of international Pisa tests, enacting a 'back to basics' regime or some analogous, draconian and supremely myopic, regression in education. Let me use Australia as a test case in this regard, and let me compare it with Turkey, albeit briefly.

Australia continues to be known internationally for its Values Education Program, with evidence that its findings have played a definite part in influencing systems all over the world so that reevaluate their own theoretical assumptions and teaching practices. At the same time as Australia was focussing on the Program it was also, perhaps incidentally, doing competitively well in Pisa tests, even strengthening its position, especially in regard to the middle to lower achievement end. In the end of the first decade of the new century, there was a change of government in Australia and a new Education Minister who, rather inexplicably and without any apparent evidence, decided that the most assured way of lifting Australia's performance in these tests was to enact a rigorous testing regime for primary and secondary students around reading, science and mathematics, and to publish their results nationally in a form of 'name and shame' procedure. The tests then became obsessively dominant in the mindsets of educational systems across the country, with school principals and teacher key performance indicators and

school reputations at stake. In a recent report, it was found that the testing regime has by and large failed to have any demonstrable impact on Australia’s international standing and would seem indeed to be counterproductive in a number of ways (Hornsby 2015). In 2014, the Australian Minister for Education’s proposed ‘cure’ seemed to be to fortify and extend the testing regime and to facilitate this by narrowing the curriculum focus even further in the early years of school: “the teaching of ‘critical and creative thinking’ and ‘ethical understanding’ [will] be striped out of the mandatory curriculum” (Bita 2014). A.J. Ayer would be indeed delighted. No more surprises by the ‘surprise effect’ of values pedagogy! In effect, by de-prioritizing critical and creative thinking and ethical understanding, one could do no more if the steely intention was to ignore the achievements by complexity science, Habermas’ epistemology or insights from neuroscience. Habermas would see only the futility of imposing an empirical-analytic regime that attempts to dampen the naturally creative cognitive interests of a young person; as for Immordino-Yang and Damasio, they would wish to remind us yet again how easily we forget that learners are fundamentally emotional and social creatures.

So what of Turkey? In the 2006 Pisa tests, Turkey was just above Mexico in the lowest ranks of OECD nations. In 2008, the provinces of Turkey implemented a holistic values education approach across their schools, following broadly the principles identified in this chapter for values pedagogy. Concentration was on the supportive values-ambience and the stimulation of values discourse. Anecdotal evidence started to emerge regarding the improvements across a range of measures, including behavior, absenteeism and academic results. These were subject to public scrutiny through presentations at two international conferences including in Antalya in 2013 (Kaymacken and Zengin 2015) but were otherwise not published. However, the results of the 2012 Pisa tests appeared to confirm these anecdotal claims, especially concerning academic results. Turkey had climbed toward the middle of the OECD pack, with outstanding improvements in reading, science and mathematics. The OECD Report of 2014 (OECD 2014) highlighted Turkey’s unusual improvement and commended it especially for strengthening the performance of its middle to lower end achievement bands. Turkey spends only a small proportion of the *per capita* funding in education compared to Australia and many of the OECD countries now trailing it in Pisa tests, yet it is strengthening its performance—while Australia and many of these other countries that are spending more and have less social and political issues to deal with, stagnate and regress. Is this the real surprise effect or should we not be surprised at all if we take seriously education for which it is edusemiotics that serves as its theoretical foundation (Stables and Semetsky 2015)?

I suggest that there is in fact no surprise effect from the impact of values pedagogy following the principles outlined above. It is after all no more than good pedagogy following the wisdom of the ages and the insights of the latest research in complexity science, semiotics, and neuroscience. Still, complexity science is not rocket science. Values pedagogy has done no more than remind us of the following: that schools are places where human beings reside, where young people need to grow and develop and be encouraged to expand all their capacities, think new thoughts, imagine, feel

and enjoy their social relations, question and refine their own moral stances, be creative in their expression and performance and, if they so desire, explore their spiritual selves. Values pedagogy has done no more than render the unsurprising finding that all this will happen best where young people feel safe and secure, surrounded by positive relationships, enjoying the calm and settlement that comes with that sort of environment and being directed and challenged by engaging, personalized discourse that makes the curriculum meaningful to them. The only real surprise is how quickly, easily and persistently we tend to forget these things.

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Chapter 8

Semiotics and Meaning in the Aims of Education in Greece

Anastasia Christodoulou and George Damaskinidis

Abstract The crisis pertaining to values appears to pervade the world, and in the midst of this crisis education is called upon to undertake a significant task of promoting a positive transformation of culture. Education based on values needs to become a top priority worldwide. The chapter presents the research demonstrating a semiotic approach to the relationship between the aims of education in Greece and, specifically, *paideia* as cultural education. Three texts are analyzed: two Greek legal texts and the Delors Report to UNESCO. Given the nature of the texts, the chapter follows some current approaches to legal semiotics as influenced by Greimas' model of structural semantics and sociosemiotics. A sociosemiotic perspective is not limited to the formal analytical approach, but examines texts as an integral part of the larger group of material, socioeconomic, and political factors. The texts represent two different meaning systems and two different communication systems as being situated in two different socioeconomic and political contexts. The research findings discover the existence of correspondences between the texts in terms of the relations of transformation.

Introduction

The problem of values education acquired an unprecedented urgency in recent years. Edusemiotics as an integrative conceptual framework (Stables and Semetsky 2015) pays a special attention to the place of values in education, at the levels of theory, practice and especially policy. Almost two decades ago, the International Commission report to UNESCO (Delors 1996) has already proposed the four pillars framework spanning from childhood to adulthood and comprising the values of

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learning to know, learning to do, learning to be and learning to live together with others as foundational for education. Such lifelong approach to education is also a feature of edusemiotics, with regard to both local pedagogies and global ethics (Semetsky 2010). The current state of education at the global scale calls for the conditions to be created also within local educational, social, cultural and natural environments that would promote the significance of education for supporting and maintaining the quality of ‘good life’ and wellbeing for all.

As a step toward achieving this aim, the research presented in this chapter positions education in a broader sociosemiotic perspective. The chapter uses the methodology of semiotic analysis as applied to three texts, namely: two institutional policy texts from Greece and the Delors Report as a selected international text. The local and global perspectives taken by these texts differ ideologically, culturally, socioeconomically, and politically. The chosen texts also differ in terms of their type, the frame of reference, and their size (see *Data texts* further below).

Given the legal nature of these texts, we follow some current approaches to legal semiotics as influenced by Greimas’ semiotic analysis of legal discourse (Greimas and Landowski 1976). Data are analyzed and interpreted within a hermeneutic circle where textual understanding is neither exclusively inductive nor solely deductive. Against such modes of logical reasoning, some tentative conclusions will be made on the basis of assumptions, hunches, and hypotheses about probable, never certain, ‘laws’ and relationships. Thus, the analysis of data duly employs abduction as a type of logical inference that has already proved to have its prominent place in edusemiotics (e.g., Semetsky 2009).

Sociosemiotic Approaches to Educational Aims and Values

The focus of this study is linked to a discussion, in sociosemiotic terms, of aims- and values-related topics in education, at the micro- and macro-levels (Matsagouras 2011). Sociosemiotics does not restrict itself to a formal approach to texts, but examines them as an integral part of a larger material, socioeconomic and political, perspective (Lagopoulos 2000, 2009). More specifically, this research intends to foster an understanding of the relationship between the aims of *paideia* and education as promoters of values in the institutional legal context in Greece at the microlevel and the aims indicated at the macrolevel of the international sphere with a particular emphasis on the new values education (cf. Lovat et al. 2010). Given such objective, it is hypothesized that these three texts are linked through a notional as well as ideological relationship. We reasoned that even though we are dealing with three different texts in terms of their type, size and frame of reference, there is nevertheless a semantic overlap between them. The legal texts and the UNESCO Report represent, as far as semiotics is concerned, two different meaning systems and respectively two different communication systems, which are parts of two different socioeconomic and political contexts.

To achieve its objective, this study employed Greimas' (1966) model of semiotic analysis. Semiotic analysis primarily aims at fostering an understanding of the elements either considered to be self-evident or that neglect to be mentioned (as regards their obvious or latent meaning), and also at exploring how the signs are interrelated. The texts have been analyzed as meaning systems that convey their encoded ideology in a particular socio-cultural context represented, in our case, by Greece (locally) and by the UNESCO Report (internationally). More specifically, the analysis focuses on a series of codes initially stemming from the aim of *paideia* laid down in the revised Greek Constitution following the resolution of the 8th Revisional Parliament on May 27, 2008. Having served as a starting point for analysis, these initial codes then multiply or diversify as the analysis progresses to the aims of Greek Education Act 1566/85 and to the vision of education put forward in the International Commission Report to UNESCO.

Conducting a semiotic analysis of the term *education* on a paradigmatic axis, that is, where meaningful signs are chosen to fill specific slots in a sequence of signs (Saussure 1916/1983) does not signify a discussion of opposite meanings, but rather a comparison of global perspectives, that is, different policies. This means that the national/international ideologies and their linguistic realizations reflect on each other; thus the supervening legal discourse is first and foremost social as being a reflection of society rather than merely a disciplined manipulation of meanings (cf. Iedema 1995). According to Saussure (1916/1983), linguistics “describes all known languages synchronically and diachronically, extracts the general laws at work in languages and delimits and defines itself” (p. 6). The term ‘education’ subsequently appears to be a negotiable concept containing within itself an ideologically-related difference demonstrated by the two types of text. The choices made in terms of words or codes would have likely supported or disproved such hypothesis as based on semiotic analysis conducted in the course of research.

It is a matter of fact that ‘vague’ concepts such as *paideia*, education, and values have become the preoccupation of a number of scientific fields, including philosophy, pedagogy, and axiology. The delimitation of vague or indefinite concepts, that is, concepts with a variable content and/or high or low degree of indeterminacy—for example, moral principles, good faith, or public interest—is neither odd nor just a marginal occurrence. Vague concepts are concepts that have a fluctuating semantic content with a broad elastic scope, which is determined by the speaker and by the context in which a term is used each and every time. Thus, owing to their primary quality, namely the close ties that vague concepts have with social reality, these concepts are particularly revealing with regard to a specific era’s prevalent values. Furthermore, how a vague concept is handled establishes how the boundaries of a term are treated within a particular context. In more descriptive terms, structure of vague concepts is distinguished by an exceptionally small core that, no matter how concrete it is, nevertheless contains the inevitable indeterminate zone. The difficulty entailed in analyzing vague concepts is also a result of the fact that these concepts refer to the value system of those who intend to interpret them.

The legal language is not a random group of words, but rather the expression of a conceptual framework in which concepts are necessarily interrelated through

distinctions, correlations or inclusions—such as in the Greek Constitution and related documents. In semiotic terms, such words operate along a selected syntagmatic axis where signs are placed in a certain order according to specified combination rules (Saussure 1916/1983). Analyzing terms from a comparative perspective places the emphasis on the role played by legal ideology as the investigation of correlations in key legal axioms as originating in culture and the institutions; and legal values.

While such structural analysis may be considered ambitious, it has the advantage of presenting the subdivisions of a legal concept or field in a logical, systematic and comprehensive manner. Hence, the terms under analysis tend to develop their own ‘existence’ through the delimitations and restrictions placed on their content and as determined by relevant contexts. It should be noted at the outset that it is within such frame of restrictions and clarifications that the concepts *paideia*, education and values will be linked across the three selected texts.

Methodological Issues

The texts analyzed differ ideologically, culturally, socioeconomically, and politically owing to their different contexts. They may contain different values and ideas. The function of a semiotic analysis in this case becomes a starting point for discussion and a possible negotiation with respect to their ideologies (Mitchell 1983). Language is never ‘socially innocent’, given that words have a second memory: that is, they are associatively charged. Language conveys polyvalent information and carries ideological messages. This means that the texts are studied as, specifically, cultural texts situated within their particular sociopolitical and sociosemiotic contexts.

Data Texts

From Greece, two institutional texts were chosen: the *Constitution of Greece* (Article 16(2), aim of *paideia*) and Act 1566/1985. The Constitution in force in Greece is the 1975 Constitution that resulted from the regime change in the post-junta period, as revised in 1986, 2001 and 2008, and that consists of 120 articles (*Constitution of Greece*, Greek Parliament, 2010). From Act 1566/1985, *The Structure and Functioning of Elementary and Secondary Education* (Government Gazette A, 167/30-09-1985), the articles as chosen pertain to the aims of elementary and secondary education (Articles 1a–e) and the aims of compulsory grade levels in the education system in Greece (Articles 3.1, 4.1, and 5.1).

The text addressing education globally was the Delors Report (1996) and specifically its third chapter titled ‘From economic growth to human development’. The report elucidates the values that the International Commission proposes should

be incorporated into education in order to be able to solve social and environmental problems stemming from the global economic development model currently in force. The third chapter is conceptually divided into two sections: sub-chapters 1–5, describing the global model of economic development and its negative impact on the environment, ecology, our way of life and humanity in general; and sub-chapters 6–7, containing the Commission’s proposal for a new model, namely new values education, which proposes to build up on the current global model by incorporating and adding a number of specific values.

Method of Analysis

The method was founded on a linguistic content analysis, with references to quantitative data within the structural semantics framework so that the mechanisms generating meaning would become evident (Greimas 1966). Structural semantics is a method used to analyze not only natural languages but also any semiotic system. The principle of structural semantics is that the key semantic structures and elements of a given culture permeate all the semiotic systems of that culture. It presupposes that the text’s basic structures are ‘hidden’. The aim of structural semantics is thus to extract and highlight the key meaning structures of a text and reveal their internal relations.

A key concept of structural semantics is *isotopy* (Greimas 1966), which derives from the categorization of the units into which a discourse is broken up as based on a common semantic core. The isotopies are at first defined intuitively and, subsequently, by using systematic criteria. More specifically, the researcher begins by reading the text and locating words or phrases that seem to have a common semantic content. The researcher then goes on to pinpoint the way in which each isotopy is logically structured into the whole so as to convert the isotopy into a structured semantic code. Lastly, the researcher correlates the codes in order to find semantic structures that can describe the structure of the text. In this way, the analysis reveals the mechanisms that generate the text’s meaning.

The three perspectives of the three texts under analysis constitute a narrative within local and international contexts. The concept of narrative, according to Greimas (1966), explores the basic meaning structures by interpreting the features by means of which concepts belong to isotopies rather than aiming to explain the nature of the concepts. In this way, Greimas’ text semiotics can be applied similarly to different semiotic systems and can address the cultural level of analysis as regards the linguistic structures. In general, “any semiotic system, as part of the typology of cultures, needs certain means for its identification within a field of communicative and social relations expressed in either linguistic or extralinguistic texts” (Semetsky in Semetsky and Stables 2015, p. 102).

The context is a text’s internal environment, and for this reason, the text and context have a syntagmatic relationship. Greimas and Courtés (1982) differentiate between linguistic and extralinguistic contexts. A text cannot be understood fully,

partially or even at all if it is not interpreted within its context. Isolating a text from its context not only weakens the text, but also represents a specific intentional strategy employed to give this text a different meaning. The analysis presented below focuses on a series of codes initially originating from the aim of *paideia* laid down in the Greek Constitution that serves as a starting point in this study. The initial codes then are multiplied and/or diversified as the analysis progresses toward addressing the aims of Greek Education Act (1566/85) and to the vision of education put forward in the International Commission's report.

Analysis of the Data Texts

The definition of education serves as the common paradigmatic axis in the analysis of texts. In the analysis, eighteen codes were identified (Table 8.1) as covering these texts' semantic content (Christodoulou 2012). The completion of each analysis results in certain quantitative, qualitative and comparative data. Quantitative processing of the data entails determining the total number and frequency of references to each code, whereas qualitative processing of the data concerns the way in which the codes are structured and linked, followed by the correlation of both quantitative and qualitative data. At the end of each analysis, comparative data are included that pertain to the comparison of codes. The texts have been conventionally labeled using symbols: A (the aim of *paideia* in the Constitution), B (the aims of compulsory education in Act 1566/85) and C (the Report to UNESCO of the International Commission, where C1 refers to sub-chapters 1–5 and C2 to sub-chapters 6–7).

The aims in the three texts A, B, and C were approached as articulated semantic sets that carry an ideological charge stemming from their particular frame of reference. The analysis focused on the texts' structural elements as their codes. Table 8.1 presents all eighteen codes and their distribution in the three texts. The symbol '+' means that the code is present in the relevant text; whereas the symbol '−' indicates its absence.

We note that text A has eight codes, text B has thirteen codes, and text C has twelve codes. Certain conclusions can be reached from the data analysis and the Table 8.1 as regards the relationship between the three texts (A, B and C). The first relationship is that the three texts intersect where their semantic codes are concerned, given that they have a common core of four codes (intellectual code, values code, professional code and social code), albeit with a different semantic content. The other fourteen codes do not at first glance appear to be connected in any way. We can thus define the initial relationship between the texts as intersecting: $A \cap B \cap C$ (A intersected with B intersected with C) in set Ω (where Ω is the set of all the elements encompassed in the term education, a term with the potential to provide multiple semantic meanings).

This discovery propels us to look for another relationship across the texts where we could consider the terms 'new *paideia*' and 'new education' in text C2

Table 8.1 Comparative presentation of the codes in the three texts A, B and C

	A	B	C
1.	Values	+	+
2.	Professional	+	+
3.	Social	+	+
4.	Intellectual	+	+
5.	National	+	–
6.	Moral	+	–
7.	Physical education	+	–
8.	Religious	–	–
9.	–	Geographical	+
10.	–	Cultural	+
11.	–	Technological	+
12.	–	Economic	+
13.	–	School education	–
14.	–	Emotional	–
15.	–	–	Wellbeing
16.	–	–	Educational
17.	–	–	Environmental
18.	–	–	Time-related
Total	8	13	12

(sub-chapters 6–7) as synonymous. In this case, text C2 can be examined: (a) in terms of its equivalence to A, that is, $A \Leftrightarrow C$, since both texts describe the cultural education ideal, albeit in different ideological and spatial contexts (the local and international), and (b) in terms of B being part of C2, that is, $B \subset C2$ (B is a subset of C2). Set A is called a proper subset of B, represented as $A \subset B$, if and only if every element of A is part of B, but there is at least one element of B that is not part of A. If we let set A be a subset of reference set Ω , then the complement of A is the set of all of the elements in Ω that are not part of A.

Our interest in B with regard to C2 lies in the exploration of the texts' differences in terms of semantic codes. What needs to be determined is B's difference in terms of the new elements in the 'new education' proposal, with reference to quantitative and qualitative aspects, in other words the complement of B with respect to C2 (Table 8.2). Serious consideration is given to each text's different roles and different functions.

The investigation of the difference at the semantic level, of B in terms of C2, the transformation of a concept into another one, implies a flow from the upper to the lower levels, for example, the transformation of A into B through the mediation of the institutional legal framework. Transformation can therefore only apply to A, with regard to its being transformed into B; that is, progressing from the higher to the lower level (from the Constitution of Greece to Education Act 1566/85) and not from C2 to B.

Table 8.2 Comparative table of codes in texts B and C2 and their rate of participation in their reference set

Codes	B	C2 (%)	
1.	Values	31.0	50.0
2.	Intellectual	22.0	2.5
3.	Social	18.0	15.0
4.	Cultural	4.0	2.5
5.	Economic	3.0	15.0
6.	Educational	–	10.0
7.	Environmental	–	5.0
8.	Physical education	6.0	–
9.	Professional	4.0	–
10.	National	3.0	–
11.	Geographic	3.0	–
12.	Religious	2.0	–
13.	Emotional	2.0	–
14.	School education	1.0	–
15.	Technological	1.0	–
16.	Moral	–	–
17.	Wellbeing	–	–
18.	Time-related	–	–
		100.0	100.0

Five codes are common to B and C2 (30.0% of the total number of codes), namely: values, social, economic, intellectual and cultural codes. Two codes are only found in C2 (15.0% of the total number of codes), namely the educational code and the environmental code. Eight codes concern only B (45% of all the codes), namely the national, professional, religious, emotional, school education, technological, physical education, and geographical codes. Three codes are found neither in B nor C2 (these codes have however been linked to sub-chapters 1–5 of text C, which are not included in Table 8.2). There follows a presentation of the comparative (qualitative and quantitative) data of the five common codes found in B and C2 as well as a description of their semiotic mechanism.

It is the values code that is mostly referred to in the texts B and C. In text B (30.0%), the values code is associated with the following: intellectual values (progress, growth and development of the personality), values of justice (law), moral values (respect for human values, equality, ethics), social values (creativity, progress of society as a whole, freedom), personal or professional values (cooperation, initiative, responsibility), humanistic values (love for one's fellow man, nature, the environment, friendship, humanism), political values (democracy, collective effort, constructive dialogue), religious values, and national values.

In text C, the values code is associated with the following: material values (nutrition for all), biological values (health for all), intellectual values (cultivation of

man's ability to control his development), values of justice (justice), moral values (global ethics, respect for the natural environment), social values (collectiveness, contribution to social progress, racial equality, assumption of responsibility by all members of society), personal or professional values (cooperation, initiative) and also values that determine quality of life (ecology). In addition to the *per capita* income index (economic values) and technological index (intellectual values), the New Education will also have to take into account the environmental (global ethics), cultural (intellectual values), and ecological (environmental values) dimensions of the term 'growth and development'.

We note that the two texts, B and C, incorporate a number of values. Their difference lies in the type of content as regards the values code, and in their correlation. Text C2 differs from text B in that it incorporates into its value-system material and biological values, such as nutrition and health for all—that is, values that determine the nation's wellbeing—as well as other values, such as environmental ethics, economic values, cultural values and ecological values. Text B, also, has certain values that are not found in text C2, namely humanistic values, political values, religious values and national values, which stem from the particular local context and the relevant historical background. It should be noted that in text C2, the educational code is associated with the worldwide right to learning; it is also associated with the educational grade levels, research and innovation, as well as with knowledge, training, educators' and educational system's adaptability to society's needs.

Education purports to activate the potential of students presently and of future generations. It is proposed that human potential can be activated by incorporating a number of values into education. Thus, as far as education is concerned, the semiotic mechanism in text C2 has a values-orientation: *education (as everyone's right) + attributes (adaptability to society's needs) = values-based education (in order to activate human potential)*. The values-based orientation seems to be more significant than any other orientation when it comes to human development. If it is designed to solve the various social issues that have arisen (unemployment, hunger, social inequalities, environment, resources), education will have to become flexible, adaptable and dynamic and will have to respond to local conditions so as to achieve the aims of democratic participation, eradicating poverty and unemployment, promoting self-employment, fostering self-awareness for the improvement of living conditions of future generations, promoting survival as a passport to life, encouraging new activities at the individual and societal level, and enabling social inclusion (social code: 15%).

We are referring to education that would have been based on *paideia* (intellectual code: 2.5%)—that is, as associated with numerous values concerning the survival of modern man and the following generations (values code: 50%). Added to the above agglomeration of values in text C2 is the environmental code (at 2.5%). All of those are concerned with the threat to humanity's living conditions as a result of the current economic model together with the consequences of the rate of development, industry, and the non-renewable energy sources. The semiotic mechanism identified in text C2 thus refers to the following association:

paideia = values-based education = solution of social and environmental issues = human development.

The social code in text B (18.0%) is associated with humankind, democratic citizenship, harmonious social inclusion, improvement of human life, interpersonal relationships, life-experience, balanced human development, behavior as prescribed by the values system, relationship between the individual and groups, as well as social characteristics such as descent, identity, sex, age, and group (pupils). Where the social code is concerned, the difference between the texts B and C2 is only evident in the correlations with other codes. This means that text B does not sufficiently connect a resolution of important social issues with the values-based education.

The economic code in text B (1.0%) concerns some improvements within the context of cultural, social and economic life so that people may achieve balanced growth. In text C2 (15.0%), the economic code is associated with non-material investments and cultural education rather than with current issues such as global economy and wealth, unfair redistribution of productive surplus, competition and expenses, market inefficiencies and increased production, rise in GDP *per capita*, sales, capital and investments, and economic modernization based on the current model of modern growth and development, growth rates, the relationship between education and development, and the Asian growth and development model.

As regards the economy, the semiotic mechanism between text B and text C2 tends toward the following association: *economy = investment in non-material values = investment in paideia = (balanced) human development.* While previously being an end in itself, economy in C2 now becomes a means to the end, since it changes content and becomes associated with *paideia*. C2 thereby demonstrates a change in the content it had until now in the current growth and development model, because without *paideia* as, specifically, cultural education there cannot be any growth and development or any solution to the social issues.

The intellectual code in text B is much more prevalent (22.0%) than in text C2 (2.5%) and also differs in content from the latter. The references in text B concern the development of intellectual skills, creative and critical thinking, mental cultivation, the recognition of social value and parity, literature and the arts, human psychosomatic capacities, aesthetics, development, knowledge assimilation, verbal expression, knowledge and its acquisition, skills, capabilities, talents, interests, the ability to distinguish relationships and interactions, the ability to understand and express symbols, the cultivation of the senses, the organization of actions, social concerns, language cultivation, mental development, the organization of values into a system, and our relationship with the world around us.

In text C2, the intellectual code is associated with the broader view on human development and people's ability to control and organize an environment according to their needs. The semiotic mechanism in C2 can thus be expressed as follows with regard to the intellectual code: *intellectual code = values code = human development = man's ability to control and organize his environment according to his needs.* While text C2 focuses on human needs, this is not the case for text B. Man's recognition of their needs and the relationship with their environments represent an

incentive for human development due to their constituting a relation of self-awareness between a person and the world at large.

One more perspective regarding all three texts identifies the relation of equivalence between A, B and C2 that tends toward a certain equilibrium (as regards the codes and their relevant semantic charge) and describes people as being culturally educated. It identifies equivalence where $A \Leftrightarrow B$, $A \Leftrightarrow C2$ —however with different codes articulated in each case (B, C2). This perspective is based on the reasoning that each and every definition of the aims of education tends to transform the *paideia* ideal. If the aims of education reveal the level of self-awareness pertinent to current era and the attitude toward humankind's earlier cultural development and changes, then the aims of education are constantly changing, and such transformation is progressing toward the development of the ideal defined in terms of the culturally educated individual.

The educational aims stated in texts B and C are described using an interpretative method as regards their relationship with the aim of *paideia* in text A, since they concern the implementation of the learning process. Given that the ideal reflects a specific world theory as a spherical perception of human existence with regard to understanding the meaning of human life (including the restrictions and capabilities of our existence in the world), then this perspective must be reflected in the aims of education and must therefore undergo transformation (cf. Pavlidis 2012). Respectively, the following points need to be acknowledged: First, the aims of education embody a selective stance toward cultural assets and express broader social and moral ideals. Second, human contemporary needs are the criteria by means of which cultural goods are selected. Third, education brings about the change in individuals, with the purpose to enable individuals to achieve a desired future state in which people's perceptions of a good life play an important role in the educational aims sets. Thus every educational aim encodes, systematizes, brings into awareness and selects some specific cultural goods (cf. Pavlidis 2012) thereby building the case in favor of text A serving as an umbrella for the texts.

The data in Table 8.1 made it clear that the texts A, B, and C have a common core of four codes (values, social, intellectual and professional) that are not part of the common core of codes in the texts B and C (namely the national, moral, physical education, and religious codes). The codes pertaining to the aims of education in the texts B and C are structured differently. It seems that the codes in B and C are structured in a relaxed manner, which points to a kind of 'emancipation' from any type of ideological (C) or other authority. This subsequently implies a transformation of the aim of *paideia* (A) into the aims of education (B, C); and that this transformation serves as a fertile ground for social, political, subjective, scientific and other viewpoints to bring about the societal change. The definition of *paideia* (A) seems to be a constant, whereas the aims of education (B, C) are variables that serve a historical and/or social necessity. The choices made with respect to the codes differ at the local and international levels (Table 8.2). Using systematic terminology, we are led to think of adopting a concrete expression of the codes in A, B and C by transforming them.

Table 8.3 Common and other codes in the texts A, B and C

A	B	C
<i>Common core of four codes</i>		
+4 codes	+9 codes	+8 codes
National	National	–
Moral	Moral	–
Physical education	Physical education	–
Religious	–	–
	School education	–
	Emotional	–
	Technological	Technological
	Cultural	Cultural
	Economic	Economic
	Geographical	Geographical
	–	Time-related
	–	Environmental
	–	Educational
		Wellbeing
Total: 8	Total: 13	Total: 12

When comparing the three texts, we observe that of the set of eight codes in A, as the basic core of education, the religious code is absent from B; and four codes—the national, moral, religious and physical education codes—are absent from C. The absence of the above codes from the texts B and C may be an indication of their transformation or replacement with other codes, which can be justified by the different context of each text. The transformation of the educational ideal in the Greek Constitution (as a constant, irrespectively of any particular context) into the aims of education assumes different values indicating a certain flexibility with which vague concepts can be given semantic meanings depending on their frame of reference.

Hence, the equivalence between the three texts is not merely a general and abstract relationship; it takes a specific form owing to the relationships between the semantic codes. As will be demonstrated, these relationships are not neutral, but have a certain form. Starting from the texts' equivalence relationship ($A \Leftrightarrow B$ and $A \Leftrightarrow C$) we investigate how the semantic codes are related (Table 8.3).

The national code in the text A (Greek) remains a national code in the text B (as also Greek), but changes to a geographic code in the text C. The interest in a national territory in B becomes an interest in the international and global environment, which concerns the education of all people in the world rather than only in Greece. The moral code in A remains a moral code in B; but becomes an environmental moral code as concerning human respect for the environmental conditions to be good and to be handed over to future generations as such. The physical education code in A remains a physical education code in B, but in C it becomes an educational or cultural code. Within a local context, the physical education code

remains constant, but in the international context (text C) it is transformed or incorporated into two other codes, the educational and cultural ones. The religious code in A, which is absent from B and C, has probably been moved to the three texts' common core of codes and has become a code of values. This can be justified, since at the international scale with regard to humanity as a whole, a particular religious consciousness could become an obstacle. An international text (C) with regard to all would transform the religious code into a code of values.

The above correspondences show that the relationships between texts are the genuine relations of transformation.

Concluding Remarks

The correspondences in this study demonstrate that the relationships between the texts under this semiotic analysis are transformative. The meaning structure of education in the texts B and C stems from a relationship of equivalency between the codes in three texts: the aim of *paideia* (A) as compared to the aims of education (B, C) as follows: $A \Leftrightarrow B$, $A \Leftrightarrow C$. In such equivalency, B and C combine more or fewer semantic codes, yet without weakening their common equivalency relations. The group of codes as merged in the texts B and C, in order to form equivalence with A, is *different*, as per Table 8.3. The paradigmatic articulation of the above equivalences— $A \Leftrightarrow B$, $A \Leftrightarrow C$ —is therefore a qualitative keystone on which the codes of the definitions of education (B, C) are built in relation to the eight codes of the aim of *paideia* (A). The qualitative keystone reflects the ideological sphere of each context, local or international. The codes participating in the articulation of the equivalence $A \Leftrightarrow B$ and $A \Leftrightarrow C$ are different in terms of the sets to which they belong, their types of reference and the articulation between references.

Otherwise, the paradigmatic articulation of the definition of the aims of education in the two texts would have turned out the same in both contexts, locally or globally. Thus, it becomes impossible to safely refer to just one relationship between the three texts. Instead, there are three relationships that are specialized in view of the different perspectives taken by the texts: (a) intersection: $A \cap B \cap C$ (first conclusion), (b) inclusion: $B \subset A$, $B \subset C$ (second conclusion) and (c) general equivalence between semantic codes: $A \Leftrightarrow B$ and $A \Leftrightarrow C$ (third conclusion). Therefore, the research hypothesis is, on the one hand, confirmed because the three texts define a relationship; but, on the other hand, is specialized because they define three relationships within different scenarios.

The semantic field of any society is its world theory, and this world theory is evidently a broad space for meanings regulated by specific classifications and the systems of signs. Thus, when a new idea, such as values education, makes an appearance, humanity may not yet be able to process this idea immediately (Lagopoulos 2009, 2010). The findings of this research can be maximally realized and implemented only through the interdisciplinary cooperation of legislators, educators, sociologists, analytical program designers, and user-manual writers and

teachers. As Stables and Semetsky (2015) point out, “in all traditions of semiotics, signs say something to those who are ready to get their messages and respond accordingly” (p. 1).

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Chapter 9

Edusemiotics, Existential Semiotics, and Existential Pedagogy

Jani Kukkola and Eetu Pikkarainen

Abstract This chapter examines how the edusemiotic understanding of education can be developed by utilizing certain notions arising from existential pedagogy and existential semiotics. The chapter begins by the authors' interpretation of Martin Heidegger's semiotically useful concept of unconcealment in terms of a pedagogical theory compatible with the concept of *Bildung*. The chapter proceeds to demonstrate how it has been implemented in philosophy of education so as to articulate an existentially discontinuous form of education. Education viewed as the most important task of/for humanity entails a fundamental disruption of continuity: we do not know what kind of humanity we want or need as a way of life before a life itself unfolds and reveals itself as something particularly educational. However, discontinuous forms of education do not yet elucidate the transformative potential of existential education to the fullest extent. Thus, the chapter intends to compare those aspects with Eero Tarasti's theory of existential semiotics and his models of the transcendental journey, especially the *Z-model*, which is built on Greimas' theory of modalities. The chapter identifies three levels of learning as pragmatic, social and existential; and suggests a model of modal learning.

Introduction

In edusemiotics (Semetsky and Stables 2014; Stables and Semetsky 2015) education, learning, and personal/professional growth are seen as deep processes, so deeply semiotic that they have consequences for all areas of educational theory, practice, and research. In education and learning, signs and their meanings go through profound changes; they may even be born in these processes. These changes

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are not restricted to just those signs and meanings that the learners encounter and experience, but apply also—and even more so—to the learners themselves. We can say that the transformation of the human subject is precisely what research of education is interested in. Edusemiotics, building on Charles S. Peirce’s philosophy, considers human subjects to be living signs. The transformation of the subject thus has a semiotic character, as Peirce pointed out. From an apparently different angle, such changing and ‘becoming’ of the human subject is famously stressed and analyzed in existential philosophy, from Kierkegaard to Heidegger, Jaspers, or Sartre. More recently, Eero Tarasti has made a close connection between this tradition and semiotics elaborated in his theory of existential semiotics (Tarasti 2000, 2012).

The starting point for this chapter is to highlight what may be seen as some of the main issues in Martin Heidegger’s thoughts on education that appear to be missed by a number of mainstream contemporary interpreters of Heidegger’s philosophy. Furthermore, we will show how there already exists a long history of the influence of Heidegger’s thought on philosophy of education; going far beyond the reading of the past few decades, it includes some of the best attempts to elaborate Heidegger’s pedagogy. We will introduce some essential notions of existential pedagogy, through which we intend to formulate a coherent view of educational semiotics. We will further show that Heidegger’s educational thinking is best anchored in his theory of truth as unconcealment. As the concept of unconcealment poses a critique of, or at least an addition to, a logocentric view of propositional truth-content about the world and oneself, we can understand Heidegger’s educational thinking better by comparing and contrasting it with the idea of *Bildung* in the German tradition of self-cultivation and personal/cultural maturation.

However, the notion of unconcealment does not by itself mandate a theory of education. Therefore, we will continue onto examining Otto Friedrich Bollnow’s (1907–1991) philosophy and his views on educational reality in order to clarify the Heideggerian ontologization of education. Bollnow formulates his theory on the basis of Heidegger’s notion of unconcealment. Such educational philosophy is considered a mature existential-hermeneutic theory of education, which articulates the existential aspect of educational reality and also maintains a coherent relationship with cultural self-cultivation. The existential aspect of education is not all that education is or can be, however. To formulate a theory of educational semiotics that takes into consideration practices as existential pedagogies (cf. Semetsky 2014) we will examine Tarasti’s existential semiotics.

Ontologization of Education

The *Bildungsfrage*—or “the question of how best to cultivate and develop our importantly distinctive skills and capacities” (Thomson 2004, p. 447)—is of value to philosophy of education. It is not a new idea, but extends from Plato and Aristotle to later philosophers such as Kant and Schleiermacher, and also to

educational theorists such as Wilhelm von Humboldt and Johann Friedrich Herbart. This question also has some of related formulations in contemporary educational theory (e.g., Benner 2010; Mollenhauer 2013). Thomson demonstrates how Heidegger's 'perfectionist' view of education, linked to his view of truth as unconcealment, is compatible with *Bildung* as a continuous cultivation of human powers. Along this path, Thomson arrives at a view in which Heidegger's ontological thesis 'Become what you are!' establishes a paradoxical foundation for education: "The exhortation to 'Become what you are!' makes sense only because 'Dasein is what it becomes.' How, then, are we to comprehend this strange claim that *we can become what we are only because we are what we become?*" (Thomson 2004, p. 449).

Dasein indicates presence as 'being there'—yet it is what it becomes. This paradoxical foundation is a newly formulated version, or rather a spinoff, of Kant's (1992) pedagogical paradox: how is it possible that we become autonomous and rational persons when this requires coercive educational action? This paradox has often been seen as the basis for educational practices. In the true spirit of the Enlightenment project, a human being is considered first and foremost a rational being. Educational coercion is thus seen as the very opposite of what the development of human skills and capacities amounts to. This coercion has been mandated by the notion of *Bildsamkeit* as the fundamental human necessity to learn skills and competences. Educators indeed tend to insist that pupils act autonomously because of their perception of this quality within not-yet-fully-rational or autonomous persons (Herbart 2012; Klafki 1985). Heidegger challenges the logocentric foundation of the educational paradox by ontologizing the whole question of education. According to Thomson,

When he [Heidegger] says that "Dasein is what it becomes," then, Heidegger is drawing attention to the fact that the future constitutively informs my sense of self, because the roles, goals, and life-projects implicitly organizing my current experience stretch out into the future. In other words, "Dasein is what it becomes" does not record the truism that who I am now is who I have become, but instead registers the phenomenologically interesting fact that my basic sense of self has an ineliminably *futural* dimension (Thomson 2004, p. 449).

Heidegger's perfectionist education is not about becoming something particular as an end in itself, but is instead radically open: being is an endless becoming. It is important to acknowledge here that edusemiotics pays a special attention to the future-oriented processes of becoming (Semetsky 2006; Stables 2012), both in theory and in practice. For Heidegger, being human entails two basic components, facticity and transcendence. Facticity is the factual 'thrownness' of Being: we just happen to exist in the time and context of what we do. Our Being-in-the-World is finite and contingent, and thus what we are is revealed in the present. At the same time, however, our existence has a futuristic dimension as transcendence. We not only identify ourselves with the qualities and skills we have, but we also act as if we had qualities we presently don't possess. In this sense, Heideggerian perfectionist education can be considered as having its foundation in being human in terms of

becoming, that is, Dasein as that what it *can become*. Tarasti (2000, 2012) has linked the notion of transcendence in Dasein to his theory of existential semiotics, which provides the groundwork for our formulation of edusemiotics. But to fully understand the concept of transcendence, we must first look in what Heidegger views as Dasein's being in truth or unconcealment, and how this notion of truth links to the existential notion of pedagogy.

Toward Heidegger's *Unconcealment as Pedagogical Concept*

Unconcealment is a term that first entered Heidegger's philosophy as a translation for the Greek word *alêtheia*. Heidegger chose a literal translation: *alêtheia* means truth or disclosure. Unconcealment is an event; it occurs for human beings through "the creative projection of essence and the law of essence" (Heidegger 2001, p. 7). Unconcealment rejects the idea that the uniquely right answers to questions exist, thus through such rejection appearing to promote a type of epistemological relativism. Heidegger (1962) contends that we encounter entities as they are only by virtue of the world within which they can be disclosed and encountered: unconcealment removes concealment. In his later works, Heidegger demonstrates that the notion of concealment has two meanings: (1) to have no awareness of a thing, and (2) to have no possible context for a thing (Heidegger 2001; Dahlstrom 2007). The first meaning refers to a superficial form of concealment in which a thing exists but we lack an understanding of it, while its second meaning points to a more profound, fundamental form of concealment (Wrathall 2011). For an entity to be is for it to stand in a context of constitutive relations. The lack of any possible context amounts therefore to an ontological concealment, the absence of conditions in which the entity in question might manifest itself in being. The central idea here is that unconcealment amounts to bringing things to awareness and creating a context within which things can be what they are.

Concealment is found in non-assertoric dealing with the world, in the sense that in such pre-predicative comportments the world is experienced in such a way that it lacks determinacy and resists articulation in the language of propositions. This means that the world is unavailable to our conception of it and to the discovery of the inferential justification for the relation between the propositional states and the worldly states of affairs. In such pre-predicative experience, things are understood in terms of our practical modes of coping with them. Any linguistic truth is a specific form of a broader kind of unconcealment, in which what is at issue is the availability of entities for faculties in general. To uncover means to make entities available for comportment: *Verhalten* is a broad term meaning an instance in which we have an experience of something. But Dasein's *default* state is having the truth of its being covered.

Heidegger argues that the two really important results of his analysis of truth are, first, that truth belongs primordially to Dasein and, second, that Dasein is both in truth and in untruth. The opposite of truth is “the deceptive appearance whose indeterminateness, like a thick fog, hides the true essence of things” (Bollnow 1974, p. 9). Heidegger ascribes this deceptive appearance to the world of chatter and ambiguity, in which everything is understood however approximately, yet almost nothing remains doubtful. The path to truth thus consists in conquering that deceptive appearance. Truth is not gained in a neutral process of knowing; it requires the cancellation of a deceptive, even if pacifying, appearance. This process is, however, always painful: it touches a person in his or her deepest core (Bollnow 1959, 1974; Heidegger 1962).

Unconcealment is distinguished from the foundationalism and progressivism, both notions characterizing the Enlightenment project of modernity. It is only when something is unconcealed that it becomes unconcealed as anything *meaningful*. Heideggerian perfectionism does not allow for modern reproductive pedagogy, that is, the notion of development according to which a human being is cultivated from a human animal and within causal relations to its environment, thereby forming an acculturated person equipped with intentionality and freedom to recognize oneself and choose for oneself (Koskela and Siljander 2014). Addressing Plato’s doctrine of Truth in the context of *Paideia*, Heidegger (1998) questions a supposedly unprepared soul as an empty container: “Paideia does not consist in merely pouring knowledge into the unprepared soul as if it were some container held out empty and waiting. On the contrary, real education lays hold of the soul itself and transforms it in its entirety by first of all leading us to the place of our essential being and accustoming us to it” (p. 167).

Heidegger’s pedagogy of transformation does not mean becoming something particular and thus becoming complete at some point in the future, but rather that becoming itself constitutes a constant process. For him, when a tradition comes to dominate, there is a concealed transmission of the past into the present which is difficult to overcome. If a tradition operates in a proper fashion, it fosters interpretation instead of dogma, conversation instead of dictation, and participation instead of transmission (Gallagher 1992). Edusemiotics indeed stresses the necessarily *participative* character of becoming as a function of lived experience and the interpretation of signs. Heidegger’s notion of transformation duly challenges traditional approaches. Such constant becoming is also at the core of Tarasti’s existential semiotics as will be elaborated further below. The educational philosopher Bollnow, on the other hand, has formulated his existential understanding of education to support the thesis that personal development can neither be continuous nor represent a merely cumulative process. From this perspective, discontinuity becomes the foundational feature of education, and it is based on Heidegger’s concept of unconcealment. As a result, the Heideggerian radical transformation of the tradition becomes articulated more clearly.

From Unconcealment to Discontinuous Education

Bollnow's understanding of education boils down to the humanistic tradition in educational theory accompanied by the elements of hermeneutics. The object of inquiry in this tradition has been the educational reality which entails in its broadest sense all of the historical-cultural conditions under which we engage in/with the actual educational practice. Educational reality as a specific area of human existence is a part of the totality of historical-cultural conditions. Educational reality in its most general sense contains a circle of life or a segment of life-world, in which education plays a central role (Flitner 1950). Education in this view is preconditioned and becomes possible only through *Bildsamkeit*—this concept implying that the process of *Bildung* as the formation of an individual doesn't happen as if naturally, by itself, based on the abilities of an individual; and that this individual is not able to proceed with this process by him/herself, but requires help such as a pedagogical intervention. It is also presupposed that the intervention to promote the individual *Bildung* makes a lasting influence as without such prolonged influence no progress could have been made.

Bollnow, however, sees a problem with such hermeneutic understanding of educational reality. The socio-cultural conditions by which it is described are constituted by rationality: they are rational conditions. This is understandable from the viewpoint of the concept of *Bildung*: the humanistic process of formation is presumed to be a process of rational development (Bollnow 1962). But educational reality also entails some elements of human life that are not derived from rationality or a solely intentional action. Instead, they are of a sudden, drastic, unexpected and even irrational nature! From this perspective, education is a discontinuous process in which the experiential collisions with the incomprehensible and uncontrollable dimension play a significant role.

For Bollnow, being human as an ontological Being-in-the-World is dynamic and revealed via discontinuities. It is only under specific situational conditions that one can understand some aspects of oneself not otherwise understood. This is a fundamental existential thesis: a person can grasp the authenticity of being only *in the moment* and cannot preserve it beyond that. Such premise seems to call into question the approach of modern pedagogy as it cannot exist without the assumption of a lasting influence. Without this, the concepts of human formation and the ability to grow would not make sense, and thus the whole concept of educational reality would not hold as a theoretical construct (Bollnow 1959; Koskela and Siljander 2014).

Bollnow, thus, in his formulation of a new existential-hermeneutic theory of education and formation not only re-evaluates but also preserves the aspects of the notions of self-formation and the ability to grow as well as the idea of education's lasting effect. He also contends that Heidegger's concept of the situationally-unfolding truth is important and pedagogically relevant. Bollnow sees both views as mutually inclusive, albeit modular, foundations for educational philosophy. Human

existence does not reveal itself fully or constantly in the mode of Being-in-the-Truth or authenticity. The cultivation of true self-understanding is possible only irregularly (Bollnow 1959). Bollnow introduces several concepts based on his notion of discontinuity, starting out with the (traditionally religious) concept of encounter as *Begegnung*—meaning either an encounter with another person, or with illness, or with a figure in literature or history, or with a work of art. The notion of encounter refers to those specific experiences that shake a person out of existence and take her back to her dynamic essence. In this sense, an encounter is always an existential experience that unconceals some aspects of human Gestalt and situations that were not previously clear (Kukkola 2014). The encounter, affecting the innermost dynamism of a person, cannot be produced at will. Education cannot therefore begin to forcefully produce encounters which disrupt the natural flow of everyday life. However, education also cannot prevent these events from happening. Education cannot ‘do’ anything except for accepting the intrinsically unconcealing character of encounters.

Bollnow (1959) also introduces the concept of awakening or *Erweckung*. At its core, it is the awakening of transcendental conscience (cf. Crowell 2007) whenever a person feels a demand that, by its transcendental nature, is distinct from all other ‘requests’ and to which he must justify himself in his life. Such state of consciousness cannot be learned by means of craftsmanship or transmitted by teaching. Such consciousness unconceals itself situationally, yet it is not determined solely by those situations. It can only be *awakened*; thus the process of education as becoming cannot be continuous. Rather, education entails a fundamental disruption of progress: we do not know what kind of humanity as a way of life we want or need before the unfolding life shows itself as something particularly educational (cf. Kompridis 2006; Peters 2002). Education can only appeal to the state of consciousness for which this new way of life becomes unconcealed and thus constitutes a pedagogical challenge. According to this theory, education cannot induce change nor can it be the source of radical transformation. Education is understood as a medium for the unconcealment of potential ways of life in terms of a transcendental journey (Tarasti 2012).

Existential Semiotics as a Theory of Discontinuous Bildung: Dasein and the Model of the Transcendental Journey

The central target of Tarasti’s project of existential semiotics can be formulated as human discontinuous growth or *Bildung*. Surely, Tarasti stresses that his semiotic theory addresses signs and investigates “the life of signs from within” (2012, p. 317). The difference here—especially with Saussure’s semiology—is that signs are addressed in terms of movement and becoming. Tarasti (2000) introduces new categories of signs dubbed pre-signs, act-signs and post-signs, as well as trans-signs, endo- and exo-signs, quasi-signs, and pheno- and geno-signs. But the most important

and remarkable point in his theory is that it is closely connected with the concept of human subject. This was also a central feature in Greimas' semiotics, but Tarasti has radicalized this heritage by recourse to the existential philosophy. Tarasti connects the question of subject to the Heideggerian concept of Dasein, although he interprets it differently. For him, Dasein appears to mean the spatial-temporal, or experiential, context. It means the 'normal' temporal course of events or a container within which this course takes place.

Transcendence as the complementary concept to Dasein is, for Tarasti, an intriguing notion which may not be welcomed by semioticians in general. But edusemiotics, in its ontological aspect, indeed acknowledges the importance of the transcendental dimension in/for human experience (e.g., Semetsky 2009). Tarasti (2012) provides a paradoxical definition of transcendence: it is that which is outside of Dasein, it is absent—yet present in our minds. We can understand this as all that does not actually exist in Dasein but can be realized in our minds and even be a real possibility in Dasein. Thus, it can be thought of as something which can be unconcealed, in the Heideggerian sense.

A central theoretical achievement of existential semiotics is the idea and model of the transcendental journey (the Dasein model) as the human subject's return from Dasein to transcendence and back (Tarasti 1996, 2000). The original model is depicted in Fig. 9.1. A subject who dwells in Dasein may (and perhaps eventually will) feel it to be deficient and unsatisfactory, and this feeling will lead her to negate it. Sartre has famously described such unpleasant feeling as nausea. This first movement toward transcendence makes the subject feel as if her existence is empty and the foundation has been lost. In the second movement, the subject finds a supra-individually meaningful universe leading her to the opposite process of affirmation (Tarasti 2012).

The model appears to be initially formed so as to explain artistic creativity, different styles of artwork, and art forms as existential signs (Tarasti 1996).

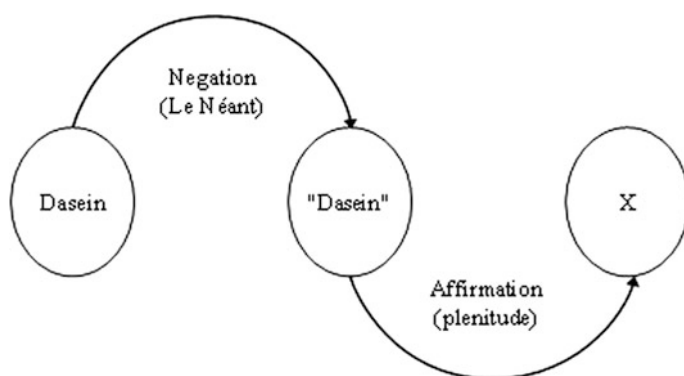


Fig. 9.1 The model of the transcendental journey [Acknowledgement: Figs. 9.1 and 9.3 are reprinted from *The Oxford Handbook of Culture and Psychology* edited by Valsiner (2012), Figs. 15.1 and 15.7 in Chap. "Existential semiotics and cultural psychology" by Tarasti, pp. 318, 329. By permission from Oxford University Press, USA; www.oup.com]

However, it can also be applied to existential learning. In a way, it *condenses* Bollnow’s phases of existential learning if we assume that the act of negation corresponds to the encounter, the unfounded Dasein corresponds to crisis, and affirmation corresponds to awakening. Of course, there are also differences. Sartre’s nausea is caused by boredom in relation to the old rather than by encountering something new. Tarasti (2012) stresses that negation can be a rejection of something that appears; while affirmation can be an acceptance or unveiling of that which appears. But he also considers another aspect of this model, in which the arrows can go backward as well. Here the human subject can return back to the previous Dasein. According to Tarasti, this movement is based on the subject’s memory. But Dasein may be different because either the subject has forgotten something or, conversely, Dasein itself may have changed in the meantime. What Tarasti ponders here, are the questions of history, determinism, and causality. This idea seems to open up a possibility of bringing this model closer to the notion of the hermeneutic circle. The duality of transformation and continuation can be more or less overcome by the notion of a circular—or rather spiral—process where we always start off from some prevailing situation and then return back to more or less similar, yet somewhat different, situation.

The concepts of affirmation and negation and the relationship between them relate to Greimas’ semiotic square (Greimas and Courtés 1982). It is easy to interpret Tarasti’s model as just a modification of the semiotic square. In its original form, the semiotic square contains two opposing terms in the upper corners; these are negated by their contradictory terms via diagonal lines so that both of the negative terms situated in the lower corners presuppose the positive terms above. When these relations of contradiction and implication are interpreted as dynamic acts, we can re-draw the Tarasti’s model as partaking of the semiotic square (Fig. 9.2).

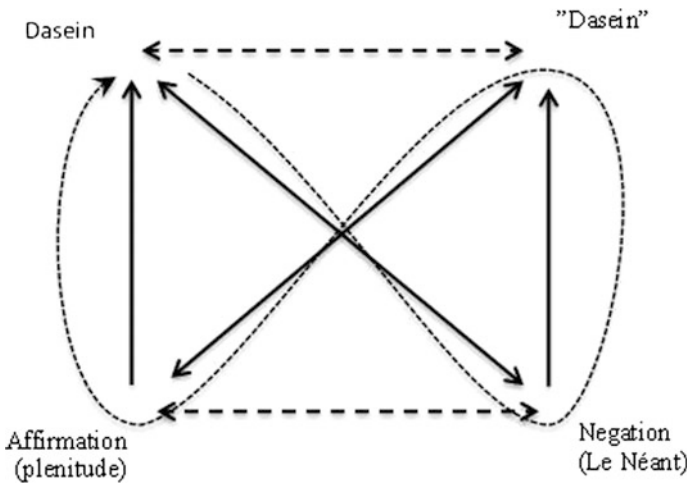


Fig. 9.2 The transcendental journey: a semiotic square

The narrow dotted line in Fig. 9.2 represents a trajectory. First the subject is more or less satisfied or calmly situated in Dasein. Using Greimassian concepts, we can say that the left side of the square is determined by euphoria of the thymic category, and Dasein represents the positive fundamental values of either Life or Culture depending on whether the point of view is individual or social (Greimas and Courtés 1982). Then something, either internal or external, disturbs the balance and causes the subject to negate the existential basis of Dasein thereby moving into the nothingness of negation. This existential nothingness or emptiness implies that Dasein becomes dysphoric, which represents the negative fundamental values of Death or Nature. The subject can be rescued from this state of anxiety by performing a second negation: the dialectical negation of negation leading to affirmation. This move brings her back to euphoric existence and the euphoric, or even ecstatic, Dasein. While a classical narrative trajectory would return back to the initial normal state, Tarasti (2004) stresses that the X in his model (Fig. 9.1) means something new and unforeseeable. This is exactly the same in specifically existential education: every learning crisis that has been solved takes us into a new and previously unforeseen situation. Therefore, the square must not be seen strictly as a cyclical structure but rather as a double spiral, with every round resulting in new experiences, new realities.

Modalities and Z-Model

The problem of values is central to existential semiotics as a study of human life and action. Values are reflected in ethical questions with regard to how we should live and act; but they also have a broad application in art and aesthetics as well as in linguistics and mathematics. Tarasti does not expressly define the concept of value but he states that values reside in transcendence and can be realized in Dasein as signs. This realization takes place via the subject's action that posits the necessity of modalities such as fundamental Greimas' modalities of action or human competences namely *want*, *can*, *know* and *must*. For example, we may consider that the value of Beethoven's sonatas became realized in Dasein via Beethoven's modally-competent action—that is, Beethoven wanted to and could compose sonatas, he knew how to do it and perhaps even had to do so. The special cases of modalities are meta-modalities as transcendental values realized in Dasein (Tarasti 2012).

But how are meta-modalities differentiated from ordinary modalities? Being basically the same Greimassian modalities, they nonetheless possess certain distinctive features. First, *want* in this respect is not any particular desire for a certain object in our environment, but wanting to realize certain transcendental values in Dasein. Second, *can* as a meta-modality refers to special skills and preconditions that such realization requires. Third, the subject must *know* that those transcendental values exist and are worth of being realized. Fourth, *must* means here that the subject can feel the binding force of the value and choose to obey it. Respectively, the

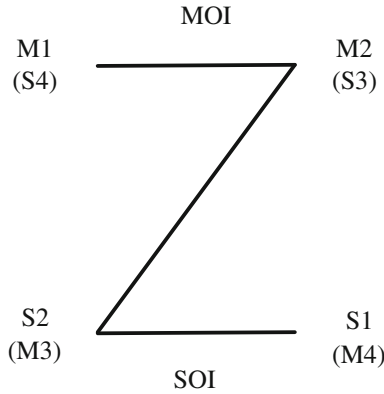


Fig. 9.3 Tarasti’s Z-model

existential meta-modalities of the subject’s competence are closely connected to the idea of conscience as a core topic in existential pedagogy. A subsequent problematic refers to the question whether conscience can be cultivated. The radical existentialist would answer that it is not possible and trying to do so would likely amount to unethical manipulation by educators. Conscience develops from within. Bollnow, in light of Jaspers’ appellative education, suggests a moderate view stating that some kind of appellation or admonition is possible. Educators can appeal to a person’s conscience (or at least to its potentiality) so as to make ethical decisions.

In existential semiotics, this question is considered on the basis of Tarasti’s famous Z-model as its theoretical core. This model assists in demonstrating how the development of conscience unfolds formally (Fig. 9.3)

Here the resemblance with Greimas’ semiotic square is more evident than in the previous model—and also explicitly described. Tarasti (2012) contends that he wants to transform the square “into a more dynamic and flexible model in which everything is in motion” (p. 329). He uses concepts *Moi/Soi* borrowed from Fontanille’s semiotics of the body. *Moi* is the inner existential area of the subject (the area of endo-signs) and *Soi* is the external social area (exo-signs). Both areas consist of specific phases, designated as M1 and M2; and S1 and S2. These areas are not mutually exclusive but overlapping so that M1 is at the same time S4, etc. The contents in each corner are described as follows: M1(S4) means desire and the primary kinetic energy of the body, M2(S3) means identity, personality, habit and stability, S2(M3) describe social roles, institutions and practices, and S1(M4) are norms, values and general codes. The most salient aspect of this model is that these are also the main modalities: want, can, know and must, respectively.

The required motion in the model is the two-way movement from M1 to M4 and back from S1 to S4. The movement is always—or at least primarily—supposed to take place according to the numerical order, and that’s why another diagonal of the square is omitted. The M movement runs from pure corporeality and sensibility to a stable body, to social roles, and finally to abstract norms and values in society. The

other way around represents the S movement in terms of going from abstract values to social institutions, to sensible people, and finally to corporeal entities. From the educational point of view, therefore, this model explains how the subject's modal competencies can develop in mutual interactions. However according to the existentialist tradition, this model is strictly internal to the subject and so it is not meant to describe the subject's relationships or interactions with society and other people. Instead it considers the interaction between the spontaneous and formless side of the subject and their already socialized side. It does not tell much about how the socialization of *Moi* (me) happens. Another obviously missing consideration of this rich model is the separation of meta-modalities from the ordinary ones. The model does not explicitly make such existentially important differentiation. Nevertheless, the model offers an opportunity for discussing this question. For example, Tarasti (2012, p. 335) mentions the possibility that values can be sublimated by education from being mundane to becoming transcendental in society. There is a demonstrable ambiguity in the description of S1(M4) in terms of referring to "abstract values and norms of a society" (Tarasti 2012, p. 329). The values and norms can be understood, on the one hand, as being collectively-shared preferences of people and, on the other, as purely transcendental entities that as such are independent of human preferences and the opinions of the majority. Learning gets its existential character typically and especially where and when these two types of values and norms become contradictory; and the awakened conscience then requests the subject to obey the abstract values and forsake the existing values of the society. Here is where a fundamental link between existential semiotics and existential discontinuous pedagogy becomes established.

Conclusions: Toward a Model of Modal Learning

In lieu of conclusion, we would like to offer some changes to the model of existential learning. First, we suggest a different mapping of the modalities. Tarasti's Z-model as a back-and-forth structure is, after all, somewhat static as regards the edusemiotic development and growth; it also appears problematical in relation to the ideas behind the original semiotic square. As stated, the semiotic square is designed to analyze any meaning in relation to its opposite as its negation and to the negation of the opposite. The modalities want, can, know and must if taken together do not fit this kind of structure very well; instead they appear to parallel each other. Second, the dynamics of the semiotic square permits a dialectical movement between the opposites only via negation like in the model of the transcendental journey (Fig. 9.2), and therefore it is not possible for any horizontal transitions to exist. On these grounds, we propose to employ the idea and structure of a hermeneutic spiral, presenting the relationships between modalities in terms of circular feedback loops that are coarsely depicted in Fig. 9.4 (where some other possible feedback loops from each modality to all of the previous ones are not represented, even though they are indeed important):

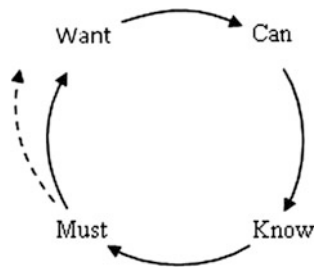


Fig. 9.4 Circular/spiral model of modal learning

The ideally typical course of action follows such spiral modal structure so that any action initiates from the conative modalities must or want; in the last instance—from want. The attempted operation in relation to the environment then takes place if the subject can do it; it will have been more or less successful depending on the subject's level of knowledge and skills. But in real life—and in some interesting fiction—things seldom proceed in such an unproblematic manner. In particular, we can presume that genuine learning requires some ruptures and discontinuities in this process. We thus can construct a typical model of learning as follows: Firstly, the subject wants to do or get some X; she can—or cannot—realize this desire. Many attempts and trials add to her reservoir of knowledge about what is possible in her particular environment and what is not. Finally, the subject knows what she must do in order to achieve her goals and desires. Every stage of the circle contributes to the course of action as well as to the following and previous modalities—thus also to all future actions. Of course, the environment and the changes in it elicit also some surprises leading to discontinuities in the process. Secondly, in relation to the existential pedagogical tradition from Heidegger to Bollnow, we assert that the process of existential learning that they have analyzed including the unconcealment and the awakening of conscience is not just a uniquely selected form of learning. It can also be analyzed by means of the same circular modal model as the pragmatic form of learning. Importantly, it does not appear out of nowhere, but instead requires some preceding types of learning before it can become realized.

We suggest identifying at least three major types or levels of learning: pragmatic, social and existential. The levels are hierarchically ordered so that pragmatic learning necessary precedes social learning and, accordingly, social learning is required before existential learning becomes possible. These levels are not mutually exclusive but nested and recursive so that lower levels will remain operative and necessary even though they are often more or less determined and restricted by the higher levels. The said levels of learning can be briefly described as follows. In pragmatic learning, the subject learns some basic skills of action and modal skills of deciding, choosing alternative methods, deliberating, waiting for a suitable moment, as well as learning to comply with technical norms. At this level, the basic discontinuity, which is driving a learning process, is between the subject's desires and the possibilities offered by the environment. At the second level, the subject learns to act in social contexts and to

employ the modal competences required for such action: acknowledging other actors, complying with and obeying the shared rules, and so on. Actually it is not until this second social stage of learning that the *Soi* (the self) of the subject develops and the social environment (comprising languages, norms, roles, power relations, etc.) becomes a determining factor. Only after these preparatory levels the development of meta-modalities becomes possible. At the existential level, a new fundamental discontinuity opens between social and transcendental values; such discontinuity leading to freedom. The idea of freedom in the conception of *Bildung* means the human ability to rationally and independently criticize the prevailing values of society.

What does it mean for the practical educator and researcher? Education and learning, growth and *Bildung*, are thus conceptualized as lifelong or even supra-generational semiotic processes where the previous history affects future outcomes. In our teaching or research actions in a *hic et nunc* (here and now) situation—which is all we can do—we should consider both the past and the future. In education, even the simplest pragmatic teaching should target the development of human freedom. Learning should be seen in a holistic manner comprising the effects produced by both physical and social environments as well as by an internal subjective world, that is, the whole *Dasein*. Finally, in educational interactions, the modalities *want*, *can*, *know*, and *must* play the crucial role and often appear as feelings and emotions. This represents the important avenues for research in edusemiotics, especially in the context of Charles S. Peirce's trichotomy of basic categories, among which *feeling* is the first.

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Chapter 10

The Embodied Mind: Education as the Transformation of Habits

Inna Semetsky

Abstract Mind as embodied in nature—in contrast to the human mind and natural world being considered binary categories as separate Cartesian substances that oppose each other—is a feature of edusemiotics. Edusemiotics posits the transformation of habits, in thought and action alike, at its core and aims to not only explore such a process theoretically but also enable it at the level of practice. This chapter draws from Charles S. Peirce’s semiotics and John Dewey’s educational philosophy to demonstrate that not only habit-taking but also habit-breaking are intrinsic to semiosis as the action of signs that cuts across mind–body dualism and allows us to become aware of our very habits as unconscious dispositions. Peirce’s and Dewey’s approach to learning from and by experience provides a theoretical foundation for this formalization. The chapter also bridges the discourses in humanities and sciences by bringing into the conversation the cutting-edge science of coordination dynamics with its corresponding philosophy of complementary pairs that has an uncanny affinity with semiotics as the science of signs. The chapter concludes by considering an edusemiotic approach to moral education.

Taking Habits: The Included Third

According to Charles Sanders Peirce, a sign is posited as anything that stands for something else, its object, in such a relation so as to generate another sign, an interpretant. It is by indirect mediation via interpretants that signs acquire meanings rather than just representing something else directly. A genuine Peircean sign is potentially full of meaning because meaning is produced in a specifically triadic relation between a sign and its object. Signs are relational, Janus-faced entities. A semiotic triangle representing a genuine (as opposed to degenerate) sign combines a sign *per se* (that Peirce alternatively called a representamen) with what it stands for, its object, via an interpretant as the included, third, category (Fig. 10.1):

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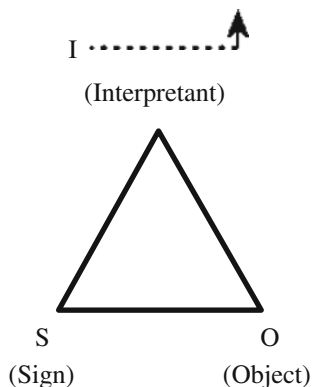


Fig. 10.1 A Peircean sign

A sign has a paradoxical tri-relative structure in which a genuine triad as “the relation-of-the-sign-to-its-object becomes the object of the new sign” (Sheriff 1994, p. 37) which is always a subject to a subsequent string of interpretants. Meanings are not confined to linguistic signs: signs also permeate the natural world to various degrees and are classified in terms of basic categories of Firstness, Secondness, and Thirdness. “First is the conception of being or existing independent of anything else. Second is the conception of being relative to, the conception of reaction with, something else. Third is the conception of mediation, whereby first and second are brought into relation... In psychology Feeling is First, Sense of reaction Second, General conception Third, or mediation. ... Chance is First, Law is Second, the tendency to take habits is Third. Mind is First, Matter is Second, Evolution is Third” (Peirce, CP 6.7). These conceptions refer to numbers that are cardinal (not simply ordinal, like the sequential first, second or third). By definition, Secondness contains one and two, so there is Firstness in Secondness, and there are three in the Third. The relation between body and mind is thoroughly semiotic, triadic: because for Peirce, matter (Second) is effete mind (First), mind (First) has to be entrenched in habits (Thirds) so as to congeal into matter (Second). It is due to this evolutionary semiosis that habits are formed and a sign can always be translated into another one.

Importantly, at times a sign becomes “sedimented into bodymind; it becomes habituated, it becomes part of individual or cultural practices” (Merrell 2002, p. 128). Peirce emphasized a self-generating “tendency of all things to take habits” (Peirce, CP 6.101) in the form of Thirdness representing “a continuous flow” (CP 1.412) of the action of signs called *semiosis*. Habit-taking as an evolutionary process (the cardinal Thirdness) includes Firstness in the form of chance, a subtle feeling, or the freedom to be creative as a precondition of its own dynamics. It is on the basis of habits formed in experience that we tend to act repetitively and often lack any critical reflection on our actions. Matter is mind, yet mind whose habits have become so fixed and rigid that there is no way for the ‘mind’ in question to either take a new habit or break an old one. Body and mind are just two different aspects manifested by a single semiotic process.

Habits are described by Peirce as dispositions to act in a certain manner under specific circumstances of experience. Habits are unconscious, and a challenging task is indeed a habit-change expressed in terms of “modification of a person’s tendencies toward action” (Peirce, CP 5.476) in the form of the final interpretant at the meta-level of practice. It is the very nature of habits that, “when imagination and perception and conceptions of a sign” (Merrell 2002, p. 128) occur again and again, the signs may sink deep into the unconscious and take the guise of fixed and rigid habits of which we are likely unaware unless we exercise critical and creative self-reflection and examine these very habits so as to modify them. Therefore critical, self-reflective thinking and ethical action are posited by edusemiotics as being necessarily complementary categories, inseparable from each other. Peircean semiotics problematizes “the psychical and the physical aspect of matter as two aspects absolutely distinct” (Peirce, CP 6.268). It is the “Third, or mediation” (Peirce, CP 6.7) that connects the otherwise binary opposites of subject and object, body and mind, self and other. When the dualism between mind and body, of spirit and matter, is overcome by the stream of signs, we move into the territory of holism. The implications for education are profound, and edusemiotics is fundamentally a holistic philosophy of/for education.

The triadic structure of signs serves as ground for the transformation and evolution of our habits and is the defining characteristic of edusemiotics. Real-life situations are never certain and betray their representation by supposedly *a priori* clear and distinct, as Descartes wanted to present them, ideas. They always partake of the unconscious dimension inaccessible to solely logical discourse, and tend to stay at the level of “the Unanalyzable, the Inexplicable, the Unintellectual... whose mediation... is brought about by a real effective force behind consciousness” (Peirce, CP 5.289).

Peirce considered consciousness a vague term and asserted that “if it is to mean Thought it is more without us than within. It is we that are in it, rather than it in any of us” (CP 8.256). The environing world is full of signs. Everything is a sign; yet—paradoxically—“nothing is a sign unless it is interpreted as a sign” (Peirce, CP 2.308). The meaning and essence of every conception depends, in a pragmatic sense, on the way the latter is applied: it “lies in the application that is to be made of it” (Peirce, CP 5.532) at the level of our practices, be it research, teaching, writing, or bringing up younger generations. An interpretive, semiotic, practice calls forth the abductive mode of inference—intuitive and insightful but eluding its representation in consciousness or precise articulation. Not being a direct psychological intuition posited by Descartes, but a logical category of Firstness, abduction “comes to us as a flash. It is an act of insight” (Peirce, CP 5.181). Importantly, signs, in addition to symbols such as words, include “pictures or diagrams or other images (...Icons) [and] signs more or less analogous to symptoms (...Indices)... The substance of thoughts consists of these three species of ingredients” (Peirce, CP 6.338).

A perfect sign blends all three semiotic elements, so that an as yet unarticulated mental image is always already present in the products of the intellect such as concepts or judgments expressed, in the final analysis, in verbal language. This

means that a conscious judgment ‘proper’ would necessarily include an element of Firstness as a gut feeling ‘located’ outside of formal syllogistic reasoning. This dimension represents the very interface with nonhuman nature, outside the narrow boundaries of the isolated Cartesian *Cogito*. Abduction may appear to function like intuition, however for Peirce there is no immediate intuition, as for Descartes: all cognition is mediated by signs, and logical inferences include deduction, induction, and abduction. The latter also ‘speaks’ but not in the propositional language of consciousness; the language of unconscious habits is that of images (Semetsky 2011a), ‘gut feelings’, and paralinguistic signs. With regard to abduction, Peirce stated that “the first premise is not actually thought, though it is in the mind habitually. This, of itself, would not make the inference unconscious. But it is so because it is not recognized as an inference; the conclusion is accepted without our knowing how” (CP 8.65). In the conversation with his student Jastrow, Peirce commented that the “insight of females as well as certain ‘telepathic’ phenomena may be explained in this way. Such faint sensations ought to be fully studied by the psychologist and assiduously cultivated by every man” (in Hacking 1990, p. 206).

A genuine sign’s self-referential closure eventually establishes identity, however always with a difference: an edusemiotic, interpretive, process not only creates “in the mind of a person an equivalent sign [but]...a more developed sign” (Peirce, CP 2.228) by acquiring new meaning. The “mediated immediacy” (Peirce, CP 5.181) as a result of the inclusion of interpretants creates a “synthetic consciousness [and] sense of learning” (Peirce, CP 1.377); even if such paradoxical mediation appears to be a contradiction in terms within the framework of classical logic. The genuinely semiotic logic is triadic as characterized by the included middle, in contrast to the logic of the excluded middle prevalent in analytic thinking. Peirce’s semiotics presents logic not as an invention of logicians but as a *ratio* which is always already embedded in human praxis and the natural world alike that together form one coherent whole via the network of relations. Humans are also signs situated in the greater universe which is “perfused with signs” (Peirce, CP 5.448). While a semiotic triangle does close on itself, a triadic structure indicates a sign becoming different from itself because it is interpreted. The paradox is obvious, but only at first sight: the creative logic of the included middle, as a feature of semiotics, does appear to be self-contradictory, in contrast to the propositional logic of analytic philosophy based on the principles of non-contradiction and the excluded middle. But an apparently paradoxical, that is, “a self-contradictory proposition is not meaningless; it means too much” (Peirce, CP 2.352).

Semiotics recognizes that the principle of non-contradiction is not all there is to formal logic. Edusemiotics contends that it may be precisely what appears to us as logical contradictions—as well as the moral dilemmas that abound in lived experience—that are important and must not be silenced but acknowledged and learned from. The dyadic relation would not lead to the creation of meanings or new conceptual understanding: a sign, “in order to fulfil its office, to actualize its potency, must be compelled by its object” (Peirce, CP 5.554), therefore it strives to leap from the unconscious into consciousness by means of integration via a peculiar, bordering on imperceptible, form of inference that Peirce called abduction.

The unconscious realm forms a deep psychological ground for habits: Peirce's "general idea... is already determinative of acts in the future to an extent to which it is not now conscious" (CP 6.156). He used the terms *ampliative* and *explicative* to differentiate between modes of reasoning that aim not only at plainly increasing prior conscious knowledge but also at making implicit, unconscious and tacit 'knowledge' explicit. It is a series of interpretants that leads to new meanings arising as the outcomes of learning in and from lived experience and elicits the transformation of habits. It is the creation of novel meanings for lived experience, rather than transmitting some preexisting facts from a generic teacher to a generic student, that can break the old habits of thinking or behaving.

The transformation of habits at the level of life should become the aim of education in the framework of edusemiotics that promotes the fully fledged semiotic reason consisting "in embodiment, that is, in manifestation" (Peirce, CP 1.615) at the level of action. Theoretical knowledge is necessarily complemented by practical action: a semiotic mind is embodied in the world. Thus triadic logic partakes of the ethics of thinking (cf. Deely 2001, p. 622) inseparable from human conduct, that is, ethics as the logic of doing; the circularity of evolutionary Thirdness having provided conditions for observable, "practical, experimental effects" (p. 617). The relational ethics necessarily recapitulates the ontology of relations (Semetsky 2010a). Abductive guesses in fact represent those learning experiments of engaging with signs in the process of growth and acquiring new knowledge. Exceeding verbal propositions, meaning is 'defined' by our actions as the embodiment or a specific "form in which the proposition becomes applicable to human conduct" (Peirce, CP 5.425) in accordance with Peirce's theory of meaning expressed in his pragmatic maxim: "Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then our conception of these effects is the whole of our conception of the object" (Peirce, CP 5.402). Conceptual understanding is a function of interpretation: "A man denotes whatever is the object of his attention at the moment; he connotes whatever he knows or feels of this object, and is the incarnation of this form... his interpretant is the future memory of this cognition, his future self" (Peirce, CP 7.591). The incarnation of the form is expressed in the *relation* between mind and body—and not just in one's consciousness isolated from the surrounding world. It is the logic of the included middle that "brings information... determines the idea and gives it body" (Peirce, CP 1.537), thus forming a complementary pair between the two.

The criterion for meaning is *a posteriori* and is a function of experiential learning. And an important 'quality' of such experience is the element of surprise: Peirce was adamant that it is by surprise that experience aims to teach us. Only by surprise we can acquire new knowledge because only such experience can change old beliefs. As Nöth (2010) reminds us, Peirce emphasized practical experience, learning by experiment, teaching by examples – and the process of reflecting on and observing the consequences of their actions can guide students to knowledge: we "believe until some surprise breaks up the habit. The breaking of a belief can only be due to some novel experience" (CP 5.524) even if such an experiential situation may appear shocking, cruel or, as John Dewey asserted, problematic and obscure.

Changing Habits: The Reorganization of Experience

Confusing and conflicting experiences present us with problematic situations—those that do not initially make sense for us and the existential meanings of which are to be extracted in this very experience if and when we are able to learn from the signs embedded in it and thereby understand such a surprising (to say the least) experience. For Dewey (1916/1924), “to ‘learn from experience’ is to make a backward and forward connection [that]... becomes instruction—discovery of the connection of things” (p. 164). The absence of emphasis on *direct* instruction makes learning by means of using signs a modality of post-formal pedagogy oriented to making connections between events so as to discover their meaning or value; the value-dimension is intrinsic to edusemiotics. It is a semiotic bridge created in practice that makes experience meaningful and ‘whole’ rather than limiting it to events which are disconnected from each other and as such do not seem to make any sense. Signs perfuse the world in which we necessarily participate because we are also signs, embodied minds: it is the *experienced* world composed not of simple dyads but of complex triads comprising “the observer, the observing, and the observed” (Dewey 1991b, p. 97) as genuine—triadic—signs.

The triadic nature of signs, itself paradoxical, makes a semiotic triangle (Fig. 10.1)—that appears to be a seemingly illogical, self-referential structure which is always suspect if not altogether *taboo* from the viewpoint of analytic reason—indicative of synthetic, holistic, thinking in which the unconscious or bodily dimension of experience is integrated. The creation of meaning for lived experience—its reorganization—demands a triadic, self-referential structure of signs. Dewey described habits as the organizations of human nature. Habit is a mode of organization: it not only commands an action—for example, a certain decision-making under the circumstances—but also has “a hold upon us because we are the habit” (Dewey 1922/1988, p. 21). Dewey positioned habits as capable of constituting one’s self by way of forming desires and ruling thoughts. “They are will,” says Dewey (1922/1988, p. 21), but in the affective sense of being an “immensely more intimate and fundamental part of ourselves than are vague, general, conscious choices” (p. 21). Sinking toward the very bottom of consciousness, habits “perpetuate themselves, by acting unremittingly upon the native stock of activities. They stimulate, inhibit, intensify, weaken, select, concentrate and organize the latter into their own likeness” (p. 88). Habits are “active means, means that project themselves, energetic and dominating ways of acting” (p. 22). Nonetheless they may manifest in human behavior as “routine, unintelligent habit” (p. 55). The reorganization of habits then becomes a mode of inquiry so as to make a habit enter consciousness as perceived and, subsequently, intelligently controlled.

The transformation of habits is paramount for the reorganization of experience on the basis of intelligent inquiry. A pragmatic experiential inquiry must precede the very fact of *acquiring* new habits, or modifying the old ones, because such a modification effects some predisposition, as Dewey asserted, to the easier and more effective action in a similar direction in the future. An organism’s interaction with

an environment is capable of generating what Dewey called an intelligence in operation, which is always effected by “cooperating with external materials and energies” (Dewey 1922/1988, p. 22). As such it enters our internal perceptions and thoughts: mind–body dualism is overcome. The transformation of the unconscious, unintelligent, habit into the conscious and intelligent is made possible by means of transactions embedded “in the organization of space and time prefigured in every course of a developing life-experience” (Dewey 1934/1980, p. 24). As such, the notion of transaction partakes of a semiotic, organism–environment, connection. Such relational dynamics stretches the spatiotemporal boundaries of the sole organism. The dynamic process comprises “the past [that] is carried into the present so as to expand and deepen the content of the latter” (Dewey 1934/1980, p. 24) and also involves a sense of anticipation of future consequences. Human intelligence grows and develops via mediation and an interpretation of experience because of multiple connections discovered in experience, in life; and “bringing these connections... to consciousness embraces the meaning of the experience. Any experience, however trivial in its first appearance, is capable of assuming an indefinite richness of significance by extending its range of perceived connections” (Dewey 1916/1924, p. 255).

While initially the multiplicity of possible connections remains unknown (hence the problematic character of a situation), they manifest at the level of “the ‘sub-conscious’ of human thinking” (Dewey 1929/1984, p. 299) and have the flavor of Peircean abduction that jump-starts our cognitive reflection; even if by themselves—that is, isolated from the very environment that produces a shock to consciousness—they will have been staying out of one’s awareness, and as a result, we would have continued to think and act habitually, without the opportunity of ‘learning from experience’. Even when “the surprising fact... is observed” (Peirce, CP 5.185), the problematic situation includes something not fully present to the senses; nor does a prior recognition of it exist in consciousness: the fact would not otherwise be surprising. The abductive inference, however, demonstrates a creative “efficiency of operation which it is impossible for [conscious] thought to match” (Dewey 1929/1958, p. 299). Becoming aware of our unconscious habits is a first step to their transformation. Because a habit, for Dewey, is a way or manner of action, a change at the level of human choices, decisions, and actions is reciprocal with the transformations in our modes of thinking, feeling, and perceiving. Such expansive, semiotic, reason “cuts across some old habit” (Dewey 1929/1958, p. 281) and represents a tendency to form a new habit even amidst many “unexpected and unpredictable combinations” (Dewey 1929/1958, p. 281) within experiential situations. In fact, the unexpected is what enriches our lives because it can create novelty.

Novel meaning that may form a new habit is necessarily embodied: human mind that *transacts* its own boundaries inevitably “comes in contact with the world... When the new is created, the far and strange become the most natural inevitable things in the world” (Dewey 1934/1980, p. 267). Such dynamics alone—the action of signs—is capable of converting the problematic situation from senseless and obscure into meaningful. A semiotic bridge constructed in practice represents the

apparently paradoxical “meeting of the old and new in which the readjustment involved in every form of consciousness is effected suddenly by means of a quick and unexpected harmony which in its bright abruptness is like a flash of revelation; although in fact it is prepared for by long and slow incubation” (Dewey 1934/1980, p. 266). Only when the old habits that were dormant (incubated) in the unconscious break out from the narrow boundaries of the existing state of mind then we become aware of the current limits of consciousness: we begin to learn. Such a transactional event represents “a widening and deepening of conscious life—a more intense, disciplined, and expanding realization of meanings.... And education is not a mere means to such a life. Education is such a life” (Dewey 1916/1924, p. 417). The meaningful experience is always already a learning experience: this is one of the postulates of edusemiotics.

The transformation of habits and the realization of new meanings are germane to edusemiotics and must be produced in relations. The relational, radical, rationality of edusemiotics employs reason that operates on the basis of the included middle capable of integrating all binaries, including that of consciousness and the unconscious. It is the unconscious that “gives spontaneity and freshness; [but] consciousness, conviction and control” (Dewey 1991a, p. 217). Thus meaningful education that uses edusemiotics as its conceptual framework must acknowledge the existence of the affective, involuntary and unconscious, dimension of experience exceeding Cartesian rationality or conscious will. Affects are signs that ‘hide’ behind words and express themselves metaphorically as subtle feelings and unspoken desires bypassing the language of propositions. Therefore, as Dewey reminded us, the ultimate task of education consists in nurturing a particular “type of mind competent to maintain an economical balance of the unconscious and the conscious” (Dewey 1991a, pp. 215–216). It is this task that becomes fully realized in edusemiotics—especially when verbal signs are complemented by the interpretation of images and pictures (Semetsky, 2013): indeed, as the saying goes, a single picture may well be worth a thousand words.

Semiotic, non-analytic but synthetic, understanding replaces reductive empiricism with its separation of the observer from the observed, of subject from object, of self from other, with fecund empiricism that transcends the dualistic split and transforms the apparent binaries into two poles of one, albeit bipolar and Janus-faced, sign. Life is a semiotic process, and it is learning from the necessarily embodied experience that elicits the transformation of our beliefs and habitual attitudes due to revaluation of this very experience. Indeed, if “education is identical with the operation of living a life which is fruitful and inherently significant, the only ultimate value which can be set up is just the process of living itself” (Dewey 1916/1924, p. 248). Life ‘containing’ semiotic triads instead of dual opposites makes possible the integration of what otherwise would remain separate binaries. Ethically, self-other integration thus becomes possible via their “reconciliation” (Kelso and Engström 2006, p. 63) in contrast to their “conflicting, or competing aspects—*contraries*” (p. 186).

Ontology and Science

Peirce defined intelligence as *scientific* whence using signs and become “capable of learning by experience” (Peirce, CP 2.227). Logic as semiotics is the *science* of signs that nonetheless displays a creative—that is, *artistic* – capacity. While ‘situated’ in educational theory and philosophy of education—that is, in the humanities—edusemiotics affirms both its theoretical and practical value because it has a surprising affinity with a cutting-edge direction in contemporary empirical science known as coordination dynamics (Kelso and Engstrøm 2006). The science of coordination dynamics, while examining the natural world, does not separate it from human consciousness and posits a single entity designated as body~mind. The notation *tilde* in-between the words body and mind functions as an index of the semiotic evolutionary Thirdness intrinsic to genuine signs. Bringing the latest research in science into the discussion in the area of educational philosophy strengthens the position of rationality (albeit unorthodox and radical) in edusemiotics, even as its logic exceeds and spills over the limitations of analytic reason and verbal discourse.

Addressing widespread dichotomies, Kelso and Engstrøm locate them in “what Aristotle called the ‘excluded middle’ [and introduce] a new meaning and application of the tilde, or ‘squiggle’ character (\sim), as in yin~yang, body~mind... Unlike the hyphen, the squiggle does not represent a simple concatenation of words, but... indicates the inextricable complementary relationship between them” (2006, pp. xiv-xv). It is the squiggle ‘ \sim ’ that “provides a vocabulary as well as a rich scientific basis for our *philosophy of complementary pairs*” (Kelso and Engstrøm 2006, p. 10; italics in original) or, in other words, for philosophy as semiotics. Edusemiotics can thus be defined by its specific educational philosophy which is grounded in complementary pairs, and teachers and students are just two sides of the same singular entity, a sign. Kelso and Engstrøm notice that despite nature being described by quantum laws that indeed allow for complementarity rather than for contradiction between two seemingly mutually exclusive descriptions, our everyday practical experience habitually chooses between one true or right description versus another false or wrong, hence ignoring the nearly imperceptible “shades of grey” (2006, p. xi) between them.

The new science of coordination dynamics thus explores not the natural material world that we merely observe as independent spectators or classical scientists but “the complementary nature” (the very title of Kelso and Engstrøm’s 2006 book) in which the human mind is indeed embodied. They contend that complex Nature (with a capital N) is complementary, and that what we perceive as dual opposites are in fact bipolar and relate to each other via the relation symbolized by ‘ \sim ’. The relation expressed by the tilde notation plays the same integrative or reconciling role as the included middle of Peircean interpretants. It is by virtue of relations that “all thinking is dialogic in form” (Peirce, CP 6.338). It is the flow of semiosis permeated by interpretants (both human and nonhuman) that creates a symbolic dialogue between what are otherwise doomed to remain two separate Cartesian substances—*res*

extensa (corporeal, material, body) and *res cogitans* (incorporeal, immaterial, mind)—and thus makes them “inextricably connected to each other” (Kelso and Engström 2006, p. 186). Edusemiotics, in practical and not solely theoretical terms, therefore aims toward ultimately “organizing a sense of self~other” (p. 253) as a holistic structure or complementary, coordinated, pair of integrated ‘opposites’, especially significant for our relations with others in interpersonal and sociopolitical contexts. To reiterate, a semiotic triangle closes on itself, even as such self-reference appears to “have been making trouble for philosophers for centuries” (p. 253)—analytic philosophers who would label it circular, hence logically invalid.

Incidentally (or not), the principle of complementarity was first posited by physicist Niels Bohr, who questioned the description of nature in terms of either particles or waves. For Bohr, the interplay of *yin* and *yang* tendencies forming one integrated whole in the Chinese philosophy of Taoism was relevant to, and informative for, his new principle in physics. Physicist David Bohm, positing the process of holomovement, emphasized the absence of any direct causality in lieu of the interconnections or relations between events interwoven into the whole by the network of quanta. What we tend to perceive as binary opposites at the level of ordinary experience are in fact not contradictory but complementary at the most subtle, quantum level. Otherwise disconnected opposites are engaged in coordinated, relational dynamics as a Deweyan transaction that makes them “mutually coupled” (Kelso and Engström 2006, p. 41). It is coupling that demonstrates the continuous balancing act—what philosopher Leibniz would call a dance of particles that fold back on themselves—pertinent to a relational network whose defining characteristic is circular or “reciprocal causality” (p. 115). From the anti-dual, semiotic, perspective, mind and body cease being binary opposites but are coordinated, thus complementing a theoretical *episteme* with practical *phronesis* resulting from the recursive feedbacks between knowledge and action. The linear cause-effect principle of mechanistic science and analytic reason alike is replaced by the nonlinear—tri-relative—dynamical process~structure characterizing genuine signs that develop, evolve, and grow in the process of semiosis. The unorthodox triadic logic symbolized by tilde is akin to virtual or archaic logic (Kauffman 2010) that “goes beyond reason into a world of beauty, communication and possibility” (Kauffman 1996, p. 293) as well as beyond empirically given facts into a world of interpretable signs and existential meanings.

The world perfused with signs is a transactional world that displays what contemporary physicist and mathematician Sir Roger Penrose defined in terms of some contact with the Platonic world of ideas (Penrose 2004). The relation between the three worlds (Fig. 10.2)—the physical world, the Platonic world of abstract unconscious ideas, and the mental world—has been considered a mystery in the framework of existing scientific theories that still disregard the science of coordination dynamics.

From the perspective of semiotics, such a relation is not mysterious but is isomorphic to the dynamic structure of signs (Fig. 10.1) that perfuse the universe as a whole. Analogously, Peirce’s category of abduction sheds its share of mystery.

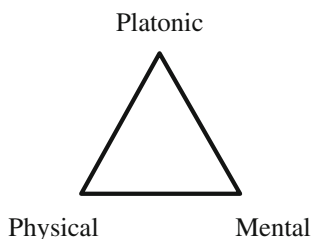


Fig. 10.2 Three worlds

Abduction that reaches down into the unconscious can be compared with what Penrose dubbed a sort of Geiger counter that can momentarily link the ‘small’ and ‘large’ worlds (micro- and macrocosm) even if the nature of such a ‘semiotic bridge’ appears mysterious (if not altogether mystical) in the framework of currently available scientific theories. But semiotics as the science of signs, especially when coupled with the science of coordination dynamics, provides an opportunity to understand such an unorthodox expanded reality: signs are intrinsically bridges, the complementary pairs comprising the self-referential process of semiosis. As philosopher of education Nel Noddings contends, it is a relation that is “ontologically basic” (Noddings 2010, p. 390). Indeed, what ‘inhabits’ the Platonic world is not only the True but also the Good and the Beautiful as “non-computable elements—for example, judgement, common sense, insight, aesthetic sensibility, compassion, morality” (Penrose et al. 1997, p. 125). The (semiotic) ontology of three worlds grounded in recursive interconnections has serious implications for education, and edusemiotics decries the notion of an autonomous agent. When self and other represent a complementary pair, a sign, individual character-building as the aim of moral education gives way to the ethics of integration (Semetsky 2010b, 2012) oriented to reconciling the disparate values representing the signs of our times.

Conclusion

Considering the implication of semiotics for education, we may face the following challenge: if edusemiotics purports to transform our habits (signs are indeed evolving and developing) but habits are unconscious, the challenge remains of how to practically access the deep unconscious level that expresses itself in a manner different to the language of propositions. Teacher preparation courses suffer from a lack of attention to the unconscious dimension of experience, and schools continue to reinforce analytic reason, even if often unbeknown to either teachers or students. Yet, human development as a semiotic process is theoretically unlimited, and moral education as experiential learning should continue throughout a life. It is by means of interpreting signs that affect us mostly at the unconscious level as just subtle, barely perceptible ideas that the ‘man-sign’, as Peirce asserted, can acquire

information and come to mean more than they did before. The information communicated in signs exceeds sense-data and must come to us in a fully Platonic manner, both as the intelligible and the sensible. Structured by sign-relations, human experience is an expression of a deeper semiotic process in which mind and body are integrated. Human decision-making is informed by signs: our actions in the world are also semiotic interpretants that punctuate the nonlinear process of semiosis. Life goes on, and there is always room for more experience. Learning never ends.

Instead of fragmented building blocks comprising finite knowledge, edusemiotics amounts to an unlimited learning process as the *way* (notably, using the Taoist metaphor) to wholeness and via the common field of potential meanings and values that may be compared to the Neo-Confucian concept of *ch'i* wherein our 'selves' are always of the nature of semiotic, and ultimately coordinated, relations. Any object of experience contains potentialities as virtual or implicit meanings, even if they are not yet actualized or made explicit by means of becoming aware of the unconscious habits. Sure enough, Dewey (1991a) called for "the im-plicit [to be] made ex-plicit; [so that] what was unconsciously assumed is exposed to the light of conscious day" (p. 214). Such a challenging program of anti-dualistic education, which itself would have been *educated by edusemiotics*, is missing or is presented sporadically in terms of an exotic 'return' to the Eastern integrative philosophies and practices. Why has not the science of signs become our new habit of the mind? Why do we customarily subscribe to the dualistic world view, ignoring the triadic nature of genuine signs with which the world is always already perfused? Well, old habits are resilient and, even if they are subject to evolution and growth, tend to become fixed and rigid while "issuing a command to one's future self" (Peirce, CP 5.487) that, as such, continues to behave in a repetitive manner according to the gamut of those very habits hiding in the unconscious. Worse, we habitually believe in the righteousness of our actions, without ever questioning them, because "belief is... a habit of mind essentially enduring for some time and mostly... unconscious" (Peirce, CP 5.417). We not only remain unaware of our very assumptions, but, based on these, continue to repetitively indoctrinate younger generations in our habituated patterns of thoughts and actions. No doubt, edusemiotics would strongly "challenge deeply held beliefs or ways of life" (Noddings 2006, p. 1). It is such a challenge that needs to be met not only in theory, but also in pedagogical practice and especially at the level of educational policies.

Edusemiotics as a novel conceptual framework affects the widespread top-down model of formal moral education reduced to teachers directly inculcating values to students. At the informal, cultural, level such inculcation may easily turn into ideological indoctrination. Still, considering that many of our moral judgments are abductive and subconscious, it is not enough to consciously deliberate on moral dilemmas or make a decision of right versus wrong even when applying our best critical skills to such reasoning. Subtle signs of experience need to be read and interpreted in practice just like in clinical practice when physicians read current symptoms and provide diagnosis and prognosis in each clinical situation. Critical, clinical, and creative aspects (Semetsky 2007) are the mutually reinforcing

dimensions of edusemiotics. Making the unconscious conscious remains a difficult task because by discarding the presupposed centrality of an independent self-centered Cartesian *Cogito* versatile in analytic reason, we are stepping into the semiotic process of learning and evolution—*thus have to create a semiotic bridge to the Platonic world of ideas in our practical life*. Being non-computable (at the level of conscious mind), our moral judgments strongly depend on insight, intuition and imagination (Semetsky 2011b), which are the psychological counterparts of abductive inference peculiar to logic as semiotics and which lay down the road to the unconscious as a component of the road to reality (the title of Penrose's 2004 book); read: an expanded semiotic reality not confined to the physical world but encompassing the *complementary* nature. The triadic, self-referential, structure of signs lead us to understand that the level of moral ideas as potential meanings must exceed the steady references already present in the conscious mind because semiotic intelligence encompasses our thinking (mental world) as embodied in, or integrated with, our doing (physical world, the world of action). There are always three components comprising a genuine sign.

An expanded consciousness, in which the unconscious has been integrated, can transcend the limitations of the present and let in various opportunities afforded by an open future. An apparent closure of a semiotic triangle paradoxically opens new possibilities (the process symbolized by the dotted line in Fig. 10.1). By stretching the boundaries of the human mind that now incorporates the unconscious, edusemiotics can perform the seemingly illogical task of computing the essentially non-computable. The process of semiosis has both depth and “breadth... to an indefinitely elastic extent. It stretches” (Dewey 1929/1958, p. 1): signs evolve. The paradoxical ‘computation’ inherent in semiosis is, however, never a rule-based algorithm. It amounts to the revaluation of experience mediated by signs and includes Peircean abduction as a hypothetical conjecture enabled by insight into the realm of unconscious ideas. Meanings, as outcomes of the learning process, lurk in the future, and edusemiotics represents a future-oriented philosophy of education. It can teach us how to evaluate options in the future evolution of signs and subsequently choose a course of action among many possibilities: thought and action, body and mind are reconciled. In formal educational settings, the teacher's task, in order to facilitate learning in full accord with an expansive semiotic reason, is to create the appropriate opportune conditions, enriched with surprise and still novel experiences, so as to assist students in interpreting signs and developing their creativity in the form of abductive guesses that can ideally put them on the path to not only the True, but also the Good, and the Beautiful.

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Chapter 11

Academic Pathologies and Anxieties of Knowing

Michael A. Peters

Abstract This exploratory essay coins the term ‘academic pathologies’ to discuss in a critical approach the culture of the academic self while focusing on the anxieties of knowledge. The chapter plays with these themes in reference to the work of Kierkegaard, Wittgenstein, Foucault, and the American film director Woody Allen. The author contends that this topic has eluded him over the years while he was trying to grapple with various formulations. The resulted text that follows the history of the author’s many, and often failed, attempts is an exercise in self-therapy, confession and self-examination with regard to his contesting to a pervasive ability/inability to produce this essay. The chapter is asking a persistent question of what a process of becoming ‘academic self’ may mean for women, for Maori, for other cultural minorities or immigrants, or for those for whom thinking and writing in ideographs is the cultural norm. The interplay of re-reading and re-writing in the midst of the revaluating some of the author’s life-experiences coupled with a type of philosophical exegesis, is an authentic example of edusemiotics in action as it focuses on a lifelong process of self-formation.

Introduction

I confess that I tried to write one particular academic paper for at least over a decade. Representing an exercise in self-therapy, confession and self-examination about my continuing inability to create a piece of writing, this chapter appears to have stabilized around the words ‘academic pathologies’. In the past I tried (quite

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unsuccessfully) to write a paper on this topic with different co-authors including my wife and partner Tina Besley (e.g., Besley and Peters 2008, 2012) who has a therapy background as a counselor in one of her past lives. I continue to be her ‘work in progress’. I should say that the failure to write is a very unusual situation for me because I tend to write easily and freely.

So, besides this essay having acquired a publishable form as a chapter in this handbook, it also is an unusual form of a public exorcism. I hope that I can finally rid myself of the ghost that haunted me for years with regard to a certain anxiety with regard to not being able to produce. For me, however, there is also the sheer luxury of being able to endlessly dwell in a state of indecision and contemplation—or a state of anxiety *before* knowledge, before choosing how and with what words one will put a stamp on a series of difficult concepts and aspects of experience that swim in the imagination but refuse any of material forms I try to assign them: it is in this process that the ‘anxieties of knowing’ are implicated. Yet, a somewhat ‘alchemical marriage’ between the images that elude representation in consciousness and their tangible manifestations in words is indeed a prerogative of edusemiotics (Semetsky 2011, 2013). My chapter thus, despite the flavor of pathology gleaming from its contents, duly belongs in this volume.

Anxieties of knowing include anxieties about reading, writing, speaking, thinking, and learning. They point to uneasiness or apprehension or uncertainty and sometimes fear of an anticipated state, event or situation that may cause psychological impairment or feelings of insecurity and helplessness. The notion of anxiety relates to other kinship existential terms: dread, angst, even despair; or, less dramatically, it calls for such terms as annoyance, irritation, or disturbance. It is a universal sentiment or feeling that is often associated in the philosophical literature with doubt or skepticism; and sometimes even with kinds of madness that we might say take the form of pronounced, exaggerated, deep anxiety that can lead to desperation, anguish, and depression.

Revisiting Søren Kierkegaard and Woody Allen

Such is the ‘dark epistemology’ of not-knowing, the neuroanatomy of the visceral mind, the confusion of unruly, inchoate and formless thought that troubles us and calls for resolution and order, even if only temporarily. The word ‘knowing’ is used here with some imprecision: it also concerns writing and thinking. This line of uncertain thinking lands me in the territory of the great Danish philosopher Søren Kierkegaard (Peters and Marshall 1999), widely considered one of the foundational thinkers of existentialism. His highly personal and poetic work focusing on ‘truth as subjectivity’ (cf. Besley and Peters 2008) engages with how one lives an ethical life as an individual with freedom, choice, commitment, and faith. He wrote *The Concept of Anxiety* in 1844 in the manner of a psychological deliberation on the dogmatic issue of hereditary sin (Kierkegaard 1980). In this work, he examined the experience of anxiety through the example of a man standing on the edge of a cliff;

a man who both fears falling into the abyss and also feels the terrifying impulse to throw himself over the cliff. The presence of such ambiguity, coupled with a feeling of the inevitability of the jump, is actually a feature of edusemiotics with its emphasis on experimental learning (Semetsky 2001).

The experience of anxiety or dread is a fact of our complete freedom to do something that includes the most terrifying possibilities and triggers our feelings of dread. In Kierkegaard's theological discussion anxiety precedes sin; hence 'anxiety is the dizziness of freedom'. As Grøn (2008) explains, "The concept of anxiety leads us directly to freedom, but what freedom means is encircled negatively by examining forms of unfreedom. In anxiety the possibility of freedom presents itself, but in anxiety a human being also becomes unfree" (p. ix). Anxiety opens up the question of what it means to be a human being. The term 'anxieties of knowing' suggests the burden of freedom that one faces in choosing words to formulate a sentence, or a research topic, or an interpretation of a work, or indeed just an utterance. The prospect of saying anything of significance is daunting, and many students and faculty facing the compulsion of adding to knowledge still say to themselves: what do I have to say? Do I have *anything* to say? Who am I in the history of ideas to add anything of consequence? Conscious of the past couple of thousand years of tradition of literacy, these anxious individuals are often reduced to silence and to the anguish of thinking they have nothing to contribute.

The phrase 'anxieties of knowing' also reminds me of the great living Jewish New York philosopher, film director Woody Allen. The gravity of his philosophy is explored in a series of movies, scripts, roles, plays, and books that exemplify the American tradition of stand-up and slap-stick comedy, colored with European art cinema and particularly Bergman and Fellini. He starts one of his speeches (Allen 1979) with the following remark:

More than at any other time in history, mankind faces a crossroads. One path leads to despair and utter hopelessness. The other, to total extinction. Let us pray we have the wisdom to choose correctly.

I speak, by the way, not with any sense of futility, but with a panicky conviction of the absolute meaninglessness of existence which could easily be misinterpreted as pessimism.

It is not. It is merely a healthy concern for the predicament of modern man. (Modern man is here defined as any person born after Nietzsche's edict that "God is dead", but before the hit recording "I Wanna Hold Your Hand"). This "predicament" can be stated one of two ways, though certain linguistic philosophers prefer to reduce it to a mathematical equation where it can be easily solved and even carried around in the wallet.

Allen's instincts are not untutored; yet in contrast to Kierkegaard he uses comedy rather than tragedy to explore the fundamental existential condition of humanity. Adam Cohen (2007) suggests that Allen, more than any other American writer, put existential dread on the map in his asking (in reference to café culture of debating Sartre's *Being and Nothingness*), 'what if everything is an illusion and nothing exists?'. Existence is considered as an absurd cosmic joke. As Allen says about the characters in his films, you are born and you don't know the script, you suffer tragedy and catastrophe, and then you are wiped out for no offence that you have committed. Allen explores the desire of many of his characters to ground their

lives in traditional ethical values—despite their realization that such values may no longer be certain or written in stone and the idea that contemporary American society is rapidly descending into barbarism precisely because of societal failure to maintain a sense of individual moral responsibility.

Writing the Self

I am often asked why I write so much. I guess as much as experiencing problems with academic writing, writing ‘too much’ can be seen as compulsive behavior, as an academic pathology in itself. One colleague told me facetiously and semi-seriously some years ago that my new performance target for next year was to write half of what I wrote last year and the following year to write half again. He is a colleague for whom writing is a form of self-torture causing him deep and continuing distress, sleepless nights, and hours of sitting at a computer mulling over the same sentence for hours. His feelings of distress are exacerbated by the fact that his father, a famous professor of Islamic history, wrote over sixty single-authored books in his life-time. He can spend a week writing a paper and end up with nothing but a whole raft of feelings of self-disgust and emptiness. It is self-imposed distress, a form of self-hurt and personal self-inflicted behavior often causing deep psychological suffering. He and many others—both students and colleagues—have a deep anxiety and fear of writing.

Psychologists talk of reading and writing problems in terms of dyslexia and dysgraphia. These are technical terms defined in a neurological discourse in terms of their very specific meanings: dyslexia indicating a failure of children’s attaining the literacy skills that would be commensurate with their intellectual abilities; and dysgraphia—a specific deficiency in the ability to write, which is not associated with the ability to read or is due to any intellectual impairment. Yet, I am not concerned with the fear of writing as a neurological problem but rather as a philosophical and educational problem that is connected with a range of other problems of self, fundamentally of self-expression, of the culture of the academic self, often exacerbated by performance anxiety in a ‘publish or perish’ university environment. But the fear of writing is not simply a fear experienced by scholars and students who experience problems with writing—but also by those for whom writing is *everything*.

I have consistently used both terms, ‘academic pathology’ and ‘writing the self’ in my thinking and in my work over the years. The term is borrowed from Michel Foucault who used it to describe an ancient form of self-writing (*hupomnemata*) used by the Greeks, a kind of journal or notebook to capture the already said, to collect what one has managed to hear or read, and “for a purpose that is nothing less than the shaping of the self” (Foucault 1997, p. 211). Such is an ancient art of the ‘care of the self’. The concept of ‘writing the self’, like reading or speaking the self, is part of attaining selfhood in the world of literacy and specifically in academic culture. Texts, especially those in the humanities, are auto-ethnographies in this

sense, and we have genres that consist entirely of the expression of the self: diaries, letters, confessions, autobiographies. Some scholars argue that the modern novel arises as a narrative expression of character. Is all writing both autobiographical and therapeutic?

Foucault's colleague at the Collège de France, Pierre Hadot, signals to us the importance of writing the self as the basis for understanding the development of academic cultures. In his investigations of 'spiritual exercises' in Latin antiquity, Hadot (1995) describes, in relation to the philosophy of the Stoics, the way in which "thought, as it were, takes itself as its own subject-matter" (p. 81) as the basis for an art of living where the individual is transformed into an authentic state of heightened self-consciousness which is providing both inner peace and freedom (e.g., Peters 2009, 2012).

Sigmund Freud's *Civilization and its Discontents*, a seminal work written in 1929, explores the fundamental tension between the individual's quest for freedom and civilization's demand for conformity. It is a work where he contemplates for the first time the notion and consequences of a culture that is 'sick'. Where the early Freud was interested in specific individual pathologies, in *Civilization and its Discontents* he expands his interest to identifying the neurotic aspects of society itself. I acknowledge him in this regard not because I believe in 'oceanic feelings', the Oedipal conflict, or theories of sexual drives but because he provides the insight that we might contemplate the frustrations to individual freedom of self-expression as a primary source of academic pathology. I use the term pathology, then, in its original Greek sense of *pathos* to refer to feelings or sufferings; and 'logy' as the study of these sufferings! Academic pathologies represent the study of the causes, development, changes, and consequences of changes of subjects who suffer from impediments to their fundamental self-expression, sometimes caused or brought about by the academic culture itself.

There is a certain *archi-texture* in the fear of writing: it is often fear of being an author (being a subject); or fear of self-expression. Fear of writing is deeply concerned with questions of self and identity; fear of writing is also fear of thinking (if one accepts a close connection between writing and thinking); fear of writing is not only individually experienced but also socially constructed and experienced; also, fear of writing involves choices about discursive form which may have an unconscious element. Edusemiotics as a theory-practice nexus in education related to self-knowledge can bring to the surface the depth of the unconscious together with the multiple emotions associated with it; and thus can discover and perhaps eliminate some related fears and anxieties with their accompanying feeling of self-doubt.

It is worth noting that while I kept thinking I was the one to have invented the term 'academic pathology' years ago, I discovered to my horror that an online journal in education took up the term as the theme for a special issue of *Educational Insights* in 2009 (see <http://www.ccfi.educ.ubc.ca/publication/insights/v13n04/toc.html>). The Editors of the journal write:

In 2007 sociology professor, Doug Aoki, (University of Alberta) assembled a call for an issue of *Educational Insights* exploring the paradoxical relationship between pathology and normalcy in the context of teaching, research, labour, theory and writing within the Academy, “in love and hatred, pride and prejudice, genius and folly, sex and lies.”

They continue:

The academy systematizes pathology through a myriad of vectors. Once again, the diagnosis turns on how we handle the language. *Patho-*, from *pathos*, means suffering or feeling; *-logy*, that definitive academic suffix, is the venerable normalization of *logos*, with all its familiarly appalling connotations. Then a productive reading of *academic pathologies* is the variable institutional logics of suffering and feeling in the university.

Well, I have postponed long enough. This is what I call the *pedagogy of deferral*, the educational science of delay. I now present, as promised, a brief history of my failed attempts to deal with or to realize the concept of ‘academic pathologies’. First, a simple attempt that came with trying to frame an abstract while also trying to single out those philosophers who have influenced my conceptualizations:

In this paper I coin and explore the term ‘academic pathologies’ as a form of analysis for understanding disorders of the academic self. The paper first provides a genealogy of the various depth hermeneutical models employed by Freud focusing on the thinkers in the critical theory tradition and it evaluates the attempts of Marcuse (*One Dimensional Man*), Adorno (*The Authoritarian Personality*) and Wilhelm Reich (*The Mass Psychology of Fascism*) to provide a critical psychoanalysis that serves to interpret the structure of the personality in relation to the structure of society, a relation first contemplated by Freud in *Civilization and Its Discontents*. I indicate how in the critical tradition such as Christopher Lasch (*The Culture of Narcissism; The Minimal Self*) and Michel Foucault (*Madness and Civilization; The Birth of the Clinic; History of Sexuality*) provide some interesting possibilities for developing an alternative to mainstream educational psychology in understanding academic behavior.

In this attempt I never got beyond the abstract but it did indicate the territory I wanted to traverse. Here a second more sustained, and further developed, piece of writing:

There is a more or less direct line from the origins of modern philosophy—from Descartes’ ‘subjective turn’ and Hegel’s *Phenomenology* – to what we might call today critical political psychology, or to critical forms of depth psychology, or a critical hermeneutics of the self that calls special attention to the issue of power in the institutional creation and self-constitution of identities. Descartes’ assumption of the *Cogito*, the ‘I’ as the basis of all claims to knowledge and morality, set modern philosophy on the track of *stable subjectivity*. 20th Century French philosophy’s rehabilitation of Hegel coalesced with Descartes’ subjective turn in Henri Bergson’s emphasis on the temporality of the subject. Later Alexandre Kojève’s lectures at the Collège de France during the 1930s served to introduce an influential generation of thinkers to Hegel and began a renaissance in French thought that has had lasting impact.

In the German context critical theory owes its origins to Hegel’s *Phenomenology* and also to the young humanist Marx of the 1844 Manuscripts, to Freud, and later to Husserl, Heidegger and phenomenological tradition. Indeed, both strands of critical *philosophy of the subject*, both French and German, were never divorced from questions of power even though this was thought differently at different periods. 20th Century French philosophy beginning with Bergson and undergoing transformation at the hands of phenomenology-existentialism,

hermeneutics, structuralism and poststructuralism, focused heavily upon *power as ideology*, domination and hegemony in the Marxist sense; but also attempted to foster understandings of disciplinary power, power exercised through discourse and forms of continuous control especially through the works of Foucault and Deleuze.

Critical theory as it was inaugurated by Grunsburg, and established by Horkheimer and Adorno, working directly from sources in Marx and Freud, and later phenomenology as it was developed by Heidegger, flourished with various combinations of Freudian-Marxism, and Heideggerian-Marxism in the works of Eric Fromm, Herbert Marcuse, and Wilhelm Reich.

Both the French and German lines were also strongly influenced by the avant-garde in art and literature. First Dadaism, then Cubism, followed by Surrealism under Andre Breton, exercised a healthy skepticism of the visual based on perspectivist epistemologies and tried to break through bourgeois morality by means of a depth psychology of images. Breton, working from a marriage of Freud and Marx, tried to break with the 'realism' and popular hold that bourgeois morality had on the imagination and on the taken for granted world of 'the individual'. The lasting influence of this mixture of Freud and Marx in surrealism had a continued influence on the French novel. *Nadja*, Breton's second novel, published in 1928, begins with the question: 'Who am I?'. Through automatic writing and altered states of consciousness, the surrealists tried to reveal the workings of the unconscious self. They revolutionized French literature and influenced a generation of writers and poets: Jean Cocteau, Jacques Prevert, Pierre Reverdy, Antonin Artaud, Henri Michaux and Rene Char.

The Frankfurt School from its beginning was heavily influenced by the German tradition of the *Bildungsroman* and its early secular humanism evidenced in the works of Eric Fromm as well as Adorno and Horkheimer. The intellectual indebtedness to the concept of *Bildung* was indeed recorded as it influenced German philosophy and life more broadly, fostering a set of kindred concepts for thinking: autonomy, authenticity, duty, responsibility, and obligation even if these were open to questions and themselves the object of suspicion 'after Auschwitz'.

What became 'postcolonial studies' in the 1970s had its origins in two areas: the phenomenology of Hegel, once again, that in the tradition of Lacan and Sartre transformed itself into the *phenomenology of racism*, of the *racialized self* under the influence of Frantz Fanon who wrote works like *Wretched of the Earth*, *Black Skin, White Masks*, and developed and inspired a psychopathy of colonization.

Revisiting Wittgenstein

I felt I was on the right track with all abovementioned attempts. Intuitively I felt my instincts were close to the heart of the matter but again I faltered. The scope was too large even if it pinpointed the phenomenological beginnings. It spanned across the whole of the 19th century German philosophy and 20th century French and German philosophy to focus on the different accounts of power put forward by the Frankfurt school philosophers and the contemporary French thinkers like Foucault. In another take, I started my paper with a couple of quotations from the Austrian philosopher Ludwig Wittgenstein. I have used the term 'writing the self' in relation to Wittgenstein's confessional style of philosophizing that is compelled to tell the truth and thus creates conditions for ethical self-formation (Peters 2002; also Peters 1993, 1997, 2001, 2003, 2005, Besley and Peters 2008).

In his *Philosophical Investigations*, Wittgenstein (1953/2001) expressed the aim in philosophy as boiled down ‘to show the fly the way out of the fly bottle’. Wittgenstein was strongly influenced by Sigmund Freud, Karl Krauss, and William James. He famously developed a therapeutic view of philosophy as one that sees philosophy as a parasitic and infectious discourse feeding on the use of words in ordinary language and failing to get a clear view of the way we talk about the world. Philosophy is not only destructive (or deconstructive) in the sense of dismantling pseudo problems; it has therapeutic effects and philosophy can act as a kind of purgative enabling us to stop doing philosophy thus freeing us from philosophical pathologies. Linguistic therapy can defuse and neutralize miscreant theories and it can also free us from the dominant or ruling metaphors that hold us captive. Wittgenstein alerted us to the way in which very general pictures of how we view the relation between language and reality easily become part of our philosophical illusion and a fit subject for pathology of the intellect. In an obvious sense, these broad philosophical assumptions that govern the discourses of the human sciences, of the humanities and social sciences, constitute a clear picture of academic pathologies based on the kind of confusion that takes place when language goes on holiday. In this context, as Wittgenstein demonstrates, often philosophical understanding is a matter of will rather than intellect.

Wittgenstein also said once that he regarded himself as a disciple of Freud. Jacques Bouveresse (1995) argues that “Wittgenstein is the ‘disciple’ of Freud who seems to do nothing but raise objections to his master” (p. 41). And while Wittgenstein attacked the scientific status of psychoanalysis, he believed also that Freud had invented a line of thinking. Wittgenstein’s view of Freud was tempered by his own reappraisal of positivism; and his view on the purity of language came from the Viennese satirist and critic Krauss who in the journal *Die Fackel* wrote that psychoanalysis was a spiritual disease of which it considered itself to be the cure. Krauss believed reason to be instrumental and values to arise out of creative imagination; and Wittgenstein came under his spell in seeking to clarify and purify language, linking language to ethics as a critique of culture. According to Goodman (2002), Wittgenstein learned a great deal from William James’ *The Principles of Psychology* and *The Varieties of Religious Experience*; and shared a set of commitments “to anti-foundationalism, to the description of concrete details of human life, to the priority of practice over intellect, and to the importance of religion in understanding human life” (Goodman 2002, p. 5).

The term ‘pathology of philosophy’ also has been applied by Donald Livingston (1998) in relation to David Hume’s philosophy with the aim to explore Hume’s answers to such questions as ‘what is philosophy?’ and ‘what is the philosophical life?’ on the basis of virtues of the true philosopher who understands that philosophy springs from the mystical polytheistic religion which provides us with the first understanding of themselves and the world. Hume seeks the origins of philosophical practices in the dispositions of human nature and sees the culture of Europe as progressively shaped by secular modes of thought.

This line of thinking led me to recourse to critical theorists and trying to develop a philosophical concept of ‘academic pathologies’ that owed something to Hegel

and phenomenology; and flowered into a critical psychoanalysis. It brought to mind Theodor Adorno's 'authoritarian personality' in reference to a cluster of traits reflecting a desire for order, a kind of rigidity, unquestioning obedience, respect for authority, a desire for highly structured command, scapegoating, and a highly conventional outlook. The authoritarian personality theory was devised to explain racism. Adorno's 1947 F-scale ('F' here standing for fascism) is no longer in use; partly because group loyalty is seen as a commonplace, and ethnocentrism and stereotyping are also seen as common and ineradicable psychological processes. I was also trying to focus on institutional power relations as a crucial factor in the development of academic pathologies.

From the Early Western Origins to Marx to Feminism

On Temple of Apollo at the Theatre of Delphi in the valley of Docis in Greece—the site of the Delphic Oracle, perhaps the most famous in classical Greece—three inscriptions were carved into the lintel:

γνοῦθι σεαυτόν (*gnothi seauton* = know thyself)

μηδέν ἄγαν (*meden agan* = nothing in excess)

Ἐγγύα πάρα δ'ἄτη (*eggua para d'atē* = make a pledge and mischief is nigh)

These maxims are attributed to the Seven Sages. The inscriptions reputedly have their origins in prehistoric times and in the worship of the Goddess Gaia. There is some archaeological evidence to suggest occupation of the site around the 8th century BC. The oracle was consulted on all major occasions when prophecies were in order. The oracle was delivered by Pythias, the priestesses, and further interpreted by the priests of the cult of Apollo. Today, the maxim calling for the 'examined life' appears to showcase itself as "the necessary, even if often disregarded, goal of education. ... Still more often than not education is equated with formal schooling (for children) or perpetual training (for adults) thus *a priori* marginalizing the realm of lifelong human development and experiential learning situated amidst real-life situations" (Semetsky 2011, p. 3). 'Know thyself' is the founding expression of the relation between the subject and truth; however Foucault suggests that this inscription did not prescribe self-knowledge, neither as a basis of morality, nor as part of a relationship with the gods. The inscription only gathered the significance with respect to self-knowledge, specifically, much later. At the time it meant something like 'don't ask too many questions' or 'as a mortal, don't presume too much of the gods'.

Only when it appears in philosophical discourse (such as in *Apology* with Socrates) does it take on added significance, especially when coupled with taking care of the self. Indeed, Foucault maintains that the latter—"take care of yourself"—is the ground or foundation for the former—"know thyself". Thus, taking care of yourself was a fundamental principle for describing the philosophical attitude in Greek, Hellenistic and Roman culture. Epicurus uses the Greek word *therapeuein*

meaning both medical care (therapy for the soul) as well as service to a master. This attitude became the principle of moral rationality in Greek culture and even permeated Christianity appearing especially in Christian asceticism.

Within the Western philosophical tradition the self has been posited as an objective, unified, and universal entity—both a-historical and a-cultural—that transcends particular historical and cultural contexts. The concept has grown out of religious and theological discussions where the enduring part of the essential, ‘true’ or authentic self focused upon the soul, spirit or mind—an immaterial aspect—that survived the mortal body. In modern Western societies, beginning with Descartes, Hobbes, Locke and Kant, the sovereign self has been assumed to be a separate, individual, autonomous and rational being existing independently and logically prior to society. Indeed, this tradition of the rational, autonomous subject has taken two influential forms: the Kantian ethical subject and the self-interested individual of liberal political economy established by Adam Smith and David Ricardo, or so-called *homo economicus*, based on assumptions of individuality, rationality, and self-interest. Both lines of development have been responsible for founding and structuring the central institutions of liberal culture synonymous with modernity. Not only is this concept radically individualist, rationalist and possessive but it is also assumed to be *a priori* given and unchanging—an essential self that is not historically or culturally constituted.

Marxist and socialist critics have drawn attention to the ideological nature of the subject underlying liberal political economy insisting that the self is a set of social relations defined largely by underlying economic forces. Scholars from psychoanalysis have critiqued the assumptions of rationality and individuality positing relational modes of analysis that recognize more fully the role of emotions and desire. Communitarians have interrogated the notion of liberal individual as the atomic political substratum beyond which one cannot go to invoke a communitarian view of the polity. Critics from other cultures have questioned the ethnocentrism and Eurocentrism of Western notions of the self and the way it has been advanced as the basis of the Universalist global society. Some of these strands of critique share with a number of postmodernist and poststructuralist accounts the radical working assumption that the Western concept of subjectivity is an historical and cultural construction—a type of historical ontology—that is inextricably bound up with questions of power. On this view Western concepts of the self have shifted over time.

Radical feminist philosophers have argued that the dominant Western concept of self is both patriarchal and masculinist to be substituted with, most often, a relational notion of self as based on the ethics of care. Not until the very recent research in edusemiotics that the ethics of integration—representing an advancement of the concept of the relational self as a follow up to the educational ‘care theory’ (Noddings 1984/2003, 2002, 2010) and an alternative to individual moral education—has come to influence educational discourse (Semetsky 2010, 2012, 2013). Thus, while socially and politically progressive in its day—when these related conceptions first received their formulation—a number of telling critiques from all

quarters, including the feminist critique, have been mounted against the self as sovereign individual.

There is more that I would like to add to this *mélange*. Judith Butler's (1997) *Excitable Speech* indeed introduced the gender dimension into the speaking, writing, thinking, knowing subject—a not so obvious a category before Simone de Beauvoir's *The Second Sex* that appeared in 1948. Butler's drawing on this philosophical tradition demonstrates that gender is a *performative* category rather than any fixed or stable identity; and in this work she explores the phenomenon of 'hate speech' in the US. 'Excitable speech' is a metaphor chosen for the complex interrelations between language, identity and agency. Butler maintains we are all linguistic beings and become ourselves through the continual and forever risky negotiation with the very linguistic system that permits our semiotic identity to emerge. For Butler, linguistic being proceeds from the inter-subjective nature of language that is both enabling and disabling, with great power to wound but that also makes possible the speaking and writing time of the subject. If the notion of 'anxieties of knowledge' applies at all—most certainly it applies with regard to the discursive (self-) positioning of women that up until very recently have been denied their voice and thus reduced to silence.

In Lieu of a Conclusion: *te reo* Maori

In relation to educational and philosophical themes that run so deep in Aotearoa is what I am going to call the 'imperial writing subject'. Aotearoa (in Maori pronounces [aɔ'tearɔa]), originally used in reference to the North Island of New Zealand, became now the accepted name for the entire country. I cannot do justice to the complexity of this topic in the short chapter but let me say briefly: Maori children who are fluent speakers of their native *te reo* (language) Maori, speakers who grew up at *marae* (a fenced area that traditionally belongs to a tribe) in rural areas like Pungaru, were forced in schools to 'write' *te reo* Maori rather than 'speak' it at New Zealand School Certificate Examinations prior to 1988. Successive generations of Maori children fluent in *te reo* Maori were failed at the subject 'Maori' because it was an examination designed to examine only *written* Maori language (i.e. the anglicized, alphabetized English literate form), and for many this was equivalent to failing at their own culture. The pathological consequences have been enormously damaging for Maori students.

The project *Te Reo o te Taitokerau* was concerned with introducing an oral component into the exam but it had a much wider political agenda. I spent seven years in the field working in the Tai Tokerau on a range of related projects. This experience early in my career was immediately personally transformative. I began to understand the significance of the oral communication and its place in the stream of life at the heart of Maori culture. I also began to understand the marginalized nature of teachers of *te reo* Maori in the state system of education, the way in which 'enforced writing in English' was conceived by early educationalists because *te reo*

Maori was widely regarded as ‘an imperfect vehicle for thought’. I also witnessed during the 1980s the widespread extent of institutional racism in New Zealand schools (e.g., Peters and Marshall 1988, 1989a, b, c, 1990; Peters et al. 1989).

This chapter (based on trials and errors and trials again, both oral and written) represents a history of my failed attempts to manufacture a usable concept of ‘academic pathology’ that does not simply rest on disorders of the individual academic self, or problems surrounding the anxiety of knowing, or the fear of writing. I have tried to address the collective, cultural, and educational dimensions of the anxieties of knowing that take into consideration institutional power relations. Throughout the essay and during its writing it became clearer to me that the *positionality* of the subject was important; but also and increasingly so, one might say the cultural specificity of the subject became a central aspect in my thinking—for how fear is experienced, how anxiety manifests itself, and how power relations perceived are all matters that can only be described under the category of difference. For instance, how does the fear of writing manifest itself in traditionally oral cultures? How can women be textually represented and how do they represent themselves? What of the writing and speaking subject in the process of becoming an academic self, especially for women, for Maori, for cultural minorities, for immigrants, for those for whom thinking and writing in ideographs is the cultural norm?

To deal adequately with these anxiety ‘disorders’—anxieties of knowing—we need to locate them firmly within the wider psychological ecology of the culture of the self and to encourage an ongoing set of reflections on the question of academic self-knowledge. In this way we may come to understand more deeply that knowing has its own pathologies.

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Chapter 12

Interpreting Our Selves

Sandy Farquhar and Peter Fitzsimons

Abstract This chapter engages with Paul Ricoeur's theory of narrative identity, to render the self an unstable nexus of meaning, engaged in the ongoing invention and reinterpretation of itself. The complexity of interpreting the self is highlighted through the use of literary metaphors that posit the self variously as author, as interpreter, and as evolving text. The article delves into the field of hermeneutics to undermine the possibility of certainty in self-knowledge, recognizing that no observation or description is free from the effects of the observer's experiences, presuppositions and projections of his or her personal values and expectations. The chapter argues that, in the edusemiotic sense of interpreting ourselves, we are doubly caught in a hermeneutic circle: initially with the self as the interpreting subject, and subsequently in the resulting interpretation, with the self as the object of that interpretation. Self is, thus, evolving text, albeit with a finite number of possibilities. The interpretive basis of identity involves a dialectical understanding of our selves as simultaneously constant and changing, our life story unfolding like a narrative. It is through interpretation that people give meaning to their experiences of the world, and through interpreting our experiences we become signs enriched with existential meanings. Using the metaphor of life as continuous textuality, this chapter concludes that, through narrative, our ever-evolving self is necessarily located historically, temporally, and contingently.

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Introduction

From antiquity, self-knowledge has been a cornerstone of philosophical and educational inquiry. Found in the Hindu Upanishads, and inscribed on the Temple of Apollo at Delphi, the maxim ‘Know Thyself’ has been a major preoccupation for academics and educationalists alike, an ambition more aspirational than achievable. Noddings (2006) contends that education, if not aspiring to self-examination, “may not be worthy of the label *education*” (p. 10). This chapter accepts the inevitable uncertainty of knowledge in relation to self (and others), embracing the position of interpretation in edusemiotics as a tentative and ongoing quest to decipher the signs and codes inherent in the social interactions and histories through which we come to know anything about ourselves. Interpretation admits to being, at best, an approximate process in clarifying, explaining or providing meaning, making no pretense at revealing the essence of its object. Getting to know our selves, albeit in a limited way, is clearly a focus for education. The play of interpretation is necessarily semiotic, in that it is concerned with the creation of meanings that underpin formulations of self-identity as embedded in the relational dynamics of sign-processes.

The article presents hermeneutics as a form of creative interpretation, elaborating on the problem of the hermeneutic circle—a circuitous logic that impedes objective understanding in many spheres, but particularly in the human sciences where subjectivity and objectivity coincide. The reciprocity between subject and object is indeed one of the important characteristics of edusemiotics as an anti-dual, integrative conceptual framework (Semetsky 2013; Stables and Semetsky 2015). Within a literary metaphor, the self may be considered a form of *text*, to be variously interpreted and then re-inscribed. The self may also be seen as the *interpreter* of that text, implicated in its next phase of production and inscription. And as further extension, the self may serve as the subsequent meaning of the interpretation—the *resulting text*. The literary metaphor allows for an ever-changing subject, instability of the author over time, and formation of a fluid identity as the creative and ongoing interplay between an evolving text and its reader.

The chapter draws on Ricoeur’s theme of narrative identity as an explanation for how our lives are re-described, revealed and transformed. The project of self is seen as a permanent state/process of dynamic equilibrium between stasis and change—Ricoeur’s elements of *idem* and *ipse*—with each phase yielding a fresh, but never final, perspective on how we interpret our selves.

Hermeneutics as Creative Interpretation

Language is not just a series of message transfers between sender and receiver. The possibility of interpretation implies some fluidity in terms of meaning problematizing the common conception of communication as a direct transmission of

messages. With respect to text, a linear production model posits a writer, the text itself, and the reader, setting up a sequence of discrete steps in the constitution, transmission and reception of meaning. This article problematizes such simplicity through engaging with the notion of interpretation in the field of hermeneutics. In Greek tradition, the art of interpretation was incorporated in the notion of *hermeneus*—from *Hermes*, messenger of the gods—literally ‘the translator’, giving us the basis of today’s hermeneutics in philosophy and linguistics, in which essence is downplayed in favor of dynamic interpretation. Latin scholars also engaged with the transfer of meaning, using vocabulary such as *traducere*, *interpres*, *transferre*, *translatum*, all of which signify the shifting or transfer from one idiom to another and all of which are recognizable in today’s English derivatives as related to interpretation and transfer of meaning.

As one of these derivatives, translation can be seen as more than just transformation—neither image nor copy of the original, but as a creative and interpretive act involving growth or enlargement of the original—as metaphor and poetic transposition. In translation, the original becomes larger; it grows rather than reproduces itself, “like a child... but with the power to speak on its own” (Derrida 1985, p. 191), making of the ‘child’ something other than a reproduction. In reimagining the future of education, Egan (2008) elaborates on our fertile capacity for metaphor as fundamental to language, recognizing that even our basic sentence structures consist of metaphors that we often forget are metaphors. Being able to see these invisible metaphors, he argues, offers a creative tool in that it allows us to play with what otherwise we are constrained by—to enrich both our expression and our understanding, enabling flexible and creative thinking.

One of the costs of failing to develop our metaphoric capacity is the kind of literal thinking that never gets beyond its starting assumptions and presuppositions. It is thinking that is closer to calculating than to anything critical or imaginative: thinking not only condemned to remain “in the box” but not even knowing there is an outside to one’s box...one role of education is to least to expand the box and make clear that it does have an outside that may be worth the struggle to occasionally visit (Egan 2008, p. 57).

In our earlier paper exploring what it means to be ‘lost in translation’ (Farquhar and Fitzsimons 2011) we accepted the inevitability of phenomena and meaning being interpreted differently, even within the same linguistic community. We argued that language has the power to create what is ‘real’: through image, metaphor and interpretation. The idea of being lost brings together both openness to new ideas and a willingness to embrace multiplicity—in the form of a commitment to engaging in a journey, to finding new meanings and trajectories, and to embracing destinations that are tentative and negotiable. To be lost in translation involves a willingness to accept the unavoidable contingency of language and a commitment to openness and continuous reinterpretation, enhancing possibilities in our ethical endeavor as educators. Similarly, interpretation may be better explained as creative metaphor formation than as any kind of mirroring or replication, with the meaning of a text necessarily reflecting the reader’s existential predicament rather than revealing an author’s original intentions.

Much educational research is founded on a belief in scientific knowledge, relying on accuracy of observations, collection of appropriate evidence, and extraction and processing of relevant data, with little truth value ascribed to narrative in the understanding of our lived world. However, those who champion the importance of narrative knowledge (e.g., Ricoeur 1985; Lyotard 1984; Rorty 1989) maintain that even science is a form of narrative—another form of storytelling. Kuhn (1996) introduced the idea that the science narrative cannot be accorded the authority of objective truth. Claims to objectivity in knowledge production rely very much on inter-subjective agreement among participants about what constitutes truth. In science, knowledge is a form of interpretation based on consensus, with its authority derived from the fact that those in the scientific community play the game according to similar rules. And it is the sciences—the social sciences, in particular—that purport to reveal the truth about ourselves.

Hermeneutics undermines the kind of knowledge frequently assumed in the traditional focus of humanism on literature and the arts. What we claim to know about ourselves is seriously undermined by the multiple current interpretations and by the changing context of language over time. Derrida (1978) uses Saussure's semiology to interrogate the notion of *the center*, introducing the notion of *play* to describe the possibility of alternative conceptualizations of structure. He offers two interpretations of play, one seeking to decipher the truth or origin that temporarily escapes interpretation, the other "Nietzschean affirmation of a world of signs without fault, without truth and without origin" (Derrida 1978, p. 292). The first interpretation operates within the metaphor of science, as the process of investigation is the preliminary and preparatory ground for an eventual yielding up of truth. The second interpretation would be akin to continuous investigation, with no discovery final and every 'truth' tentative. He suggests that the two interpretations are irreconcilable, even though they share the territory of the social sciences. Instead of there being an underlying truth or rational foundation for behavior, Derrida's position enables many interpretations of the text, and acknowledges the importance of signification in the use of language.

Ricoeur's hermeneutics provides a direct route to understanding a multitude of variables that will direct our being in the world through what he calls his 'little ethics' (Ricoeur 1992). For Ricoeur, hermeneutics does not prevent or impede us from acting; rather, it forces us to choose an interpretation in the face of uncertainty, and in this way represents a form of decision. He argues that text provides the opportunity to develop new ideas, new identities and new plans for actions. Text tells us some truth about the world; it is through the narrativization of text that we construct meaning and value and hence our identity. Ricoeur's central preoccupation is a concern with the meaning of meaning. One of his key beliefs is that meaning is marked by indeterminacy and contingency, because of the polysemic nature of language. The task of hermeneutics, then, is not to discover an unmediated reality, but to continue to mediate reality through new, creative interpretations that recognize the legitimacy of multiple meanings and conflicting views. Elevating this seeming inconsistency to the level of necessity, he refuses an easy dialectical synthesis or reduction of meaning. For Ricoeur, there is "no self-understanding that

is not *mediated* by signs, symbols and texts” (Ricoeur 1991b, p. 15). The paradoxical ‘logic’ of signs as mediated, relational entities is one of distinguishing features of edusemiotics. The human sciences, then, are not a source of certainty, but are themselves further sign-systems, working to interpret the world in terms of their own semiotic referencing patterns. Education becomes a critical and constructive engagement with the world, rather than being a positivistic process of discovering objective reality or transcendental truth.

The Hermeneutic Circle

Hermeneutics is a branch of philosophy that starts with questions of interpretation. It was originally concerned with theological questions and the interpretation of sacred texts. In the 20th century, hermeneutics moved away from theology, with Heidegger and Gadamer projecting an understanding of interpretation as dialogical and open, and hermeneutics as a way to understand our situation in the world. Through interpretation, we understand both our psychological subjectivity and our existential conditions.

The problem of the hermeneutic circle was recognized early in the development of hermeneutics. Augustine knew the connection between language and interpretation, and had understood that interpretation of Scripture involves a deeper, existential level of self-understanding. Spinoza, too, drew an analogy between our understanding of nature and our understanding of the Scriptures. In both cases, he noted, our understanding of the parts hinges on our understanding of a larger whole, which, again, can only be understood on the basis of the relations between the parts. This circular understanding was further developed by Friedrich Ast as a student of Schelling, who argued that individual utterances are to be understood neither with reference to their author, nor with reference to their place within the semiotic system, but according to their location within world-history. This, Ast thought, was possible through the combination of a synthetic and an analytic approach (Ramberg and Gjesdal 2014): synthesis focuses on the whole, while analysis focuses on its constituent parts. In his inclusion of historical influences, Ast extends the scope of the hermeneutic circle to include the relationship of the text to historical tradition and culture at large.

Hans-Georg Gadamer was a German philosopher in the Continental tradition, best known for his 1960 treatise on hermeneutics, *Truth and Method* (Gadamer 1975). Gadamer argues that we never know a historical work in the same way as its first readers did, since we have no access to its original context or to its author’s intentions—despite various attributions we might later make. Traditions in literature and in culture are dynamic and evolving, so any search for lasting truth in the humanities is doomed to failure. According to Gadamer, it is not the case that we address the traditional texts—on the contrary, classic works of art and literature address us, challenging our way of life and our prejudices. We engage with these texts or works of art, through a dialogical relationship with the past. The meaning of

the text is not something we can fully access. Through interpretation, though, what at first appears alien forms part of the rich context in which we gain a more profound understanding of the text and of ourselves. This co-determination of text and reader is Gadamer's version of the hermeneutic circle. Applied to the present problem of interpreting ourselves, our inability to master the texts of the past serves as a metaphor for our inability to obtain conclusive self-knowledge. Gaining knowledge of tradition and knowing ourselves are both ongoing and uncertain processes.

The hermeneutic circle encompasses the idea that any meaning the interpreter projects onto a text is going to be shaped by her own assumptions and biases. It recognizes that no observation or description is free from the effects of the observer's experiences, presuppositions, and projections of his or her personal values and expectations. In the act of interpreting ourselves, we are doubly caught in that circle—initially in the originary interpretive act (the self as the interpreter-subject), and subsequently in the resulting interpretation (the self as the object of that interpretation). The resulting object 'self' then becomes the subject of further acts of interpretation, and so on.

The hermeneutic circle is evident in the commercial world as well, when a conflict of interest is declared. When a decision-maker could possibly make personal gains from a particular business decision, it is usual for the decision-maker to make the problem known and stand aside from that decision, since it is recognized that the potential gains may have undue influence on the decision to be made. If the issue is ongoing, that person may be required to stand aside from the decision-making role in a more permanent way. The protocol of declaring the conflict of interest and standing aside from the decision is normally enough to defuse the situation and allow business to continue. In interpreting our selves, though, it is not possible to step aside—we are locked into this project of self as a lifelong commitment, not free to choose but forced to choose with each interpretive step. No amount of declaration absolves us from the responsibility. We stand to gain (or lose) at the juncture of each decision, and nobody else can do the job on our behalf.

While the problem of interpreting our selves can be framed like this as a repetitive spiral, it is argued that the possibilities are not unlimited, with some interpretations more valid than others. The process is influenced by such factors as current discursive emphases, established protocols in (self-)observation, linguistic conventions, opportunities for communication within knowledge communities, ethical self-restraint, and the need to conform to social norms in terms of the legitimate repertoire from which one might draw appropriate formulations of self to explain one's most recent self-observations. There is, then, no one authoritative version of oneself, but various versions that emerge with each different narrative that unfolds.

Self as Unstable Author

The complexity of interpreting the self is highlighted in the literary metaphor outlined earlier that posits the self variously as author, as text, as interpreter, and then in a kind of progressive spiral, the new self as the result of that interpretation. Western culture has tended to assume that language provides a clear and direct way to communicate. But drawing on psychoanalysis and linguistics, Derrida questions this assumption, and challenges the idea that text is imbued with unchanging, unified meaning. As a result, its author's intentions in speaking and/or writing cannot be unconditionally accepted or assumed. Sturrock (1986) argues that the author is in fact a construct, or hypothesis, formed by a reader on the evidence of his or her reading: "The process by which authors are constructed is circular: we abstract them from the Texts and then use this abstraction to explain the Texts" (p. 154). Treating the author as a construct multiplies the number of legitimate interpretations of a text. While there may be some discursive rules for interpretation and therefore some interpretations being better than others, the process of *de-origination* of the author negates the essential quality of the text. This means that neither the text nor the author is available as a source of universal norms, rules or codes to underpin the humanist concept of a practical wisdom.

Constructivist approaches to literature explore the relationship between reading and writing processes, suggesting that readers transform texts written by others as they build their own meanings, and that an imaginary intended reader is an integral part of the authoring process (Spivey 1997). This is not to question the probable existence of an original and intentional writer ('probable', since texts may also be computer generated), but to emphasize the limits to our knowledge of who that author was, what he/she may have meant, and what changes in subjectivity that author may have undergone since. Nietzsche's practice of rewriting prefaces to new editions at a later date and of conducting *post facto* critiques of his earlier works included renunciation of convictions held earlier, suggesting that an original author is not even a stable center of meaning to *himself*, but more like a text that changes over time. Nietzsche, for example, added a preface entitled 'Attempt at a Self-Criticism' to his first book, *The Birth of Tragedy*, some 15 years after its original publication, in which he tried to relocate the book inside morality rather than art. Between 1886 and 1888, changes were also made to *Human, All Too Human*; *Daybreak*; and *The Gay Science*. Written in 1888, his *Ecce Homo* was a thoroughgoing critique of many of his earlier works. It is debatable, therefore, whether 'author-ity' should be located in the original authoring or in the later interpretation, even where the interpreter is the original author at a later date.

Self as Evolving Text

Ricoeur privileges written discourse because it records and inscribes action and time in a way that, for example, oral discourse cannot do. Writing is the full manifestation of discourse “because it fixes not the event of speaking but the said of speaking” (Ricoeur 1976, pp. 25–26). In regard to this privileging of written discourse, Ricoeur points to a number of complexities that arise. First, written discourse does not exist in real time dialogue, so it alters the dynamics of communication. Second, the relationship between the message and the audience of spoken discourse is generally more limited in scope and extent, in that written discourse has the capacity to reach a wider audience. Third, when “discourse is transferred to the field of production it is also treated as stuff to be shaped” (Ricoeur 1976, p. 33). Last, and perhaps most complex, the distance between writer and reader frees the text from the author: “The text’s career escapes the finite horizon lived by its author. What the text means now matters more than what the author meant when he wrote it” (Ricoeur 1976, pp. 29–30). The message must now do without the author’s authority. Yet it cannot be reduced to the sentences that comprise it. Rather, it is a totality structured by genre and structural methods permitting a process of interpretation, albeit within a finite number of possibilities. By analogy, considering the self as text frees the self from its authorial center and from its finite horizons. The self is more than the sum of its constituent parts, more than its original design/description, shaped by its audience in ways that allow for multiple interpretations, albeit (again) within a finite number of possibilities. The self, so construed, is thus both subject and object of its own interpretation. The hermeneutic circle is complete.

Idem and Ipse—A Dynamic Equilibrium

In any situation of constraint, there is a tension between that which is inclined to change and the restrictions preventing such change. The interpretive basis of identity involves a dialectical understanding of identity as involving both a continuity or sameness and an ability or tendency to change. Ricoeur uses the Latin words *idem* (sameness) and *ipse* (selfhood) to signify these two aspects of identity. Personal identity, he holds, is constituted by an inextricable tie between *idem* and *ipseity*. Without both forms of identity, there can be no self: *idem* identity gives the self its spatiotemporal sameness; *ipse* identity gives the self its ability to initiate something new. *Idem* identity (sameness) is characterized by the question ‘What am I?’. It signifies uninterrupted continuity—numerical and qualitative. Our *idem* identity is what makes us recognizable as the same person over our lifespan, with identifying characteristics that constitutes our sameness even though we may age, change shape, alter names and undergo various other changes. But this is not enough to constitute Ricoeur’s notion of identity: “I have repeatedly affirmed,

identity is not sameness” (Ricoeur 1992, p. 116). Unlike *idem* identity, *ipse* identity does not depend on something permanent for its existence; rather, it emerges from narrative. *Ipse* identity is the response to the question ‘Who?’ giving the self a unique ability to initiate something new and imputable (Ricoeur 1991a). Identity as *ipseity* (selfhood) is linked to the realm of narrative where actions are ascribed to agents operating in an ethical realm and so their actions are imputed with moral significance.

While acknowledging the difference between the two concepts of identity, Ricoeur argues that both are integrated by *permanence-in-time*, two models of which are available to us: (a) character, and (b) keeping one’s word or promise. Character is understood as a lasting disposition or set of characteristics which permits the re-identification of a human individual as being the same over time. Character provides the descriptive features that give the individual “numerical identity, qualitative identity, uninterrupted continuity and permanence in time” (Ricoeur 1992, p. 119). Thus, character belongs to *idem*. It is the ‘what’ of the ‘who’. The overlap between the *who* and the *what* reveals the presence of *ipse* as well: not in the notion of character, but in the idea of our propensity to make and keep promises, thus highlighting the ethical dimension of selfhood—a person gives permanence to her being through making and keeping promises. In the act of promising, the person affirms herself as an individual whose identity is extended in time—an active identification with the future. In keeping the promise, she creates a continuous self in time. Such self-constancy means that others can *count on* her: “Because someone is ‘counting on’ me, I am *accountable for* my actions before another” (Ricoeur 1992, p. 165). Breaking a promise doesn’t mean she is a different person, but represents a distancing from the past self who made this commitment. Even in breaking the promise, she acknowledges the continuity of her life as a person.

It is within the idea of permanence-over-time that *idem* and *ipse* overlap, although not to the extent that they become indistinguishable. Instead, we can understand the two realms as dialectic between innovation that drives change and sedimentation that underlies the acquisition of a habit. Mediating between the poles of sameness and selfhood (*idem* and *ipse*) is Ricoeur’s notion of ‘imaginative variations’ of identity (Ricoeur 1992). Emanating from a literary metaphor, imaginative variations provide a laboratory for thought experiments, for fictional accounts of who one is, and for reinterpretation of the already interpreted in a new and more creative fashion: “The narrative does not merely tolerate these variations, it engenders them, seeks them out” (Ricoeur 1992, p. 148). Ricoeur’s ideas present us with an understanding of identity as simultaneously constant and changing. While *idem* identity is accorded the continuing characteristics of a person, *ipseity* is accorded the innovative force where creative and moral decisions are made—in the formation of new characteristics which subsequently become new sedimentary layers of the self.

Both forms of identity are important to self, as they reflexively reinforce each other through a dynamic process of innovation and sedimentation—the transformation of signs celebrated by edusemiotics. We are talking about an *embodied* self,

constituted by its material and cultural situations, having agency, and always capable of creating something anew. It is not as though we become completely different entities at each new narrative juncture. Rather, the interplay between *idem* (sameness) and *ipseity* (selfhood) generates a *narrative identity*: “This dialectic represents the major contribution of narrative theory to the constitution of the self” (Ricoeur 1992, p. 140).

Narrative Identity: Creative Interplay between Reader and Text

A person’s identity may be understood as somewhat analogous to a character in a piece of fiction or historical narrative—a story of a life unfolding like a narrative, not simply imposed from outside, but as a form of constructive activity that engages with particular histories and stories of people and their communities—life as semiosis. Self-understanding is, then, a form of interpretation, working with signs and symbols from history and from fictional narratives. The reader lets the text augment her understanding of life, allowing the text to bring in new meanings, rather than imposing one’s own interpretation upon it. Instead of one-way transmission, we now have a form of creative interplay. In Ricoeur’s terminology, the reader attains understanding through the dialectic of *distanciation* and *appropriation* (1991b), a dual process of rendering near what is far. An essential feature of dialogue and a necessary precondition of interpretation is its ability to distance the subject from the production of the text, so that it can be viewed anew from different perspectives, and eventually made our own. According to Ricoeur, the aim of all hermeneutics is to struggle against cultural distance and historical alienation, “to appropriate what is alien and to make it one’s own” (Ricoeur 1981, p. 185). It is through narratives that we understand our own lives and it is through interpretation that we can be seen to reveal our lives within narratives. This interactive dialogue forms a narrative unity that we are calling narrative identity.

In the fictional narrative, life can be re-described, revealed and transformed. In this fusion, narrative identity emerges. When we engage in narrative, we are not portraying the world as it is, but rather interpreting observed phenomena within historical perspectives. Our interpretation brings together these perspectives, equalizes them, rendering them contemporary and familiar. With the author no longer present, the reader no longer engages with the author’s subjectivity, but increases her understanding by losing herself to the text and understanding herself in the presence of the text. It is important to note, though, that to read and understand a text is not to understand it in one way at all times. Understanding is subjective, varying for different readers and even for the same reader over time—no science of reading or interpretation is capable of according the *correct* meaning. Reading becomes a work of rendering the text meaningful, mediated by explanation, with a constant to-and-fro action between analytic explanation and an

understanding open to interpretation. The task of understanding a text is undertaken by the reader who ultimately makes a text her own. While a preliminary guess at meaning may affect the outcome of an interpretive reading, it is not pre-determinative, as explanation will bring out the structure of the text. Explanation and understanding are complementary elements involved in the interpretive process. That is, explanation seeks the internal structure of the work, whereas understanding lays out the existential possibilities.

Mediation of explanation and understanding is a central concern for Ricoeur—explanation requires understanding to bring forth an inner dialectic that constitutes interpretation, so to explain more is to understand better. Ricoeur identifies this dialectical encounter between ‘*text*-interpretation and *self*-interpretation’ as another hermeneutical circle (Ricoeur 1978a). This is not a subjective circle, but an ontological one: “The coming to language of the sense and the reference of a text is the coming to language of a world and the recognition of another person” (Ricoeur 1978b, pp. 145–146). If appropriating a text is about disclosure, then the role of subjectivity involves a receptive stance: “To understand oneself before, in front of, a world is the contrary of projecting oneself and one’s beliefs and prejudices; it is to let the work and its world enlarge the horizon of my own self-understanding” (Ricoeur 1978b, p. 145). Such dialectic mediates between the proximity of belonging and remoteness. Interpretation thus brings near what is far. The task of interpretation is to “reconstruct the internal dynamic of the text so as to make manifest the world which it projects” (Ricoeur 1978b, p. 32). The narrative grasps together character and multiple scattered actions and events. The plot orders the events, establishing causal relationships over time, and it is through an interpretive reading that intentions and new meanings occur.

Interpretation is the process by which disclosure of new modes of being—or if you prefer Wittgenstein to Heidegger, of new forms of life—gives to the subject a new capacity for knowing himself. If the reference of the text is the project of a world, then it’s not the reader who primarily projects himself. The reader rather is enlarged in his capacity of self-projection by receiving a new mode of being from the text itself (Ricoeur 1976, p. 94).

Verification of any particular reading does not involve a falsification test for Ricoeur. It is more about probability, with different tools employed to question the validity of one interpretation over another. It is always possible to argue for or against particular interpretations, to confront them, to arbitrate between them and to seek agreement, even if such agreement may remain beyond our immediate reach. It is not the case that all interpretations are equal. The text presents a finite field of possible constructions—that is, there is a limited number of ways to interpret a text, and not all will make sense. To interpret is to appropriate the intention of the text in the here and now. The intended meaning of the text is not necessarily the presumed intention of the author, but rather what the text means for its interpreter following the path of thought opened up by the text.

Contemporary narrative theory recognizes that the world we know does not exist as an *a priori* reality, but is actualized through human interpretation of experience. The expression of lived experience engages people in interpretive acts; and it is

through these interpretive acts that people give meaning to their experiences of the world. Such is the major postulate of edusemiotics: it is by virtue of interpreting our experiences that we learn and thus become signs enriched with existential meanings. A narrative invites interpretation by a reader who, in the act of reading, re-authors the meaning of the narrative. In this way, narrative identity becomes an interactive dialogue between our selves and the world as text, in the evolution and interpretation of our selves. In Ricoeur's project, text interpretation turns out to be the paradigm for interpretation in general. It is, then, the narrative interplay that provides the means through which we identify ourselves.

Conclusion

The subject of humanism is an essential individual grounded in universal and fundamental aspects of human nature, drawing inspiration from archetypes in literature and the arts. Rational and free to choose, this individual is credited with being the origin of knowing, an unconstrained center of meaning and action, able to decipher the universe through empirical observation and rational deduction. In stark contrast is the subject Ricoeur posits through narrative—contingent, changeable and inconstant, a hermeneutic position that brings together narrative, ethics and identity. *Ipseity* as selfhood incorporates human ability to make moral decisions, and engage in a continuous process of creation and re-creation—in the dialectics of self and other. Ricoeur's inter-subjective self requires the commitment of oneself to another as a duty to care, to reciprocate and respond in relation to its social environment. This understanding of narrative identity emanates from social and cultural practices that can be examined, re-interpreted and re-inscribed with new meanings.

Using the metaphor of life as continuous textuality, we conclude that, through narrative, our ever-evolving self is necessarily located historically, temporally and contingently. As with social life, self as text is ambiguous and open to diverse interpretations. Self-other relation is what edusemiotics understands as a sign: text that can be written, read and interpreted. In continuous engagement with others, and acknowledging the tentativeness of our already-held position, interpreting our selves is not a fixed determination of meaning, but a semiotic commitment to openness and continuous possibility.

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Chapter 13

The Role of the Reader: Remembering the Possible Worlds of Umberto Eco

Peter Pericles Trifonas

Abstract This chapter reads Umberto Eco's two novels, *The Name of the Rose* and *Foucauld's Pendulum*, from the perspective of edusemiotics and presents a fictional text as a densely articulated semiotic teaching device. Eco's philosophical legacy is singled out here in terms of his attention to the production of possible worlds by the reader. These works present an educative vision of some basic semiotic principles that infuse the textual form of a popular fictional genre: the detective story. Eco's 'labyrinth' metaphor refers to the open structure of the multiple narrative levels in the detective novel, a special characteristic of which is the seemingly arbitrary connection of signs. The semiotic twists and turns of the detective story facilitate the educational function in accord with edusemiotics. The reader thus is a detective constructing multiple possible worlds where meaning is beyond the material realm of the given text and totally in the metaphysical realm of the possible world of the reader's mind. The aesthetics of textual production is generated through the lexical signs and codes. The detective genre enables Eco to produce an educational narrative via the intricacies of plot in the story while teaching main aspects of semiotic theory. The inevitable transformation of the reader into an individual capable of appreciating and grasping the conflicting ideological viewpoints expressed through the dialogical structure of the text accords with the edusemiotic framework.

Introduction: The Semiotics of Text

The Name of the Rose consistently addresses the nature of the interpretation of signs by a reader and demonstrates the educational poetics of reading the signs of writing: "The author must not interpret. But he may tell you why and how he wrote his book" (Eco 1984, p. 8). A 'labyrinth' is Eco's favorite metaphor for this open type of structural articulation of the narrative levels. The question of the production of the aesthetic text is paradigmatic for his semiotic investigations of reading and

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writing. Eco cannot but make the semiotic dilemma of the labyrinth the focal point for *teaching the reader* how to decode the mystery of the novel: “Like a large labyrinthine garden, a work of art permits one to take many different routes, whose number is increased by the criss-cross of its paths” (Eco 1976, p. 275). Ambiguity of reference in the signification process of an aesthetic text encourages interpretative efforts leading the reader to an awareness of the representational flexibility of language. Thus, an individual is inevitably taught to re-think the whole possibilities of the semantic contiguity of expressions by challenging the cognitive schemata of one’s own ideational organization as constructed from the systems of meaning production available for the communication of ideas. Eco’s theoretical account of the operational structures of aesthetic texts focuses on the production of ‘possible worlds’ by opening up a play of possibilities. The question of the encoded decidability of signs is implied by the interpretative actions of a reader. Being ‘open’ or ‘closed’ is the text’s permanent narrative feature. A reader sets out to discover the meaningful keys for decoding messages that would lead through the labyrinth of signs. Making sense is the byproduct of good faith in reading and writing. Eco (1979) maintains that the text teaches its reader semiotically how it *should* be read. How does such semiotic education of the reader work in the aesthetics of textual production?

A fictional text is a semiotic teaching device, the aesthetics of which signifies the novelty of putting together signs and codes according to an ideological structure that reiterates Eco’s semiotic concerns. The underlying system of mutual correlations convened by an integral repetition of themes within the frame of structure is overtly realized in the aesthetic idiolect of the fictional text as the rule by which its messages are consolidated through the interconnectedness of multiple levels (Eco 1976). Therefore, the modality of signification imparted to the reader “continuously transforms its denotation into new connotations; none of its items stop at their first interpretant, contents are never received for their own sake but rather as the sign-vehicle for something else” (Eco 1976, p. 274). As a story graduates to higher planes of abstraction, a fictional text gives way to a non-indicative world of signs that are left open to the multiple interpretations projected upon them by the reader. For Eco, the seemingly arbitrary connection of signs is a special characteristic of the novel. Meaning is strictly beyond the *material realm* of the physical world of the text and totally in the *metaphysical realm* of the possible world(s) of the reader’s mind. The fictional text is simultaneously an aesthetic text and as such is ‘open’ in its attributive structure to a delimited semiosis. Open texts set out to generate their reader(s) as part of the process of the text itself by discouraging the reductive readings characterizing closed texts that aim at arousing “a precise response on the part of more or less empirical readers” (Eco 1979, p. 9).

The Role of the Reader (Eco 1979) is a starting point for explaining how Eco conceives of the semiotic education of the reader in a closed text (e.g., Superman stories, traditional detective stories, and James Bond novels) where “You cannot use [it] as you want, but only as [it] wants you to read it” (Eco 1979, p. 9). The text is ironically left vulnerable to the possibility for aberrant readings—those undermining its original codified intentions (usually moral in nature). Conversely, a

multiplicity of readings is required by an open text. Each re-reading is re-echoed by the successive production of other re-readings up to the point that “a dialogue is established between the text and its readers (the author is excluded). While a work is in progress, the dialogue is double: there is a dialogue between the text and all other previously written texts (books are made only from other books and around other books), and there is a dialogue between the author and his model reader” (Eco 1979, p. 41). To facilitate this construction of the model reader through the text, the act of semiotic en- or decoding is thematized in the structure of the novel in the form of inter- and extra-textuality. It is a question of *detection*.

The metaphysical ruses of a text construct a puzzle of textuality that goes far beyond the *jouissance* of deciphering signs that comprise the plot and fabula. The use of multiple plots secures the overall ‘formalizability’ of a novel’s ideological predispositions and becomes the textual vehicle for exploring the themes of ambiguity or ambivalence in interpretation. Demarcating the lacunae of signification, fabulaic speculation arises from the necessity that hypothetic models must be constructed by the reader attempting to resolve structures of meaning. There is the lack of a fixed point upon which to firmly anchor the meaning of the physical world of events comprising the textual scenario of the reader’s plight. An education in conjecture gulls the empirical reader into the process of undergoing a consecration of metaphorical identities or *positionalities*. Moving away from being a spectator as an empirical observer, the imaginative reader demonstrates an active and wholeheartedly adopted desire to become a detective who reads and interprets diverse signs as clues. The effort expended to penetrate the labyrinth of a fictional text’s structure by enduring the chiasmic turns of twisted signs, the subtle heterogeneity of mixed codes and the ethical parodies of ideological clashes or moral struggles, is the necessary price paid for a momentary glimmer of the shape of an ever shifting semiotic universe.

The narrative techniques of the aesthetic text provide an edusemiotic framework that teaches the reader how to actualize the ideational and meta-fictional elements, the conceptual schemata of which are delineated through the creation of a possible world based upon the reader’s references and associations allowing the objects, events, and characters presented in it to be accepted as viable, if not real. Ultimately a text constructs its own ideal of a model reader. Eco (1984, pp. 23–29) is undoubtedly aware that the reader will use the intricacy of detail furnished through what is related in the discursive features of the narrative structure of the text to *scaffold* a mental construct of a possible world. In essence, a novel is an attempt to create within the *psyche* of the reader the seeming particularity of a conception of a cosmological reality or a possible world of endless conjecture. Yet it is true that meaning for the reader is made according to a definite ideological context of subjective experience. In order to accomplish the aim of creating a plausible possible world through the linear manifestation of lexical signs in the accumulative form of narrative discourse, there must be a relation of immediate contiguity established between the empirical world of lived experience and the fictional world of represented reality. Lexical referencing stimulates cues for mental responses, thereby authenticating the vision of words as signs with probable meaning

connections, albeit nothing but just imitating reality. In presenting the reader with lexical signs relating to the common frames of reference, the author provides the semiotic means for facilitating such a contiguous association between these signs and their referents that could eventually lead to the psychological creation and virtual acceptance of such an illusory reality.

Referential havoc is manifest in the fictional text as the speculative desire for the metaphysical quest for 'Truth'. Yet because the world of the text does not contain syllogistic patterns of order upon which to understand the story's events, the result is a dissimulation of the coherent text to a labyrinth. It is a hermeneutic dilemma or interpretative predicament where the reader must trace and re-trace the receptive steps of textual production in order to decipher the potentialities for meaning-making embodied within the narrative itself. Meaning dramatized in the action through the intricacies of the plotting creates tensions or anxieties of understanding and eventually leads the reader to acts of sustained speculation, thus generating an array of hypothetical possibilities. The projected ability of the reader is to draw together hypotheses. In essence, the propulsion for the action in the plot is the search for a way to make meaning for which the reader exists as reader. Eco explains such 'reader-trick' in terms of the text ultimately being an experience of transformation for its reader.

The Semiotic Detective

The narrator is actually a device allowing for intrusion upon the extemporaneity of the discourse to provide a modicum of psychological insight for the actions of a protagonist and other characters. Without doubt, narrative engenders an illusion of reality in the reader through the apperception of its signs as 'truthful' descriptions or even confessions. A fictional text requires the classical traits of verisimilitude in order to achieve the aesthetic goals of an open text. Such trope of textual artifice allows for a meta-fictional rendering of the textual form. Eco (1979) adopts methodological structuralism as a means for conducting semiotic studies of the signs and codes at work within a text. The creative production of narrative textual artifice is the transformation of self-conscious awareness of the "dialectical literary progression from one kind of novelistic mimesis to another" (Hutcheon 1980, pp. 4–5). The *diegetic*, or thematic, function of the form in conjunction with the mimetic functioning of the linguistic representation of the novel achieves the aesthetic effect(s) desired for the suspension of disbelief and the subsequent creation of a possible world. The fact that such process of literary production is self-conscious fixes the parameters of its own textual inquiry within a specific theoretical frame of reference, scholarly or otherwise. How the signs and codes are embodied within the textual form of the novel establishes nicely the means for hermeneutic inquiry and the edusemiotics of text. For Eco (1976), the frame of reference is definitively semiotic, that is, a question of codification, of meaning production, of decoding the limits of signs.

In *The Name of the Rose*, Eco essentially presents an educative vision of some basic semiotic principles that infuse the textual form of a popular fictional genre: the detective story. The novel fuses semiotic concerns with medieval ones “not only to identify in the past the causes of what came later, but also [to] trace the process through which those causes began slowly to produce their effects” (Eco 1984, p. 76). It is a conscious attempt to comment upon an important period in the history of semiotics and to gauge its effects through a meta-historical recreation of the Middle Ages as an autobiographical novel in which its characters ‘make history’. The examples of philosophical arguments used by monastic scholars of the period concerning two fundamental categories of semiotic thought in the Middle Ages, etymology and onomastics, illustrate the conflicting logic of medieval and modern viewpoints. Eco (1984) explains that the story is told “through the voice of someone who experiences the events, records them with all the fidelity of an adolescent, but does not understand them (and will not understand them fully even as an old man, since he chooses a flight into the divine nothingness, which was not what his master had taught him)—to make everything understood through the words of one who understands nothing” (pp. 33–34). The ontology for the ‘truthfulness’ of meaning productions is not entrenched in the ‘logos’ of Adso’s text but in the way the reader’s lived experiences (inter- and extra-textual) are brought to bear upon the reading process through a self-reflective focus that would allow for personal transformations of what the author had originally intended by providing a written set of lexical signs for a given set of propositions:

The symbolic mode is thus not only a mode of producing a text, but also a mode for interpreting every text—through a pragmatic dimension: “I want to interpret this text symbolically”. It is a modality of textual *use* In modern aesthetic experience, the possible contents are suggested by the co-text and by the intertextual tradition: the interpreter knows that he is not discovering an external truth but that, rather he makes the encyclopedia work at its best In any case, behind every strategy of the symbolic mode, be it religious or aesthetic, there is a legitimating theology, even though it is the atheistic theology of unlimited semiosis or of hermeneutics as deconstruction. A positive way to approach every instance of the symbolic mode would be to ask: which theology legitimates it? (Eco 1984, p. 163).

By allowing the narrator to tell the story from within the Middle Ages rather than from outside of it, Eco can justifiably consider the real-world implications of a legitimating theology upon theories of the ‘truth’ of meaning *vis-à-vis* semiosis and language as the result of fabulaic alternatives important to the various themes of the text. Adso explores the ancient question of whether the names of things originated in nature or were the result of convention by noting that the lamb, *agnus* in Latin, received its name because it recognizes its mother at birth. Possessing a metaphysical sense of Thomistic realism, he infers from this brief etymological meditation the existence of the *ordered* world symbolizing, in the interrelatedness of its structures, “the greatness and stability of Creation” (Eco 1983, p. 286). On the other hand, in his address to the Benedictines in the assembly at the debate on the poverty of Christ, Adso’s mentor William of Baskerville uses an Occamistic argument to destabilize the implied etymological correspondence between being

and the proprietary logic of names. By referring to the arbitrariness of judgment in the act of naming, he shows how the right of identifying being was given to Adam as a responsibility granted from God “So that ‘nomen’ comes from ‘nomos’, that is to say ‘law’, since nomina are given by men *ad placitus*, in other words, by free and collective accord” (Eco 1983, p. 351).

William’s reasoning is undoubtedly modern in viewpoint, but its argumentative features are indicative of an innovative, yet quite reactionary, *nominalist* approach to the theological debates concerning the truth of meaning and language conceived in the Middle Ages in terms of universals. Contained in William’s summary of the main premises characterizing the theory of nominalism, as posited by the Franciscan William of Occam, is the suggestion that words do not refer to objective existences outside of perception. Words are consequently nothing more than verbal utterances through which the intellect can work from the experience of knowing the particulars of an object in the realm of the external world to a conception of it in the concrete form of a universal. This is a complete reversal of the arguments presented by the Benedictine saint, Thomas Aquinas, who emphatically stated in his *Summa Theologica* that the intellect, being immaterial, could not have any direct cognition of individuals but only of universals. As a result of the powerful influence of the anti-nominalist theories of Aquinas upon the period, the issue was usually decided in favor of this latter point of view instead of the former as discussed above. The influences of nominalism upon the epistemological beliefs of William of Baskerville are clearly established through the facts relating to the background history of the character: he is an English Franciscan who proudly acknowledges having studied at Cambridge with William of Occam. Allusions are also made to the Franciscans’ involvement with Roger Bacon, a proto-scientist whose empiricism is reflected in the monk’s penchant for the use of mechanical devices to ease the difficulties of life (i.e., sextant, eyeglasses, clock, etc.). As a failed inquisitor, the astute Baskerville has attempted to reconcile the contradictions of an onto-theo-logical argument for the existence of an ‘incontrovertible truth’ with the breadth of his own secularized knowledge derived mainly from the teaching(s) of Occam, the ancient books of pagan philosophers such as Aristotle, and the innovative systems of techno-scientific investigation inspired by Bacon. It is in this sense that William has always already held the vocation of detective or one who reads the signs of the world in an attempt to glean ‘universal laws’ or ‘general truths’ from experiencing the particulars of objects or event-sequences as they come to be revealed to him. William is a true Franciscan Occamite in this respect.

The main sources of inter-textual reference in *The Name of the Rose* take the form of allusions to some of Sherlock Holmes’ mysteries, the incorporation of features characteristic of the celebrated labyrinth tales of Jorge Luis Borges (in which the detectives are defeated because of solipsistic reasoning), and the use of a standard repertoire of common elements of the ‘whodunnit’ mode in detective stories. For example, some thinly disguised references to *The Hound of the Baskervilles* are evident in the national origins of the name given by Eco to the protagonist, this encoded ploy confirming the existence of associations between William and Conan Doyle’s famous detective as per Eco’s self-conscious act of

naming as well as seen in William's Holmes-like sleuthing partaking of abduction. Indeed, abduction—a mode of reasoning as a hypothetical conjecture—is celebrated in the field of edusemiotics as a distinctive direction taken by educational philosophy (e.g., Semetsky 2009, 2015).

The twofold perspective of the narrative *döppelgänger* is a standard device for structuring a particular point of view in the detective genre, where the reliable narrator of the story, at times insightful but at times naïve, is also an active participant in a sequence of events that had occurred at some point in the past. Thus Conan Doyle utilizes Dr. Watson to expedite this narrative function by allowing the 'elder' Dr. Watson to comment upon his own adventures with Sherlock Holmes and to explain the clever solutions to perplexing mysteries. In Yu Tsun's descriptions of how and why he killed the sinologist Stephen Albert, Borges (1956) allows the character to reflect upon the moral significance of the dilemma, the tension ultimately creating suspense about the resolution of a seemingly unrelated web of generated incidents that eventually spell the downfall of the protagonist. There is surely an element of risk to the abductive reasoning because of the sheer speculation involved in ordering the signs to approximate the actual event, but William—from the set of signs presented to him as clues to a mystery—is able to guess the path of the "Brunellus, the abbot's favorite horse" (Eco 1983, p. 23) via possible hypotheses that are generated and then applied to the situation in order to discover the correct one. He effectively establishes the physical features, and also the name, of the horse using a method similar to Holmes' feat of 'reading' Watson's thoughts as performed in *The Adventure of the Cardboard Box*. Through the subtleties of the semiotic detection of possibilities, William analyzes the likely patterns of thinking in the monks' cognitive processes and works quickly toward the novel, surprising conclusions. More than likely, as William knows, the monks will not attempt to think originally in describing the horse, but will refer to the authority of Church doctrine for instructions regarding the acceptable objectivity of the perception of the image by conceiving its interpretant in the normative formulization of a stereotype, that is, the recognized standard of Brunellus as 'beautiful'. The horse must possess the features (also the particular name) attributed by the Church to the animal; and there is "no doubt the monks firmly believe he [the horse]" (Eco 1983, p. 24) displays those unique features to be considered beautiful.

The model for the episode is taken from Voltaire's *Zadig* to give a semiotic example of detection techniques used by the sleuth to read clues containing instances of under- or over-coded abduction (Eco and Sebeok 1983). William actually tells the monks what they are searching for and how to find it *before* they ask him any questions about the horse, thereby performing a startling feat of meta-abduction for which there can be no immediate verification of facts, but a façade of conviction is maintained to assure his credibility as detective. The curious solution that motivates the scene is very much like the situation of Holmes' first encounter with a client in *The Adventure of the Norwood Builder*: "I assure you that, beyond the obvious facts that you are a bachelor, a solicitor, a Freemason, and an asthmatic, I know nothing whatsoever about you" (Conan Doyle 1986, p. 497).

William's explanation to Adso serves to concretize the firm nominalist foundations of his personal philosophy of the semiosis of detection:

I found myself halfway between the perception of the concept "horse" and the knowledge of an individual horse. ... I could say I was caught at that moment between the singularity of the traces and my ignorance, which assumed the quite diaphanous form of a universal idea ... the ideas, which I was using earlier to imagine a horse I had not yet seen, were pure signs, as the hoofprints in the snow were signs of the idea of "horse" (Eco 1983, p. 28).

William thus undercuts the epistemological basis for the referential fallacy defying the one-to-one correlation of signifier-signified/sign-referent in the closed form of a fixed dyad, instead of the triadic structure of 'thinking in signs'. Any *direct* iconism of mental images was for Eco (1976) a theoretical anomaly. William's description of the movement from the intensional act(s) involved in decoding external reality to the extensional act(s) facilitating its mental representation and the subsequent interpretation of the content of such expressions inspired thereof, suggests a fluidity of formal movements within signification where the "idea is a sign of things, and the image is sign of the idea, sign of a sign" (Eco 1983, p. 317). This view is compatible with Eco's (1976) general definition of the sign as "*everything* that, on the grounds of a previously established social convention can be taken as *something standing for something else*" (p. 16), its operative dimension more appropriately spoken of in terms of a sign-function or the culturally determined meeting place for different forms of signification mediating between content, on the one hand, and expression, on the other (pp. 48–58). Such mediation is one of the distinctive features of edusemiotics, indeed. Ironically, the final truth of what William perceives in knowing "how to read the great book of nature" (Eco 1983, p. 20)—to highlight Adso's Thomistic description of his master's proto-semiotic expertise—is more characteristic of a twisted path of approximations leading slowly toward a supremely disheartening epiphany for the English Franciscan. It becomes evident to him that the 'stuff' of external reality is essentially *chaotic* rather than being the book upon which one can superimpose a penultimate structure of meaning to *order* the world in terms of the stable laws of a transcendental metaphysics or positive theology.

In the novel, the image of the labyrinth comes to symbolize William's futility of reading the signs of the 'text' of the world as an open book. Given that there is no 'right' way out of a labyrinth, the monastery's library is the metaphorical embodiment of the futility of the theologian detective's quest for the final Truth through the interpretation of signs. The sublime serendipity of the inner construction of this immense structure, complete with secret pathways, cryptic signs and rooms hidden within rooms containing rare manuscripts, is a Mecca of potential truths to which only a select few have the privilege of free access. It is a holy place where the possibility for virtually limitless conjecture exists—in, of, and for itself—as the main reason behind the detective's intellectual failures. Through the twists and turns of the plot, William and Adso attempt to utilize the winding structure and coded markings of the library contents to find the key that will lead them to the murderer. A mode of conjecture exhibiting an infinite recursivity of possibilities for the generation of signs from signs and leading to no ultimate derivation of a single

truth is the theory of infinite semiosis, referred to by Eco (1976) as *Model Q* that partakes of rhizome: “The labyrinth of my library is still a Mannerist labyrinth but the world in which William realizes (by the end of the novel) he is living in already has a rhizome structure. That is, it can be structured but never definitively” (Eco 1984, pp. 57–58). Thereby William’s confidence that he can solve the mystery and expose the murderer in the end using a combination of pure hypothesizing, trial and error, and the practice of tracing multiple leads to their logical conclusions—much like the method of solving a Mannerist maze within which one is, more or less, obliged to move in a nonlinear fashion through a series of dead ends toward a single exit—is proven to be false.

Conspiring to the Structure of Conjecture

If the labyrinth is an “abstract model of conjecturality” (Eco 1983, p. 57), then the practical modes of conjecture can also become a labyrinth inside of which one voluntarily traps the self. For example, Belbo, Diotallevi and Casaubon in *Foucault’s Pendulum* are solely responsible for the means of their own undoing, arguably more so than the extent to which William (above) is accountable for his great humiliation, because in their actions there is an unethical intent to willfully impose an arbitrary structure upon the events of world history. Their particular brand of ‘reasoned explanation’ or meaning-making displays a self-centered attitude of egotistical insincerity; there is nothing to their method but a gratuitous motivation for the exacting of hermeneutical violence upon the structures of human existence. There is no ethical code of purpose for flaunting the lack of metaphysical determinants of meaning within this organization of a new world structure that would inspire some semblance of faith in the order itself. Diotallevi, an avid student of the Torah, understands the significance of their transgressions in the most basic of terms: those of the self as engendered, and thus defined, through the total composition of the physical structure of the body. Like the arguments of Adso, he explains to Belbo the theological basis for this personal revelation regarding the ontology of the truth of meaning: “We’ve sinned against the Word, against that which created and sustains the world. ... If you alter the Book, you alter the world; if you alter the world, you alter the body. ... There must be a right meaning and a wrong meaning; otherwise you die ... without faith, blindly” (Eco 1989, pp. 466–467). He passionately condemns the bleak vision of this playfully satirical mode of conjecture and postmodern distance characterizing how immoral transformations of the Book of Knowledge into a radically disordered world history were achieved to placate their egos. In their misguided use of what may be ironically called ‘de(con)structionist metaphysics’, there is no possibility for acknowledging any self-determined intent to facilitate an ethical opening toward the other via the structuring of the human universe: no reasons exist to hold up the truth of knowledge behind the curtain of pointless conjecture. And if all is relative, then

there can be no faith in the *order from which meaning is derived* because there is no legitimating theology founding its inception.

As the three protagonists work through set after set of virtually indecipherable cryptic anagrams, the remarkable degree of occultist and esoteric sophistication they have acquired through the process of editing the manuscripts of their ‘diabolicals’ is revealed. There are no premises however to guide the course of their actions, apart from pursuing their own overweening intellectual or egotistical desires. The patterns of ‘The Plan’ (dubbed as such, mockingly) are *ad hoc* recreations of world history presented in the form of structured, yet unstable, mythology that can be open to any reinterpretation depending upon what new item is added to the endless sources of information generated by the characters in the novel. The mode of conjecture here is centrifugal, rhizomatic, spinning out the possibilities for the creation of further conjectures to tenuously related topics, instead of being centripetal or mannerist (as in *The Name of the Rose*) and therefore possessing some final point of ending. The method used to derive explanations from the complex set of relations between the series of historical events in ‘The Plan’ is a semiotic strategy of creative abduction in which a hypothesis is posed that is suitable for creating connections among ‘items’; however, it is so tenuous in nature (amidst other probable hypotheses) that any correlation between the invention and the reality seems almost coincidental (Eco 1979). Casaubon likens the process to cross-referencing “index cards ... a little like that game where you have to go from sausage to Plato in five steps, by association of ideas. ... No piece of information is superior to any other. Power lies in having them all on file and then finding the connections” (Eco 1989, p. 190).

In the framework of Eco’s theory of signs, the perspectives of both William (*The Name of the Rose*) and Casaubon (*Foucault’s Pendulum*) need to be somewhat similar and even though the detective story as the plot of *The Name of the Rose* is transformed to a (mock-)conspiracy tale in *Foucault’s Pendulum*, the subjects or themes have not substantially changed in their intensely semiotic focus. The theme of misreading the book of nature is at the heart of the metaphysical conquests in both detective stories—one is real in the ethical severity of its effects (what happened to Belbo and why?), while the other is the product of flights of fanciful delusion (where did the Templar Knights disappear and why?). Similar to William, Casaubon (a 20th century medieval scholar) and his associates are skilled in the methods of ‘semiotic inquisition’ to execute the interpretation of signs and perceived codes, yet they too err in arbitrarily imposing an order upon the world, modifying it without concern for others, so as to read it openly. When Casaubon describes his vocation, though, he sees his purpose or role unlike William does and parodies the classic stereotype of the ‘hard-boiled’ detective found in Chandler’s characterization of Phillip Marlowe to romanticize the notion of avant-garde freedom to be had in the secular existence of the ‘hard-living’ sleuth as a “private eye of learning” (Eco 1989, p. 119). In a sense, the motif pushes the boundaries of the traditional detective story to the limit by presenting a more all-inclusive or maximalist approach to the genre, and this stock image suspends the singularity of Casaubon’s goal by juxtaposing it to the immediate gravity of the semiotic

inquisition William must himself endure beyond the obvious need to find a quick solution to a mystery. The irony is that despite the breadth of knowledge expressed by Casaubon, Belbo, and Diotallevi (by implication Eco invites the reader to verify it), the type of expertise in detection they collectively possess bears no relation to a common reading of real-world events. It only provides the opportunity to report perspectives second-hand from the writings of others. Paradoxically, the game in which they imitate the logic of the occultists so well effectively leads them into a deadly situation spawn of unforeseen consequences: 'The Plan' is accepted as real by some of the diabolicals and surprisingly brings about the bitter fruits of their own destruction as well as that of an innocent victim, Lorenza Pellagrini. Although not having to look for a guarded book to prevent future evil-doing, Casaubon faces the prospect of recreating the solution to the mystery of his friend's disappearance from a set of Belbo's chronicles found in Abalufia, a personal computer, the fragments of which are then used in writing the manuscript to relate the fantastical tale to the reader of the text.

The narrative structure of *Foucauld's Pendulum* is more self-consciously voyeuristic than is usually the case for stories of detection such as *The Name of the Rose*. And it is the keen psychological solipsism of this perspective that provides the means for the inward focus the narrator sustains within the framework of an illicit search of confidential memoirs in order to discover the clues to a mystery. Also, because the narrative in *Foucauld's Pendulum* is purely retrospective, Casaubon's conclusions can only be drawn 'after the fact'. The narrator must live and cope with the reality of the situation's effects upon him when the events generated by the plot have subsided. Eco exploits the archetype of the 'confessional manuscript' to intimate its validity, but the verisimilitudinal presentation here is more in the style of artifice displayed in Nabokov's *Lolita* than the 'discovered manuscript' of Cervantes' *Don Quixote*. For example, from an isolated cell where there is precious little time to reflect before the end of life (for it may be presumed that both Humbert or Casaubon are dead before the reading), the guilt-ridden narrator takes great pains to present in great detail the story leading to impending destruction. It reflects a tongue-in-cheek admission of sins to the other inspired by a sense of guilt and a deep-felt desire for spiritual peace to ease the anxiety of the passing from innocence to experience, from life to death. Yet, unlike Adso who does not wish to actively reflect upon the past, only to reiterate it for the benefit of the reader, Casaubon desperately needs to understand the higher reasons behind the deaths of his friends if he hopes to attempt to absolve himself of some of responsibility for them. The succinct description of the autobiographical pattern behind the hero's quest for self-discovery found in the commentary to another Nabokov story, *The Eye*, closely parallels the structure of both of Eco's novels as its texture "mimics that of detective fiction ... the pursuit of an investigation which leads the protagonist through a hell of mirrors and ends in the merging of twin images ... The stress is not on the mystery but on the pattern" (quoted in Merivale 1967, pp. 297–298).

Concluding Remarks

The doubled chiasmic configuration of Eco's texts relates to those of Borges, even as *Foucauld's Pendulum* does not adhere to the laws of this structuring as overtly as does *The Name of the Rose*. The proverbial 'hell of mirrors' reminiscent of Borges' labyrinthine library can be seen as the symbolic equivalent of the fluid mutations 'The Plan' undergoes at the whims of Casaubon, Belbo, and Diotallevi. In a semiotic sense, 'The Plan' represents the propensity for an unlimited re-coding of the constituent elements of an archive assembled from the available store of the world knowledge. Its consequences show how the deployment of a self-aggrandizing talent for bookish artifice can be a dangerous enterprise, how the egoistic passion for irreverent invention can go very wrong. The Plan's polysemous transformations defy the categorical imperative to benignly control history as it slowly engulfs its creators in the power of a seemingly self-willed transposition of effects from a conjectural world of endless possibility to the empirical world of external reality. 'The Plan' is certainly hellish in the extremity of its effects upon them. What is believed to be an epiphenomenal cause for the malleability of effective functions arising from conjecture encourages the semiotic confusion of the protagonists by causing each to react differently to the corporeal undecidability of the structure according to their own identity and concerns. To be sure, *Foucauld's Pendulum* celebrates the structural absurdity of 'The Plan': it is through it that Eco manages to offer hyperbolic explanations of cause that links virtually all the occult knowledge of world history around the scholarly esotericism of a single topic, the Templar Knights. 'The Plan' partakes of the labyrinth as a multi-dimensional image that works upon many levels as a *mise en abyme* to articulate and to concretize the text's thematic content through the structuring of its expression of conjecturality.

The Name of the Rose and *Foucauld's Pendulum* are labyrinths of inter-textual associations conjuring up images of other books reflected in it as well as unrestraining the possibilities for deriving meaning from it like the mysterious oriental text of the narrator's ancestor in *The Garden of Forking Paths*. The labyrinth of the library (reminiscent of *The Library of Babel*) and the compromised detective figure clearly establish the fact that fictional world constructed by Eco is more akin to those of Alain Robbe-Grillet, Paul Auster or Franz Kafka than to those of Conan Doyle, Agatha Christie, or Raymond Chandler because it is a 'possible world' where the strict rules of mechanical causality are temporally suspended or spatially deferred for the logic of contingency. William, Casaubon, Belbo, and Diotallevi, like Borges' detective Lönnrot, are trapped in the labyrinth of their own conjectures (the certainty of which is dubious) because an infinite number of possible routes can exist beyond the obvious ones that may lead to the truth; when acted upon they lead only to an eventual condition of purgatory or existential damnation in the form of a symbolic or real cipher. Yet it is the villain's intelligent use of the detective's own thought processes that trap him in succumbing to the temptation of a mystery in the form of a gigantic acrostic. This sinister consequence of the plot in a detective story is a well-known Borgesian conceit. In effect, it characterizes the postmodern turn of

the traditional ‘whodunnit’ moving the genre from the realm of the real or the plausible into the realm of the metaphysical or the unthinkable—but it is a plot device that can be reversed also, as Eco very deftly does.

The semiotic twists and turns of the detective metaphysics in *The Name of the Rose* and *Foucauld’s Pendulum* facilitate the purposeful transformation of the reader into an individual capable of appreciating and grasping the conflicting ideological viewpoints expressed through the texts’ dialogical structure. To use the prodigious rhetoric of Eco’s (1979) semiotic vocabulary, the detective genre enables the author to structure the development of the action on the expressive plane of narrative discourse in terms of the intricacies of plot elements, while the aspects of semiotic theory that infuse the novel function on the content plane to furnish the thematic stuff from which a fabula (story) can be abstracted by the reader through a series of abductions. Umberto Eco engenders what might be called an edusemiotic re-crafting of the detective novel that casts serious doubts upon the real-world implications and practical utility of such a theologically over-determined metaphysics that would govern the making of meaning from the perception of phenomena in external reality as conveyed through the sign-system of language. *The Name of the Rose* and *Foucauld’s Pendulum* represent a practical application of edusemiotics in their teaching us how the reader is transformed through the interpretation of signs and the construction of possible worlds.

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Chapter 14

Reading History: Education, Semiotics, and Edusemiotics

Alin Olteanu

Abstract This chapter explores the common history shared by semiotics and educational theory. By looking at some of the major moments in the history of semiotics, the chapter elucidates the co-evolution of education and semiotics. The entanglement of education and semiotics, due to their common roots in the hermeneutics of medieval mystical theology, later effectuated some anthropological and ecological bearings that edusemiotics takes into consideration. If we, humans, are the interpreters of the world, we can co-create, ‘read’ and ‘write’ the semiotic reality, the reality of signs, both linguistic and extralinguistic. The chapter critically examines some important texts in the history of philosophy from the perspective of semiotics and in view of the relational dynamics between man and cosmos and their co-evolution. Reading and interpreting the texts by St. Augustine, Ibn Arabi and others elucidates the holistic approach to educational philosophy in conjunction with metaphysics. The chapter contrasts the rich semiotic legacy through history with the non-semiotic dualist philosophy of modernity that oriented education toward utilitarian curriculum thus dismissing the relevance of the body and material environment for the learning process. The chapter stresses the ecological bearing of edusemiotics and considers its present position as a proper continuation of the medieval liberal education project while also acknowledging the importance of contemporary research across biosemiotics and edusemiotics.

Introduction

Semiotic consciousness may be considered to have begun in the Patristic Age. Its origins are marked by St. Augustine who, at the dawn of the Christian Age, legitimized the educational tradition of the liberal arts. Ever since, throughout the Medieval Age, educational philosophy appeared to be underpinned by semiotics as the doctrine of signs, even if modern philosophy has by and large replaced semi-

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otics with linguistics. Education is an essential semiotic trait of human existence, or, rather, a trait of the semiotic existence of human beings. Charles S. Peirce asserted that the ‘scientific man’ is first of all the nature’s interpreter (Peirce, CP 7.54). Arguably, the emphasis on interpretation may be true of other theories of knowledge and not only of the semiotic perspective on epistemology. Philosophy started with an exploration of the natural environment, and science was considered to be a natural philosophy. However, this position has a specific bearing in semiotics.

Semiotics, throughout its history, displayed a tendency to understand human beings not just as isolated knowing subjects, but as subjects not separate from the world of objects and ontologically continuous with their environment. It is not only that human existence, boiling down to our metaphysical place in the cosmos, is dependent on its natural environment; but nature too is dependent on humans, on their interpreters. This of course holds true of other species as well. But as humans, we exist in a semiotic relation to our environment in terms of both *Umwelt* and *Lebenswelt* (Uexküll 1926; Deely 2001). We understand and communicate with other species, but according to and within the limits of our semiotic competences (Stjernfelt in Nöth 2006). The ecological approach to knowledge posits an organism and its environment as co-dependent and elicits a theory of embodiment that has direct implications for education and learning (Olteanu 2014).

Recent developments in edusemiotics emphasize the idea of the *complementary* relation between subject and object, mind and body (Semetsky in Stables and Semetsky 2015, pp. 74–88). The self as a human subject is continuous with objects constituting its environment; together they comprise a larger semiotic system of signification. Humans, as well as other species, “do not have separate minds and bodies but engage with their environments as a whole” (Nöth in Semetsky 2010b, p. 35). Life-forms as parts of the whole universe are the universe’s mode of discovering itself (Olteanu 2015). We learn to recognize and adapt to the structures of signification (Stjernfelt 2014). Education and learning consider adaptation as a phenomenon of interpreting our environment (Gough and Stables 2012)—but also as a transformation of both ourselves and our environment due to the semiotic process of taking new habits (Semetsky in Stables and Semetsky 2015, pp. 16–30).

This chapter presents the edusemiotic project as a natural outcome in the history of philosophy, semiotics, and education. The chapter briefly marks the main moments and ideas that have shaped this history while opening new perspectives for research in the light of semiotic epistemology. The study of such joint semiotico-educational evolution unfolds in the framework of a semiotic approach to the history of ideas. While modern education continues to set educational goals according to empirical research findings, the semiotic approach traditionally favors a liberal curriculum, whereas teaching and research proceed together and are capable of nurturing each other. While modern mindset justifies the teaching of ideas stemming from classical science and objective research, semiotics as the science of signs partakes of metaphysics and underpins the liberal arts. Art and science complement each other in edusemiotics (Semetsky 2013), and semiotics may be regarded as an educational syntax. From a postmodern account of the history of

philosophy and science (e.g., Deely 1982, 2001, 2009), the ever-present educational background appears to co-evolve with metaphysics.

Hermeneutics, Semiotics, Metaphysics

Throughout the entire Middle Ages, the logic of signs as *Doctrina Signorum* (the doctrine of signs) was bounded to educational philosophy, even if implicitly. As the subject of research, such position was largely ignored during the period of modernity representing the age which was more concerned with mental ideas rather than with signs as relational entities overcoming the matter-mind dualism. After the rediscovery of semiotics grounded in the legacy of Charles S. Peirce and Ferdinand de Saussure, the implicit relatedness of education and semiotics from the metaphysical point of view was not immediately apparent. About a century passed until philosophers and semioticians noticed and claimed, again, not only the bearing which semiotics has on education, as well as on other aspects of human culture and society, but the correlation between the two. As Winfried Nöth remarks, “at the root of learning and teaching, we are faced with the roots of processes of semiosis in general” (Nöth 2014, p. 456). The process of semiosis as the evolution of signs plays a foundational role in education and learning.

Education and semiotics share some significant aspects of common history beginning with St. Augustine’s *De Doctrina Christiana* (2008)—the Christian doctrine. This text is renowned for being: (1) the first medieval liberal education treatise; (2) the first treatise of semiotics; and (3) according to St. Augustine’s intention, an explanation of Christian textual hermeneutics. The method of hermeneutics that the Christian Church Fathers employed to interpret the Bible is also the hermeneutics which was underpinning semiotics with respect to metaphysics. Throughout medieval theology, the Bible served as the “ultimate key to the interpretation of environment” (Nöth 1998, p. 335; also Pikkariainen 2012). Both sacred literature and ‘the book of nature’ require deciphering and decoding by means of the interpretation of signs; thereby “the same hermeneutic code that served for Biblical exegesis was in use to interpret the phenomena of the natural environment” (Nöth 1998, p. 335). The relation between hermeneutics as a semiotic method, education, and metaphysics suggests a bi-directional relation between teaching and research. A development of any of the three areas—hermeneutics, education, or metaphysics—would necessarily have an impact on the other two.

The first example of specifically semiotic metaphysics is St. Augustine’s book: what was a common paradigm in his time was made explicit in his attempt at elucidating Christian hermeneutics and justifying liberal education. St. Augustine did not develop any new hermeneutics, but in order to explain the usual apostolic method of allegoresis—or allegorical interpretation aiming to discover hidden meanings in the written text—he developed his theory of signs. This semiotic perspective can serve as an appropriate ground for postmodern education, where knowledge is posited as a dynamic process (e.g., Stables 2012; Semetsky 2006).

Such account of the interrelation between education and metaphysics may solve the postmodern dilemma (Lyotard 1979/1989): an epistemological instability of not succumbing to the ‘grand narrative’ is not problematic because knowledge itself is dynamic and evolving. Knowledge, as philosophy and science reveal it, is and has always been developing and changing. A postmodern discourse in semiotics detaches knowledge from ideology. A genuine sign, as a semiotic concept *par excellence*, is a dynamic relation. Edusemiotics argues that what we teach and learn does not consist in objectively given chunks of information as empirical facts, but in the systems of living signs that are embedded in the lives of human communities. This does not account for a purposefully constructed by humans social reality, because organisms populate environments with which they co-evolve. An environment evokes the possibility for an organism’s evolution while this organism discovers its environment according to its mode of embodiment that presents us with certain, and potentially significant, semiotic possibilities.

An analogous semiotic relation is observed at the level of culture and, more specifically, in education. In this way, a scientific environment and a teaching program become co-dependent. Education can be considered as the *telos* (purpose) of semiotics, and semiotics as the *telos* of education. One of the novelties of Peirce’s semiotics is that it conceptualizes teleology which is not predetermined: the system, through its learning history, sets its own *telos* in accord with its own possibilities. Thus, species tend to evolve according to the possibilities of their mode of embodiment, and scientific ideas evolve according to the possibilities embodied in a scientific community. This might raise a suspicion of a solipsistic vicious circle: human beings know only what human beings can themselves construct. The anti-dualistic position of semiotics however does not set apart mind and body, subjects and objects, humans and their environments. The human ‘body’ is a composite part of the larger ‘environment’ and has both corporeal and mental aspects.

The notion of ‘environment’ needs to be understood in terms of Jakob von Uexküll’s (1926) concept of *Umwelt* that strongly influenced the developments in biosemiotics (Stepanov 1971; Sebeok 1994). As signs signify differently in different contexts, the same species evolve differently in different environments. By the same token, the idea or set of ideas (comprising a current paradigm) evolves differently in different environments. Two different communities of researchers may arrive at different understandings of a third party’s ideas. The holistic tendency of semiotics, of gathering all aspects of reality within the category of signification or meaning-making, accounts for the importance of designing educational settings. Edusemiotics holds that school is not merely a building labeled as such or that learning and teaching activities occur solely in this building, but that the whole phenomenon of signification, comprising all parts-in-the-semiotic-relation constitutes the larger dynamic reality that we call ‘school’ (Stables in Stables and Semetsky 2015, pp. 89–100).

For semiotics, the *inner* and *outer* worlds of a knowing subject are both part of the same reality and are inseparable from each other: they belong to the web of signs comprising the process of semiosis. A genuine sign represents a

suprasubjective being (Deely 2001). Many aspects of signifying worlds, of course, might coincide. Two knowing subjects may be looking at the same tree while acknowledging that they are experiencing it differently: while phenomenal worlds may overlap, they never completely coincide (Stables 2012). By positing a suprasubjective account of being, semiotic realism understands sharing as the possibility of referring to the same subject. According to Peirce, reference becomes possible because individual replicas belong to the same general type. I can recognize a horse as a horse because it presents the phenomenological similarities with other horses which came across my life-experience. General categories, such as *horseness*, are not merely terminological, but real infinite possibilities, the continuous infinite reality of all possible horses. Such is the hypothesis of scholastic realism, inherited by Peirce from John Duns Scotus.

This approach breaks down modern skepticism with its ghost in the machine, or brain in a vat, hypotheses: we have no certainty of the real existence revealed by experience or whether other mental agents are indeed alive and conscious. Semiotics, however, while accounting for a changing, self-discovered *telos*, is not solipsistic. Semiosis as a sign-process—the very life of signs—cannot be restrained to just a mental activity. With a change in philosophical environment, education would beget a new *telos*. As the evolution of signs is organic, the educational perspective changes within a foreseeable horizon—a horizon of acknowledged real possibilities. A novel educational philosophy will always have some traces of previous approaches and theories. As such, the evolution of educational theory—up to the present point of bringing edusemiotics to bear on philosophy of education, pedagogical practice, and educational research—is not some redundant concept but parallels the developments in metaphysics.

A Semiotic Perspective on the History of Education

The history of semiotics as an academic discipline starts, as stated above, with the doctrine by St. Augustine. The concept of sign, of something standing for something else in some respect or capacity, is however more ancient, predating even what is strictly philosophy. Manetti (1993) finds first examples in ancient Mesopotamian divination practices and astrology. It is not a matter of chance that semiotics begins its theoretical development in the Patristic environment. St. Augustine's approach to the theory of signs comes in the context where the prevailing hermeneutical method is characterized by the kind of substitution that the sign performs. Such is a central characteristic of hermeneutics that semiotics and education share. The texts oriented toward mystical theology, including the *Corpus Areopagiticum* representing the collection of Patristic texts, which are most descriptive in terms of mystical theology, and the many interpretations of the book of Genesis (*Hexaemera*) demonstrate a variety of semiotic approaches. The commentaries on Genesis are particularly insightful because Genesis contains an anthropological bearing while semiotics indeed developed around an anthropological

statement that humans are the interpreters of reality. The Patristic notion of what sign is stems from the apostolic method of biblical allegoresis as an inquiry into discovering typological relations between different books of the Bible.

To interpret the texts, religious adepts used the tools of analogy and anagogy. Apart from the immediate, literal, and historic information that a text provides, the relevant message for the reader's spirituality was found in certain parallels between books and between the text and the outer context. As such, the ancient reader of the Song of Songs knew that erotic imagery is a language by which humans understand and express their relation to the Divine (e.g., Andreopoulos 2006; Nöth 1998) as, for instance, in the *Corpus Areopagiticum*, Letter IX, 1. The texts in the *Corpus* tell us that while between the constituting elements of the world, as we know it, there exist certain relations, there are no relations between this world and the Divine or angelic worlds. While divinity reveals itself to humanity through the actions of its own, it remains ultimately and infinitely unknown. Therefore, the unknowable is spoken of in Scripture through the parallels to the known: 'it is not possible for our mind to be raised to that immaterial representation and contemplation of the Heavenly Hierarchies, without using the material guidance suitable to itself, accounting the visible', as it is said in *Corpus Areopagiticum*. Such is precisely the operation of a sign: it always presents something else, something other than itself; as a genuine mediator, it connects matter and spirit (cf. Semetsky 2013) by virtue of a semiotic, in-between, relation.

The abovementioned texts are traditionally attributed to St. Dionysius the Areopagite (1897), the companion of the Apostle Paul. Modern scholarship however raises some serious doubts about this authorship. This is interesting with respect to the relation between semiotics and education, as the authorship of Dionysius might be claimed by the author for completing his argument regarding Hellenist philosophy (Stang 2012). In the Scriptural book of the Acts of the Apostles, Dionysius is mentioned in Acts 17:18 in the context of St. Paul preaching the 'unknown God' to Hellenists at the Areopagus in Athens. Hellenists, who represented a group of people interested in philosophical debates, tended to spend their time in nothing else but either in order to tell or to hear some new things (according to Acts 17:21).

This marks the Patristic authors' attitude toward Neoplatonism with its accompanying educational philosophy. Neoplatonism represents a monotheistic turn in the otherwise polytheistic Hellenism. The first claim is that an inclination to seek the 'unknown God' is a good path to knowledge. The second claim is that Neoplatonism, however, fails to understand the mysticism of monotheist Abrahamic spirituality, namely that God is unknown essentially. The impossibility of knowing the Divine is the central point of the Areopagite texts. By being signed as Dionysius, the texts imply the general Patristic attitude toward Greek and Roman philosophy. It can be assumed that according to the early Christian consciousness, teaching Christianity to philosophers meant teaching specifically Biblical hermeneutics—and this is exactly what St. Augustine did in his Christian doctrine. From the perspective of the Judeo-Christian tradition, monotheistic Neoplatonist who would worship the One, would need one more thing to come to the knowledge

of God, namely to understand the mystical aspect of this worship. This could be done through Biblical hermeneutics, by means of which the One of Neoplatonists is explained to be personal. From this hermeneutic perspective, Scripture contains mystical enigmas and holy symbols that require a specific semiotic literacy in order to be decoded. The text of the ‘On the Heavenly Hierarchy’ in *Corpus Areopagiticum* includes the following paragraph:

For any one might say that the cause why forms are naturally attributed to the formless, and shapes to the shapeless, is not alone our capacity which is unable immediately to elevate itself to the intelligible contemplations, and that it needs appropriate and cognate instructions which present images, suitable to us, of the formless and supernatural objects of contemplation; but further, that it is most agreeable to the revealing Oracles to conceal, through mystical and sacred enigmas, and to keep the holy and secret truth respecting the supermundane minds inaccessible to the multitude.

Patristic hermeneutics assumes that knowledge is analogical and that we can access, via mediation, that which is not immediately revealed. The characteristic of being ‘supermundane’ or ‘not of the world’ is that it does not have ‘images’ and is ‘formless’, which is to say that these entities are presumed to be different from reality as we know it. Therefore, we are to be proposed analogies with regard to things close to us, things that belong to the so-called *iconic syntax* (Stjernfelt 2007) of reality. Iconicity is defined as signification by similarity. The analogies can reveal to the reader the forms of the shapeless and unformed, as it is said in the *Corpus Areopagiticum* (Letter IX, 1). Such hermeneutics dovetails with semiotic consciousness, the concept of triadic mediation being at its very core. The Patristic authors were not especially concerned with theoretical developments or intellectual pursuits but rather with enriching a life of prayer. Philosophy, a theory of signs, or any other theory would be idle for them because it would be considered useless for practical worship. Signs, however, were approached theoretically by St. Augustine because of their being considered as useful tools for reading Scripture. Thus, semiotic consciousness has emerged when mystical theology historically begot educational needs.

St. Augustine’s text joins together the Judeo-Christian hermeneutics, Greek and Roman philosophical thought, and a mode of liberal education. St. Augustine’s book became the main medieval reference for the discussion of signs (Deely 2009; Marmo 1987, 2010) and in the context of liberal education (Olteanu 2014). The development of semiotics and medieval liberal education is strongly entangled. St. Ambrose, a Patristic author who knew St. Augustine closely and influenced him profoundly, offers an example of semiotic hermeneutics by explaining that we can infer the skills of an author by observing the liberal (theoretical) and utilitarian (practical) arts. For St. Ambrose, as applied to the book of Genesis, our world ‘is an example of the working of God, while we observe the work, the Worker is brought before us’; therefore such work represents a distinctive mark as a sign of the divine greatness manifesting God’s wisdom. By making this analogy, Ambrose chose the arts as a terminus, the arts thus being the object of education. The link between education, mystical hermeneutics and semiotics is implicated throughout the Patristic Age.

The Iconic Body and Learning

Semiotics inherited the main features of the perspective on the body from the hermeneutics of mystical Abrahamic theology and the philosophy of the Ancient Mediterranean world. The concept of the ‘body’ proved to be essentially bounded to the phenomenon of learning. Traditionally, body belongs to ‘this’ world, a material reality of perceivable forms that share similarity due to the universal iconic syntax. John Behr (2006) asserts that in the Patristic interpretation of Scripture, the body is mostly understood as the self, and living ‘not for the body’ is an exhortation to selflessness because my body is considered to be the most appropriate and closest entity to myself. The aim was not a mistreatment of the body as a physiological object which would have obscured the knowledge through analogy. Semiotically, my body is my self’s *icon* of myself. There is nothing more similar to myself than my body; hence the body is one of the best places to begin the hermeneutic inquiry toward the formless.

For Peirce, icons can be so similar to their objects that they might become confounded with them (Peirce, CP 3.362). Such confusion may occur in the interpretation of icons during a so-called “imaginary moment” (Stjernfelt 2007, p. 83). It is the body through which the self learns. The body is the learning self as it evokes semiotic competences, concretizing the self within iconic syntax. Otherwise self would be a meaningless abstraction as an icon-less symbol that, from a Peircean perspective, would be an impossibility as being ‘not of this world’. This perspective of the learning body entails some biosemiotic, edusemiotic, and ecosemiotic implications. Learning begins with our sensory-motor possibilities. Because of the triadic process-structure of semiosis, causal relations are not unidirectional. A representamen (a sign *per se*) does not determine the object precisely via an interpretant, but all three termini are cooperating in the relational sign-process. Organisms do not adapt, evolve, and learn in static environments. Organisms and their environments are mutually dependent and co-evolving.

This claim is already present in the anthropology of the Abrahamic mystical traditions with their holistic hermeneutics. For Sufi mystic Ibn Arabi, man was the spirit of the cosmos while the cosmos was the body. Spirit and body thus are not dichotomies but are connected and related in a holistic manner. Body without spirit, or cosmos without humanity, is dead and useless, because as such it becomes merely an icon-less symbol. Cosmos needs its interpreter, its *anthropos*, without which it would remain absurd and icon-less. This ecological holism of mystical theology is implied by St. Augustine in his *Confessions*:

And what is this? I asked the earth, and it answered me, “I am not He”; and whatsoever are in it confessed the same. I asked the sea and the deeps, and the living creeping things, and they answered, “We are not thy God, seek above us.” I asked the moving air; and the whole air with his inhabitants answered, “Anaximenes was deceived, I am not God.” I asked the heavens, sun, moon, stars, “Nor (say they) are we the God whom thou seekest.”... And I turned myself unto myself, and said to myself, “Who art thou?” And I answered, “A man.”... I asked the whole frame of the world about my God; and it answered me, “I am not He, but He made me.”

St. Augustine presents holistic hermeneutics that, as this chapter argues, underpins both semiotics and education thereby advancing the hypothesis of learning through bodily experiences. Needless to mention, we should not imagine Augustine uttering words and being answered back in articulated speech by the sea, by the moon, or animals, or other elements of nature. That he ‘asked’ these various questions means that he had initially begun his investigation of the environment by means of his own bodily, sensory experience. After inquiring into all aspects of the environment, he turned back to his body, searching for and finding the answer that it is ‘a man’ who is the nature’s interpreter. From here on he knew the direction of his inquiry. His distinction between the inner and the outer man does not suggest a dichotomy either, because the inner learns by the ministry of the outer. Once he arrived at this moment of the investigation, he could from now on rely on the inner reflection.

This explanation also proves the point made previously in this chapter, namely that the Patristic authors were not interested in a philosophical development, but in enriching their inner life of prayer. Thus, St. Augustine’s reflection on nature stops at this point while being followed by introspection. His investigation of the environment that has begun with him, led back to himself as well. Ibn Arabi’s anthropological cosmology, or cosmological anthropology, can be seen in the same perspective. St. Augustine’s interrogation of the natural environment, St. Ambrose’s introduction to interpreting Genesis, and Ibn Arabi’s cosmology—all imply that the methodology of the analysis of texts in mystical theology is the same as pertaining to the interpretation of nature. On this account, we can ‘read’ the world; the world being considered a lecture, a text, or a book.

Such position, it should be stated, differs fundamentally from what might seem to be a somewhat related hypothesis in structuralism. This account has an opposite direction: we read our written discourses because we read nature. This approach provides the answer to the question: why are the areas of semiotics and education necessarily interconnected? The cultural activity of writing and reading different texts functions as a semiotic interpretant within semiosis in our natural environment. The skills of reading and writing proved to be a precious advantage in the transmission and development of knowledge, while beginning with a semiotic competence of the human body. Contemporary semiotics continues to develop a concept of the body “which, in itself, makes evident the basic semiotic competences of an organism, i.e., a body concept which entails semiotics” (Stjernfelt in Nöth 2006, p. 14). The rediscovery of the semiotic body, like the rediscovery of educational semiotics, was delayed by about a century after the rediscovery of semiotics in general. Actually, these two endeavors—the semiotic body and a semiotic theory of education—had their beginnings at the same moment in history, within the first decade of the new millennium. This fact can be accounted by philosophy’s detachment from the linguistic turn and semiotics taking the iconic turn (Stjernfelt 2007) followed by the edusemiotic turn (Semetsky 2014).

The semiotic concept of the body has been developed within a few decades of biosemiotic research. Edusemiotics, as a branch of theoretical semiotics *per se*, emerged in the previous decade and acquired this particular name, ‘edusemiotics’,

only in 2010 (Danesi in Semetsky 2010b). Both approaches state the epistemological need for a non-dualist account of learning and education, claiming that formal and analytical accounts of language miss the main attributes of thought and language by regarding the mind and body as separate. The conception of the semiotic body advances the perspective of experiential learning as apprenticeship in signs (Semetsky in Stables and Semetsky 2015, pp. 46–60) and signs as ‘alive’ (Henning and Scarfe 2013): indeed, people are signs and are sign-users equipped with linguistic or extralinguistic competences. The persistent metaphors of brain in a vat or ghost in the machine are destructive for natural environment (Stables in Stables and Semetsky 2015, pp. 145–154) as they disregard the bodily aspect. Learning is both a cultural and a biological phenomenon; and is continuous with the rest of the world. Living and learning are coextensive and cannot be separated. Learning can be considered a symptom of life. As such, it is not surprising that biosemiotics and edusemiotics recently started to rely on the mutually informative research in their respective fields.

Edusemiotics acknowledges the centrality of the concept of competence for educational theory (Pikkarainen 2014), while biosemiotics finds that competence stems from our mode of embodiment (Stjernfelt in Nöth 2006). These assumptions are co-related and underwritten by holism implied by semiotics. Educational theory posits learning as coextensive with life (e.g., Stables 2005), and biosemiotics considers semiosis as the characteristic of life (Emmeche and Kull 2011). The concept of lecture or text expands its boundaries: reading and writing of such ‘text’ becomes our adaptation to, and an interpretation of, our environment in accordance with semiotic competences stemming from the process of semiosis as the evolution and transformation of signs.

Peirce used a metaphor derived from grammar and logic to explain metaphysics and positing ‘ratio’ existing in the natural world. It is worth reiterating that Peirce’s view of man as the nature’s interpreter is the idea shared by edusemiotics (Semetsky in Stables and Semetsky 2015, pp. 16–30). By using logical categories of abduction, induction and deduction we can read and understand the book of nature. Such reading and interpreting the book of nature is possible by virtue of the iconic turn, which returns semiotics to one of its earlier, medieval notions of the body—the body as the icon of the self and for the self. This semiotic approach is strongly anti-dualistic. Peirce indeed had this intuition: he posited self-consciousness as developing through young infants’ close observation of their own body and their sense-experience: “this body is the most important thing in the universe. Only what it touches has any actual and present feeling; only what it faces has any actual color; only what is on its tongue has any actual taste” (Peirce, CP 5.229). This approach to education positions learning and teaching in a thoroughly holistic semiotic framework and educational activities as inseparable from our broad experiences in the world. Indeed, “experience is our only teacher” (Peirce, CP 5.50; also Strand 2014; Semetsky 2010a).

Conclusion: Semiotics and Ecology

This chapter demonstrates that medieval semiotics entailed a theory of education and a theory of embodiment. Ecology is a particular issue that the medieval authors did not have to tackle at the time; however the tendency toward the environmental destruction through our own human action is the postindustrial concern. When semiotics first began to formulate an approach to ecology, the focus was precisely on medieval mystical hermeneutics. Winfried Nöth has identified a “pansemiotic model of the relationship between humans and their environment” (Nöth 1998, p. 334) as a general perspective during the times of the scholastics as observed in the works by Thomas Aquinas (Nöth 1998) or Ibn Arabi. Despite rather limited research efforts in semiotics in this regard, as noticed by Umberto Eco (1977), it is safe to assume that the most prominent educational theorist of the time, Ibn Rushd, probably had a direct influence on Ibn Arabi. As such, the mutual co-dependence of edusemiotics and biosemiotics may be based on the ecosemiotic foundation.

The iconic turn in semiotics facilitates our understanding of the continuity and wholeness in the relation between organism and environment, both belonging to the same syntax. The metaphysical syntax of the world, from the semiotic perspective, is iconic: that something exists, that it is part of this world, is to be in the relation of similarity with everything else in the world. It is due to the fact that the world has an inherent syntax, grammar, or ‘ratio’ that we are able to read it. Historically this philosophical postulate determines the development of literacy and becoming able to learn how to read and write both literal texts and the natural environment as the text *par excellence*. In the history of semiotics such position was enunciated around the 8th century, during the Iconoclastic controversy in Christianity. The academic dimension of this controversy represents a debate between the mystically minded theologians who would venerate icons, and Hellenists who would refute the veneration of anything material defining it as idolatry (e.g., Florovsky 1950; Lock 1997). The theologians who eventually won the debate had to fight Neoplatonism on its own terms because the strictly theological arguments did not hit the target. The argument that has eventually won the debate posited written texts as also iconic. Charles Lock summarized St. John of Damascus’ main argument, especially in terms of the deep implications for semiotics, as follows: “Either accept these [icons], or get rid of those [Gospels]” (Lock 1997, p. 10).

Peirce considered a complex symbolic signification as developing upon, primarily, iconic signification. When we humans are placed within the world’s iconic syntax, we can learn this syntax, read the book of nature, and then write. If the syntax is not well learned, then ‘writing’ would not be harmonious with the rest of the ‘text’—from the ecological perspective. Thus semiotics, ecology, and educational philosophy are intertwined in a specific theory-practice nexus called edusemiotics. While many theoretical branches of semiotics demonstrate mutual roots grounded in the holistic spirit pertaining to philosophy as semiotics, edusemiotics as a novel educational philosophy is exemplary in terms of considering the role of life-experience and social/natural environment in the processes of

learning and the role of learning as a driving force in the evolution of signs comprising the process of semiosis. Semiotics links together biology, education, and ecology.

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Chapter 15

Heteroglossia as a Dialogic Route to Metaphoricity in Education

E. Jayne White

Abstract Summoning Michail Bakhtin's notion of heteroglossia and its relationship to metaphoricity, this chapter invites a re-conceptualized view of language use in education. The notion of heteroglossia posits the sign as a multi-discursive, diverse, ideologically and socially constructed event. A heteroglossic approach to metaphoricity is therefore contemplated as a deeply interpretive stance on the part of teachers who are open to forms of engagement with signs well beyond centripetal considerations of language that is otherwise 'dead on arrival' and denies its diverse potential for creative meaning-making. The chapter uses an example of research in the area of early childhood education as those years where clues to meaning are often elusive. In keeping with the central tenet of edusemiotics, emphasis is placed on interpreted meanings in action rather than isolating the sign as if it merely passes from one person to another. In the increasingly heteroglossic nature of our world, coupled with a new era of openness, diversity, and dialogue, teachers are compelled to contemplate multiple dynamic forms of semiotic engagement with learners.

Introduction

Summoning the Bakhtinian notion of heteroglossia and its relationship to metaphoricity, this chapter invites a re-conceptualized view of language use in education. Heteroglossia indicates linguistic diversity (*raznojazychie*, in Russian) and diversity of individual voices (*raznogolosie*, in Russian). Yet comprehension of metaphor typically calls for shared linguistic and conceptual meaning to have its fullest effect. At first glance this presents a dilemma to the task of educators in trying to interpret meaning with learners, particularly when linguistic and/or cultural codes or conventions are not shared. From a heteroglossic standpoint, however, the use of metaphor is no longer conceived as a set of prescribed, or culturally agreed upon, combinations or tropes. Rather, the shared nature of the sign as a route

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to meaning is considered as a kind of situated agency that draws on the language of multiple ‘others’ to orient understanding as an act of metaphoricity. Viewed as a kind of gestalt-like ‘social ignition’, signs create stutters in meaning, rather than certainties, according to the ideological orientations of the sender in contemplation of the receiver (and vice versa of the receiver as author). This point is reconciled in the consideration of metaphoricity well beyond its etymological or ‘parole’ meaning of the sender in open spaces of potentialities.

In keeping with the central tenet of edusemiotics (Stables and Semetsky 2015) emphasis is placed on interpreting meaning(s) in action rather than isolating the sign as if it merely passes from one person to another. More specifically, attention is drawn to the heteroglossic significance of the numerous multilingual, embodied voices in play in educational contexts that claim to know and understand learners through their ‘voice’ as a singular concept of shared meaning. The effort of engagement in these potentially metaphoric spaces is not only an interpretive challenge because of the different meanings that may be drawn from different ideological or even linguistic uses of genre; but such spaces are also comprised of multiple languages that draw from diverse origins—many of which may be unknown to all interlocutors. These may be additionally flavored by different levels of voicing or accents known as stylized utterances that “do not coexist peacefully with other elements of existence previously drawn in, but engage them in a struggle, re-evaluate them, and bring about a change in their position” (Voloshinov 1973, p. 106). These complex interactive spaces represent a cauldron of living relationships (White 2015) with creative pedagogical potential for all. As such, the associated struggles facing those who engage with learners to this fuller extent are presented in a celebratory manner—and not as a problematic barrier to meaning. It will be argued that they provide a central means of engaging with the potential of diversity and plurality of voice(s) to generate increased opportunities for metaphoric meaning-making that now positions pedagogies at the center of edusemiotic inquiry.

This chapter is presented in two parts. The first outlines the related concepts of heteroglossia and metaphoricity and their relevance to the field of edusemiotics. The importance of heteroglossia as a means of understanding “multifaceted and multiplicitous language” (Busch 2014, p. 24) in contemporary educational contexts cannot be understated; since as the world diversifies, so too must the way educators encounter and interpret meaning. This is an important agenda for all educational contexts in an era confronted by the replacement of certainty with poststructuralist flux and diversity—not least as a result of an increasingly global society. When applied to the notion of metaphoricity there are multiple challenges, but also opportunities, as the second part of this chapter will explain. Here I assert that teachers are, as a central feature of their pedagogical role, charged with the task of interpreting meaning based on language clues that may escape (or exceed) their understanding—despite their best efforts toward consensus. While there are challenges for all domains of education in this regard, the chapter focuses briefly on education in the early years—where clues to meaning are often elusive. Non-literal, embodied and often drawn from domains beyond the teachers’ immediate grasp,

interpretation calls for a symbolic engagement with meaning as metaphoricity. As such, the chapter turns to the field of early childhood education (ECE) where heteroglossia plays out its metaphoric potential through dialogic events that reveal the many voices of the child in relationship with the teacher. The chapter concludes by posing some pedagogical provocations that far exceed a singular concept of ‘voice’ and celebrate the potential of metaphoric meaning-making when heteroglossia is brought to bear on edusemiotic studies.

Part 1: Heteroglossia and Metaphoricity in Edusemiotics

Heteroglossia

The concept of heteroglossia or *raznorečie* has been described by Bakhtin (1981) as “another’s speech in another’s language, serving to express authorial intentions but in a refracted way” (p. 324). It represents the “concrete, living totality” (Bakhtin 1984, p. 181) of language in everyday social events. Todorov’s (1984) translation of associated Russian terms—*raznojazychie* and *raznogolosie*—adds to this interpretation, emphasizing the multiplicity and diversity of individual voices in dialogue. His assertion that there is a “multiplicity of [social-ideological] discourses” (p. xii) at play supports Bakhtin’s (1981) persistent claim that language is “always populated—overpopulated—with the intentions of others” (p. 293); and that it is determined by the particular social context of its usage. Contemporary educational studies highlight the heteroglossic context of language use in the classroom as “a complex space of resonance encompassing different voices, codes and discourses that are related to different biographically relevant spaces and periods of time” (Busch 2014, p. 35). Summoning associated linguistic devices to the field, such as indexicality (Bailey 2012), parody (Blackledge and Creese 2014), multi-discursivity, and double-voicedness (Cohen 2015; Rosen 2015), researchers are now beginning to recognize the complexity of language use for the 21st century learners who draw from increasingly pluralistic contexts, which they bring to education. Through such means of analysis, there are magnified opportunities for understanding, appreciating and enacting, rather than assimilating, creative meaning-making—as internally persuasive discourses (IPD) and authoritative discourses (AD) engage in centripetal¹ and centrifugal battles for understanding. From this dialogic standpoint, heteroglossia lies at the heart of living language as central to learning.

¹Talbot (2015) interrogates this metaphor from the standpoint of its scientific origins to explain that centripetal forces gain sufficient momentum as to ‘throw out’, while centrifugal forces tend to combine or coalesce. Such launching offers an opportunity to transgress privileged meanings to encounter other discourses that give rise to other ways of seeing the world: it is therefore a dialogic process (see White 2015).

Metaphoricity

In alignment with his heteroglossic principles, Bakhtin's view of metaphoricity similarly draws on plural concepts to conceptualize meaning-making as an interpreting effort because of the different meanings from different ideological and even linguistic places (White 2014). For Bakhtin, metaphor is best encountered as a social event of aesthetic engagement, where meaning is generated out of the moment—not in its analytical aftermath. Meaning therefore alters depending on both language use and on its strategic orientation. Since, for Bakhtin, language is conceptualized beyond the spoken word, meaning is generated in dialogic interplays that involve the body and which are located in a specific place and time in accord with his concept of a chronotope.

Bakhtin's conceptualization radically differs from prominent Aristotelian interpretations of metaphor use which rely heavily on a shared appreciation of the common lexical composition and rhetorical novelty based on familiarity within a culture that is based on linguistic conventions and association with known categories or definitions (see, for example, the influence of Wittgenstein's family resemblance model in Haser 2005). Likewise, Lakoff and Johnson (1999) seek to establish 'sanctioned' hierarchies in metaphor use and its comprehension drawing on formulae that ascribe to the effective combination of domain and vehicle relationships. Their claim is that ontological correspondences are subscribed in a combination of both. For example, bringing together of love and journey as a metaphorical mapping implies that lovers are travelers, that lovers' common goals align to their common destination, and that difficulties in the relationship might be viewed as an impediment to the travel experience. To share this metaphor, interlocutors must also share its cognitive mapping or, in cognitive science terms, it may not exist as a metaphor at all.

In contrast, Bakhtin was critical of any view of language whereupon meaning was abstracted or reified in this manner. At the center of Bakhtin's philosophy was the problem of 'seeing'—since, as he pointed out, we cannot see what someone else sees. In his view—even if we saw the same act at the same time—the same meaning does not ensue. Taking a Kantian approach, one might solve this problem by suggesting there is something generic that can be mutually appreciated. Yet if we, as Bakhtin suggests, accept this difference then discourse must be summoned in a philosophical kind of metaphorical use. Now, there is a semiotic tension introduced since shared appreciation or interpretation can no longer be assumed. In the absence of such a view, Bakhtin argued that the potential for creative meaning was immediately halted, perhaps even destroyed; and alternative standpoints denied when meaning was fixed. His views were also heavily influenced by German philosopher Ernst Cassirer who summarizes this argument in the following statements:

To be sure, it is evident that all these turns of expression can be nothing other and nothing more than metaphors; but, if at all, it is only in dynamic metaphors like these, and not in any figures whatsoever borrowed from the static world, the world of things and

thing-relationships, that the connection between the ‘particular’ and the ‘general’ in language, the relation between ‘life’ and ‘spirit’ therein, can properly be described. And the same fundamental relationship exhibited here in the realms of language holds true of every other genuine ‘symbolic form’. The inner contradictoriness, the polarity which necessarily dwells within every such form, does not rend or demolish it; rather it constitutes the condition whereupon its unity may again be established out of that contradiction and may thus again present itself to the outside world (Cassirer 1953, pp. 879–880).

It is in Cassirer’s attentiveness to the polarity and contradiction in the use of metaphor that a fruitful course for heteroglossic attentiveness in Bakhtin’s uptake is set up. Brought to bear on the field of edusemiotics, a heteroglossic approach to metaphoricity holds great promise for meaning-making as a dialogic educational imperative.

Edusemiotics

The intersection of heteroglossia and metaphoricity in educational classrooms represents an (edu)semiotic issue in its broadest sense since, as Stables and Semetsky (2015) purport to demonstrate, signs are necessarily relational thus interpretable. Edusemiotics posits learning from and with signs as a necessarily embodied activity. Armed with these concepts, it is possible to assert that *all* language is some sort of engagement with signs based on meanings that are generated in the social space. This feature bears close allegiance to the claims of (Bakhtin’s colleague) Voloshinov (1973) who promoted the fundamental idea that signs are always ideologically imbued with meaning. In keeping with Cassirer’s metaphoric tenets, Voloshinov argues that—where signs are lodged in a dominant ideology—meaning is stifled, making “yesterday’s truth...appear today’s” (1973, p. 24). Traditional views of metaphor have had exactly the same effect on meaning thereby suggesting that certain ‘sanctioned’ juxtapositions are more relevant than others, or that meaning is only accessible to those who share certain linguistic codes. Such a view casts certain learners as ‘novice’ or ‘primitive’ users of language who are therefore incapable of engagement with metaphors (a point we will return to in Part 2). However, this view does not serve those who sit outside of a ‘certain’ homogenous space—perhaps culturally or conceptually. This is particularly true in judgments of very young children’s metaphor use (or should I say, the perceived lack of use ascribed to this age group) based on claims that metaphors must follow certain adult-centric lexical, conceptual and categorical rules in order to exist.

Yet, as asserted by Bakhtin and his associates, there are other ways of considering metaphor and its use when contemplated in a heteroglossic world. These considerations are also heralded by philosophers such as Nietzsche (1969) who, like Cassirer, casts metaphor as central to all language and thought: “knowing is nothing but working with the favorite metaphors, an imitation that is no longer thought to be an imitation” (p. 51). While analytic philosophers did not specifically address

metaphors, for Charles S. Peirce metaphors could be thought of as signs characterized by their iconic potential. His view was that there is a tension existing within the relational structure of signs that creates a need to generate meaning, which is entirely new and which could not exist by breaking down the genuine sign into separate parts. Peirce did hint at an expansive etymological and ontological view in this regard pointing out that metaphysics has been said to be a fabric of metaphors and that logical and phaneroscopic concepts need to be also understood metaphorically. In a characteristically-metaphorical language, Peirce (1998) remarked that a pure idea without metaphor resembles an onion without a peel.

That ‘things’ can only be conceived on the basis of their effects, in accord with Peirce’s pragmatic maxim, posits not only a match but potentially a mismatch which bears strong allegiance to Cassirer’s depiction of ‘striking a chord’ of meaning and Voloshinov’s electric circuit metaphor which ignites meaning. Together, these approaches to meaning place emphasis on all parties in the dialogue—operationalized in Bakhtin’s concept of ‘alterity’ which “draws attention to the pervasiveness of the ‘other’” (Clark and Holquist 1984, p. 66) thus placing emphasis on where the very point that meaning is *not* shared creates potential for creative interpretation. As Stables (2012) asserts, the omission of a problematization of the sign-signal distinction omits to consider non-progressive aspects of encounter: “Western-style democracy”, he argues, “is not the only form of social development” (p. 16). This is a shift from metaphor as a purely iconicity-driven relationship of similarity to a complex form of creative interpretation with the possibilities heralded out by this additional tension.

Such an approach to metaphor requires non-essentialist openness to possibility and resistance to contiguity in favor of what is speculative at best, disabling at worst. There is no certainty in such a treatment of metaphor as it, like human beings themselves, is always in a state of becoming. For Bakhtin, once transformed into a reified poetic device, a metaphor loses its creative potential because its meaning is now fixed, overworked, or might even be described as dead (cf. Lakoff and Johnson 1999). This contiguous approach to metaphor suggests that while mappings may be motivated by their similarity, for example red to hot, up to happiness and so on, they are also brought into existence as a result of their difference (perhaps even *differance* in Derrida’s sense). Lived metaphoricity (that is, use of language in real lived communication) thus provides creative ways of juxtaposing, contradicting, perhaps even polarizing language only to subsequently de-establish the contradiction in order to create new, if fleeting or perhaps even misunderstood, meanings. The metaphor may be ignited in the mind of ‘other’ because it creates a kind of slippage from resemblance or classical logic as a new relationship is forged out of the contiguity of language. It is generated within the exchange itself, as an event and, by its very nature, de-stabilizes meaning, thus generating new ways of encountering metaphoricity aesthetically as interpreted understanding in motion. Voloshinov’s (1973) depiction of the non-neutrality of language and associated notions concerning volitional meaning, ideology and social accent contribute to a view of metaphoricity as a process of engagement in its broadest sense:

Each ideological sign has two faces, like Janus. Any current curse word can become a word of praise, any current truth must inevitably sound to other people as the greatest lie. This *inner dialectical quality* of the sign comes out fully in the open only in times of social crises or revolutionary changes. In the ordinary conditions of life, the contradiction embedded in every ideological sign cannot emerge fully because the ideological sign in an established, dominant ideology is always somewhat reactionary and tries, as it were, to stabilize the preceding factor in the dialectical flux of the social generative process, so accentuating yesterday's truth to make it appear today's. And that is what is responsible for the refracting and distorting peculiarity of the ideological sign within the dominant ideology (Voloshinov 1973, pp. 23–24).

Voloshinov, like Roman Jakobson and other members of the Russian formalist movement, invokes a dialectical approach here, appearing to suggest that “each individual speech act is infected by the speech acts of others” (Hutchings 2004, p. 152) but there is now less emphasis on the outcome or product of language than the very process. Once again the semiotic features of language are summoned “as individual verbal acts of creation embodying universal meanings through a dialectical unity of unique and general, inner word and outer world, in which both remains undiminished” (ibid, p. 152). A semiotic bridge in-between the universal and particular, as well as in-between other dual categories, is a feature of edusemiotics, indeed, especially in view of Peirce's triadic structure of a genuine sign. For Jakobson, a sign is both structural and lived and is located within a system. The Russian formalist movement of this era forms the basis for a heteroglossic approach to the field while being clearly implicated in the further shift toward the complexity of language in social acts.

This development is evident in the work of the Bakhtin Circle whose radical expansion of the symbol beyond an individual or self-other act is replaced by a dialogically oriented approach to meaning as an event-of-being that is located within dynamic dialogue rather than being a (static) system. For Bakhtin, there is no object, nor representation-interpretant distinction. These roles are collapsed in the social event; and subjectivities are inter-animated accordingly. In this view the sign is not remote from the subject but is forged through subject-subject relations. There is no need to focus on categories or hierarchies but an orientation toward subjectivities and perception. This point of departure enabled Bakhtin to consider the orientation and meaning of language as utterance in its broadest sense. By association, metaphoricity could now be contemplated as a value-created activity—one that consumes an entire being ‘from head to foot’. In this locale metaphor is no longer a mere language trope but forms the very basis of all meaning. When heteroglossia is brought to bear on this revised conceptualization, it creates an imperative to examine the multiple zones of difference that take place in dialogue with social contexts, and their associated meanings. A primary site for such examination is, of course, the domain of education.

Part 2: A Heteroglossic Approach to Metaphoricity in Education

Adopting a heteroglossic approach to metaphoricity in educational settings not only opens up the possibilities for language meaning to be considered a deeply social and axiological event of learning, but places increased emphasis on the everyday experience of learners. Invoking the alteric potential of language provides a different way of interpreting the communicative experience for those who do not share the same language or forms of language as a means of understanding oneself through the eyes of another. In this way the puzzle that metaphorical language offers for interlocutors can be seen as an insight into the effort of communication and its multifaceted purposes rather than a fixed outcome. Metaphoricity is no longer merely a sent or received meaning, but meaning exists in the constant creative flux that comprises the educational heteroglot. As Bakhtin (1981) explains:

not all words for just anyone submit easily to the appropriate, to this seizure and transformation into private property: many words stubbornly resist, others remain alien, sound foreign in the mouth of someone who appropriated them and who now speaks them; they cannot be assimilated into his context and fall out of it; ...the speaker's intentions – it is populated – overpopulated – with the intentions of others. Expropriating it, forcing it to submit to one's own intentions and accents, is a difficult and complicated process (p. 293).

In spite of its complexity and uncertainty such effort marks the basis of pedagogical work in contemporary education (White 2011). The edusemiotic emphasis on living and learning (e.g., Stables 2006; Semetsky 2012) brings to the fore an embodied encounter with 'others'. Teachers are profoundly confronted by the challenges of meaning-making in their work with diverse learners with whom they are required to engage authentically and ethically. Enshrined within concepts such as sustained shared thinking (Siraj-Blatchford et al. 2002) and mediated learning (Vygotsky 1997), dominant educational discourse operates on the premise that all meaning is not only accessible and transmittable, but that meanings are also shared. In such a view the teacher orients meaning in accordance with societal demands, such as those espoused in curriculum documents or lesson plans, and logic-oriented truths that underpin assessment in order to drive a certain agenda for learning. The metaphoric event of meaning-making takes place in the dialogic in-between-ness of such worlds (not least the world of the teacher herself), alongside the developmentally, culturally, and ideologically diverse world of the child who draws from multiple social spaces and multiple, sometimes unknown accents, and keenly confronts this discourse. Here I am reminded of the plurality of voices that speak and are spoken into, of and about—each implicating the other in a dialogic interplay exceeding typical notions of 'child voice' that permeate the ECE landscape. There are now many examples of such multi-discursivity and diversity in the early childhood research on dialogue (e.g., Cohen 2015; Kurban and Tobin 2009; Rosen 2015; Tam 2012; White 2014). In each case, voices reflect a bewildering array of spoken, embodied and even silent dialogues that betray their ideological orientations in communication with others. Meaning is generated out of what is seen and

heard, but also remains open for reinterpretation in light of the alternative perspectives arising out of the discourse itself which, if taken seriously, raises awareness of the creative potential of what is offered. The difficult path to such interpretation is evident in my own reflections during a research project that sought to interpret metaphoricity with a toddler (White 2009). During this event the eighteen-month-old appeared to be ‘eating’ barkchip (small pieces of wood in the ECE center play area):

Why on earth would you eat barkchip? But it seems to me that she has it in her mind that this bark chip represents food to [her teacher] and – in this game she will attempt to eat it. The literal temptation would be to actually eat it – put it right in her mouth – but she knew to just take it far enough to her lips and go ‘yum yum’. To me it seemed as if she did this in response to the game she and [her teacher] were playing – almost as an offer to join in (White 2009, p. 115).

Summoning heteroglossia to these meaningful encounters, the effort of engagement in the metaphor-space with learners is not only seen as an interpreting effort because of the different meaning-paths from different ideological or even linguistic spaces that may elude a juxtaposition which is necessary for the spark to ignite. It is also a space of conjunction of multiple languages that draw from diverse origins which may exceed adult understanding. Many of these languages may be unknown to all parties and are imbued with meaning, perhaps altered also, only in their everyday use. Consideration of these ‘other’ voices disrupts the smooth narrative that is frequently sought in understanding learners and forms the basis of a heteroglossic orientation which illuminates the numerous voices in play within a complex social space. Multi-voicedness is not viewed as a problematic barrier to meaning in this conceptualization of learning but becomes a means to celebrate the potential of such diversity that generates increased opportunities for educative meaning-making in its broadest sense (Blackledge and Creese 2014). The following example (White 2009) highlights this point:

Researcher: ...she lifts her top and, I felt sure, she said “button” but when does that same action with [her mother], her mother made the suggestion that she was saying ‘whoop whoo’

Mother: Whoop whoo. Yeah.

Researcher: And I’m going “what...?”

Teacher: I thought she said “puku” [maori (Maori) word for stomach]...

Mother: (laughs) Well it could be that too, yeah.

Researcher: And [the teacher] said “we don’t use that [word] here, I wonder if they do at home?”

Father: (smiles and puts his forefinger in the air)

Everyone laughs

As Davies (2014) suggests, teacher engagement with the plural concept of voice involves suspension of prejudice and judgment to “open up the possibility of new ways of knowing and new ways of being” (p. 21). This is especially important because learners draw from increasingly diverse spaces. From a Bakhtinian stance

such engagement also requires teachers to engage with the dialogic struggles this engagements present, embracing dissensus, contradiction and curiosity as a catalyst for creative insights. Of course, such attempts are not unique to the early years—and may become even more difficult to interpret as children grow older and into learning cultures that assume a shared consensus of meaning. In these formal educational settings meaning becomes a dialectical endeavor on the part of well-meaning adults—often, I suggest, at the expense of the unique internally persuasive discourses children themselves bring to their encounters.

Pause for Celebration?

Celebrating these opportunities does not make for clear-cut shared meanings that can be neatly ascribed to language in the traditional sense (as Lakoff and Johnson might suggest). Nor does it posit the individual as one who speaks with a singular voice, or out of one identified discourse, or system for that matter. Utterances are language acts that are answered and not ignored; leading as such perhaps toward shared meaning (that is, as a centripetal force) but more often than not away from shared meaning (using the metaphor of a scientific centrifuge) as the following model conveys (Fig. 15.1).

Moreover, a suspension of the systems in which language is located, in favor of the utterances that are employed in an event of dialogue, provides a means of understanding metaphoricity as a constant source of orientation. In this conceptualization, the absence of shared meaning, rather than being considered a deficit to learning, becomes a source of creativity and dynamic interpretation. There is also room for loopholes where meaning may be deliberately sabotaged through metaphoric encounters that confuse, distort or reorient focus—perhaps on the part of

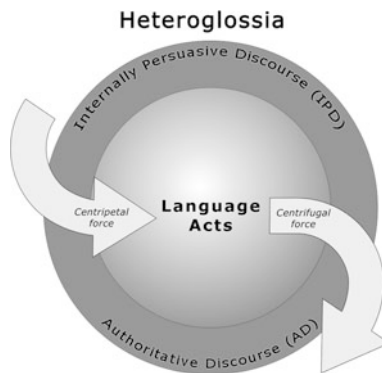


Fig. 15.1 Heteroglossia [Reproduced from Fig. 1.1 in White, E. J. (2015). *Introducing dialogic pedagogy: Provocations for the early years* (p. 28). Reprinted with permission from Routledge]

learners who do not necessarily wish to be fully ‘known’ by adults. Bakhtin’s conception of heteroglossia, therefore, is not so much about a view of language as some sort of common medium or transmission device oriented toward mediated or even an assumed eschatological quest for wholeness, but rather it is concerned with the competing voices that exist within a communicating society of individuals with each bringing multiple (often competing) languages to dialogue. Each is at once implicated by the languages of other, and notions of identity are interrogated far beyond any fixed stance. Here, there is recognition that “the self is not given, once and for all... like the sign, its boundaries are open to the other and never definitively fixed and established” (Petrilli 2013, p. 14). I suggest that this is where Bakhtin’s heteroglossic contribution makes its greatest claim—for by examining colliding and competing voices, as discourse—the “concrete, living totality” (Bakhtin 1984, p. 181) of language presents a much more complex picture and “becomes an expression of a value-created activity that penetrates form and transforms it (Bakhtin 1990, p. 305).

Returning to our growing re-conceptualization of metaphoricity then, heteroglossia provides a means of engagement with multiple meanings both within and between human beings rather than isolated subjectivities engaging with the separate sign. This is not merely a cacophony of voices from different people—indeed the self is made up of multiple voices too. In Bakhtin’s view, the self is never isolated from other in a philosophical sense—it is this problem of understanding that lies at the center of his thinking. What comprises meaning is thus oriented in the in-between-ness of a dialogue because it relies on past experiences or ‘enregisterment’ (Agha 2005). From this point of view there is less emphasis on universal categories as on the meaning of language in use expanding well beyond the present moment. It is, in other words, a metaphoric engagement in that moment that may or may not be recognized as such or it may even arise out of such engagement. Such moments—as metaphorical sparks of meaning—are all too often overlooked or dismissed because they do not generate certainty or align with the dominant genres that are privileged in educational settings or conformed to desirable learning outcomes. Moreover, the narrow logic of identity gives too literal truth to any one utterance as defining an individual independently of contexts and times. In this attention is drawn away from the potential of the unknowable ‘other’ as a source of wonder and provocation.

One way I see such limits operating in education is in the steadfast emphasis given to utterance as a literal manifestation of a single learner’s identity rather than a dialogic engagement with others. In contexts such as play, which comprises much of the early years educational chronotope (using Bakhtin’s term), this presents a serious challenge to the appreciation of metaphoricity because metaphoric language use as a social event with heteroglossic potential is not considered as a legitimate form of learning. Elsewhere (Marjanovic-Shane and White 2014) I have argued for a view of play as *postupok*—a kind of *deed* (when translated from Russian) that steps beyond what was previously seen or known through social acts of creativity and imagination (cf. Stetsenko and Ho 2015). Partially I suspect this harks back to developmental limits and straw man assertions concerning the competencies of

young children (White 2009); but it is also a feature of an early childhood curriculum that has not really been recognized for its ontological orientation—despite the rhetoric about competent and confident learners in relation to dominant educational discourse.

New Zealand's early childhood education curriculum, for example, privileges signs and symbols in relation to art, music, dance, word, and number. In one of five curriculum strands devoted to 'communication', emphasis is given to children 'reading' symbols as a route to cultural experience (Ministry of Education 1996, p. 78). There is no mention of the possibility that signs and symbols may be generated by young children themselves, let alone through dialogic interplay or in response to the creative potential of their lives outside of educational settings. Moreover, no regard is given to the generation of signs and symbols that sit outside of culture, or which are generated anew. Voloshinov (1973) explains similar practice as an attempt to "turn on a light bulb after having switched off the current" (p. 103). Many classrooms attempt the same miraculous feat and are condemned when they fail to achieve it because the orientation to learning is de-centered from its lived meaning for learners.

Concluding Remarks

On such slightly depressing note I conclude this chapter by suggesting that there is yet hope. Given the increasingly heteroglossic nature of our world, coupled with a new era of openness, diversity, and dialogue, teachers are compelled to contemplate these dynamic forms of metaphoric engagement. Granted their legitimacy as serious approaches to learning and teaching while committed to the ontological experience of learners who may draw from diverse language spaces, meanings can no longer be considered within traditional frameworks for interpretation. Encountering the social tensions of language, as heteroglossia, means that shared meaning in a metaphorical sense may offer little more than fleeting glimpses of potential meaning in its broadest semiotic sense. Yet such a contemplation of metaphoricity may also provide advanced opportunities to recognize inter-subjective limitations as the signs of humility that demand of teachers a path to understanding in creative contemplation with others. These others may bring alternative insights to our experience or remind us of the boundaries of our own life-worlds. Whenever 'other' is seen only through the lens of oneself, we may lack those endeavors that create multiple metaphoric opportunities for understanding and meaning-making. A singular notion of voice is inadequate since neither learners nor teachers speak one language at all times and for all purposes, nor do they act in isolation from one another. This is an important challenge for education where diverse learners are often denied their creative agency because adults fail to appreciate the complexity of their language encounters and their potential for learning as 'alterity'. It is also a challenge for all learners who, in various ways, have the potential to offer metaphoric insights in the multiplicity of heteroglossic spaces that have not yet been granted our fullest attention.

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Chapter 16

Knowledge as a Sign: An Edusemiotic Theory of Learning Heritage Language

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Abstract In this chapter, knowledge is posited as a sign: as such its significance, relevance, and implications need to be addressed and interpreted within specific contexts. The edusemiotic perspective challenges dominant philosophy of education influenced by Cartesian substance dualism that propels a view on knowledge as exclusively mental and fundamentally distinct from material bodies. The chapter presents research data collected in two Persian heritage language classes in California that were analyzed using discourse analytical methods to support an edusemiotic perspective on the acquisition and transformation of knowledge. The interactions and interviews with the teachers in these classes indicate that the acquisition of the heritage language cannot be measured in terms of the number of vocabulary items, grammatical structures, or the phonological aspects as assumed in mainstream language classrooms but includes the interpretation of signs. An interpretive system is inherently a relational system. The chapter builds on Semetsky's discussion of the relational notation ' ~ ' (tilde). The learning process in the heritage language classrooms is examined within a relational, interpretive, edusemiotic, framework.

Introduction

Semiotics is a field of study that considers objects and concepts as signs. For the founder of modern semiotics Charles S. Peirce, a sign is a triadic relation. A sign "addresses somebody, that is creates in the mind of the person an equivalent sign or perhaps a more developed sign" (Peirce, CP 2.228). In this chapter, some important implications of semiotics for education and pedagogy in the context of learning Persian heritage language are discussed. Edusemiotics considers knowledge not as a static fact that teachers directly transmit to learners using a prescribed method or even the 'best practice' approach. This chapter posits knowledge as a sign that must be contextually interpreted by all participating in the educational event. From the

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edusemiotic perspective, education is the transformation of knowledge that involves “the practical art/science of teaching individuals how to interpret and understand signs” (Danesi 2010, p. vii).

In the summer of 2007, I started fieldwork in two Persian heritage language classrooms at the Iranian cultural center in California. A heritage language is a language, which is acquired by persons brought up in homes where the main language of the country is either not spoken or not exclusively spoken (Valdés 2000). The study focused on the ways the second generation Iranian-Americans were learning their home language. Observing the classes, I noticed that the heritage language teachers had to deal with many different kinds of issues other than what is usually found in second language classrooms. To an untrained eye and from the perspective of a regular language classroom it appeared that the heritage language lessons were not very productive in terms of creating customary learning opportunities, such as inculcating extensive grammar, reading and writing skills in their students. The not-so-efficient learning in these classes was not the result of the teachers’ lack of effort or students’ lack of engagement; both were present. However, and as it is detailed further below, more than learning the language in the abstract teachers and students were recursively involved in the reassessment of their prior assumptions about knowledge and how it can be communicated.

Dichotomies and Relations

Educational theory is often informed by psychological research that reduces learning to mostly performance-oriented activity. Epistemology tends to be influenced by Cartesian substance dualism that separates mind from body. In behaviorist psychology (and often in the area of cognitive science as well) the observed behavior in terms of such categories as learning, motivation, anxiety, etc., is dealt with in very different ways than organic matter (e.g., nerve cells, neurotransmitters and parts of the brain) which is assumed to generate those behaviors. However, since 1980s neuroscience has been calling our attention to Descartes’ error (Damasio 1994) thus furthering the notion that bodies are ‘minded’ (Churchland 1986; Collins 2012) while minds are ‘embodied’ (Varela et al. 1992).

Addressing many dichotomies, still prevalent in the field of education, Semetsky (2013a, b) critically examined Aristotle’s principle of non-contradiction and classical logic while also attracting our attention to Kelso and Engström’s (2006) notion of the reconciliation of binary opposites in complementary pairs. The concept of reconciliation (or coordination) defies a perceived opposition between binaries usually indicated by hyphen (such as ‘-’ in mind-body) and replaces it with a squiggle or tilde (such as ‘~’ in mind ~ body)—a notation that also represents the semiotic logic of the included middle. It was yet Peirce who rejected the Cartesian maxim and proposed a tri-relative structure comprising a sign *per se*, its referent and a mediating interpretant. In Peirce’s semiotics, it is relations, connections and mediations that overcome persistent dualisms.

This chapter uses the notion of the tilde to interrogate the dichotomies in formal educational settings. The analysis of data in the heritage language classes presents the learning process not as knowledge broken down into distinct elements and entities such as material objects (books, blackboard, classrooms), separate parties (teachers, students, tutors), or even theoretical concepts (teaching methods, cultural background). Rather, knowledge demonstrates itself as a sign, and learning—as the way participants come to grasp how signs are always standing for something beyond themselves.

The Heritage Language Classes

The data for this study represent a corpus of fieldwork in the Persian heritage language school in California. The school had two classes, one for basic language comprehension and literacy, and another for intermediate level. There were two heritage language teachers, each assigned to one of the classes. The classes had a combined enrollment of 17 students. The age of these students ranged from six to 13 years old. There were occasional teacher assistants as volunteer parents. Teachers had lived in Iran for most of their adulthoods and received their teacher training in Iran. Almost all students were second generation Iranian-Americans born in the United States. Except for three students who had a parent of a non-Iranian descent, the majority came from families with both parents of the Iranian descent. Students came with varied proficiency, sometimes with a relatively good comprehension of Persian language; still they struggled with language production and literacy. They showed particular difficulties in understanding cultural codes of their home country because English was the language of choice for them. The classes met on Saturday mornings for two hours supplemented by occasional after-hour activities. During activities, teachers or their assistants used to read some Persian stories to students; alternatively students were allowed to play by themselves. The data were collected over a two-year study and a number of research site visits. A discourse-analytical method was used to analyze the data.

Form~Content

Observing the heritage language classes was a nostalgic experience taking me back to my own first grade in Iran. Recalling the experience was visceral and at times emotional. The first thing that caught my attention was that the heritage language teachers consistently stressed that their students had to write elegantly, instead of paying attention to legibility. Such insistence was despite the fact that those students had just started to learn how to write simple letters and words, and in the beginning were just drawing simple lines to mimic Persian writing that represents a different writing system to the one used in regular grade schools in California. In

fact, in the previous study on the same site, another researcher wrote their dissertation about the ways the heritage language teachers tried to socialize their students into ‘khoshnevisi’, or elegant writing (Sharifi 2006). For an outsider, there was no point in emphasizing the form of the language when it was content and legibility that was meant to be stressed. “Look, if you put your writing in the sunlight, your words would start to walk,” one of the heritage language teachers would say emphatically and frequently to students, comparing their bad handwriting to ants crawling away from the heat of the sun.

The emphasis on aesthetic writing is an important part of Eastern traditions, including Iranian. It is, however, a misnomer to consider such elegant writing, calligraphy, one of the Eastern arts. Calligraphy is not necessarily about writing beautifully, but more importantly about what writing beautifully signifies. Drinking tea in the Japanese tea ceremony signifies something. One cannot simply break down the experience and the tradition of Japanese tea ceremony to either the material contents (e.g., tea, low tables, and ceremonial dresses), or the details of the activities required for the ceremony (e.g., bowing, washing hands, cleaning the utensils in a prescribed order, etc.). Signification is neither in the objects nor in the practice: it is a certain meaning created by someone who perceives this practice as a sign of something other than just itself. Analogously, what does the Native American pipe ceremony signify? Or even what does any wedding ceremony signify? There is probably one response to all these questions: for the interpreter of signs there is never a separation between form and content; they are intermingled and reconciled in a relation producing a sign pointing to something beyond itself.

We suppose that any language classroom can be rid of its form and thus reduced to its content and function of putting the words together in a particular way for the purpose of communicating messages directly. Taking a step back, and by looking at the struggle of the heritage language teachers to instill elegant writing, I understand that for them, teaching heritage language was not merely transferring knowledge of the unfamiliar words or explaining how to write those efficiently, but being engaged with signs so as to facilitate learning what these words may signify. Here knowledge is not a thing composed of words with predetermined definition and function; it is a sign to be interpreted. The teachers’ efforts were not so much about trying to teach their students a new writing system, but to engage their students in a system of signs so that when reading, writing, and comprehending words they would also be interpreting signs. A form~content dynamics is a reminder that even words do not have stable meanings and singular functions, but are relational entities—signs—that need a vehicle for their transformation.

Emotionality~Rationality

A form~content relation leads us to yet another persistent division, a rational mind versus emotional feeling. Form is generally perceived as a superficial skin that holds the heavy and substantial content, a sort of sugarcoat over the bitter pill. It follows that

form is associated with the feelings of the emotional heart and, conversely, content—with reasoning by the rational mind. Teachers are encouraged to use songs, games, and the arts in their classrooms as an affective strategy to make their students learn the otherwise hard-to-swallow educational contents. In fact, learning is often associated with painful and negative experiences (Stables 2012), and emotions are perceived as forces that sway and manipulate the rational mind; yet the presence of emotions is accepted as a collateral damage necessary for motivating students to learn. While many art forms such as painting, craft, sculpture, and performing arts, are evaluated positively in educational context, the discursive and linguistic practices are often perceived negatively in terms of being rhetorical devices for manipulation. In *The Republic*, Plato wished that poets be kept away from educating youth as he believed that poets were deceivers concerned with appearances and not reality, and as such should be thrown out of the City. Peirce lamented the dichotomy between rational mind and emotional heart by declaring to have a ‘tincture of sentimentalism’:

I willingly confess to having some tincture of sentimentalism in me, God be thanked! Ever since the French Revolution brought this leaning of thought into ill repute – and not altogether undeservedly, I must admit, true, beautiful, and good as that great movement was – it has been the tradition to picture sentimentalists as persons incapable of logical thought and unwilling to look facts in the eyes (Peirce, CP 6.292).

The heritage language teachers in another study (Atoofi 2011) used different linguistic repetitions (e.g., verbatim, syntactical, temporal, phonological) to beautify their talk in the form of poetic verses to impact affectively on their students. In one instance, the teacher (T in the transcripts further below) when working with two students, interrupted herself and turned toward the whole class saying how much she missed them since she could not attend the class in the previous week. In the transcripts below, the translations from Persian to English have been made on two separate lines. In the first translation line, word by word translation method has been used, and the second translation line is a whole-line translation. Occasionally, the code was switched from Persian to English. Such instances do not have first and second translation lines. The following conventions have been used:

(1.5) Numbers between parentheses indicate length of pauses in seconds and tenths of seconds.

[A square bracket between turns indicates the point at which overlap by another speaker starts.

(don’t) Words between parentheses in the first line of the transcripts represent the best guess of a stretch of talk which was difficult to hear.

(()) Material between double quotes provides extralinguistic information, e.g., about bodily movements.

so::: colons indicate the lengthening of the last sound.

>talk< Right and left carats (or ‘more than’ and ‘less than’ symbols) indicate that the talk between them was speeded up or ‘compressed’ relative to surrounding talk.

<talk> Left and right carats (or ‘less than’ and ‘more than’ symbols) indicate that the talk between them was slower or “stretched” relative to surrounding talk.

Transcript 1 [Excerpted from Atoofi, S. (2011). Poetics of repetition in ordinary talk: A case among Persian heritage language teachers and their students. *Journal of Pragmatics*, 43(14), 3362–3373. Copyright 2011, with permission from Elsevier].

1	T	>man ke dalam vase shomaha tang shodeh bood< I heart for you ((all)) narrow had been I have missed you ((all))
2	T	oon hafta nayomade bodam That week had not come I I had not come the other week
3		(1.3)
4	T	man oon hafta nayomadeh bodam I that week had not come I had not come the other week
5	T	<faghat saba oomade bood> Only saba ((a student)) had come

This small conversation is full of different kinds of linguistic and stylistic repetitions to assimilate poetry. By rushing through her talk in the beginning (denoted by two symbols of ‘>’ and ‘<’ in the transcript in line 1) and by stretching her speech at the end (denoted by the reverse order in line 5), and a pause (line 3), the teacher created four similar in length and time stanza-like poetry devices known as ‘robayiat’ (quatrains). Such form of poetry is commonly used in Persian language and is attributed to the famous 11th century Persian philosopher, mathematician, and poet, Omar Khayyam. In fact, the lines 2 and 4 are almost complete verbatim repetitions and the last phrases in lines 1 and 5 end with the similar word ‘bood’ mimicking the ‘robayiats’ method.

These poetic devices are used in a discursive environment when the teacher tries to show her affection toward students by stating that she had missed them or, as it is literary said in Persian, ‘my *heart* had become *narrow* for you’. The heart is the place where all emotions are supposed to emerge from. Narrowing of the heart connotes a state of melancholy or dreariness when wishing to see a dear friend, relative, or loved one—but to no avail. Statements of narrowing the heart are meant to solicit sympathy.

In another instance, a new student entered the classroom with his mother and brother. Both teachers were present. Upon seeing the new student, one of the teachers (T) recited a folk song to greet the new student.

Transcript 2 [Excerpted from Atoofi, S. (2013). Classroom has a heart: Teachers and students affective alignment in a Persian heritage language classroom. *Linguistics and Education*, 24(2), 215–236. Copyright 2013, with permission from Elsevier].

1	T	yedone pesar darim ke sha::h nadareh unique boy have we that shah doesn’t have we have a unique boy that even shah does not have one like him
2	T	be kaskasanesh nimidim be hamekasanesh nimidim to no one no give to anyone no give we will give him to no one to any one ((no one deserves him))

This song is full of rhymes and poetic devices that have an affective impact on the audience. Words are repeated and changed from their original form to sound melodic (e.g., line 2: *be kaskasanesh nimidim, be hamekasanesh nemidim*). But more importantly, the teacher uses this song to create yet another affect: to place the student in a very high position (the son of a Shah or a Persian king) and herself as a relative that has the power to give away (marry off) the boy but would not do it since no one deserves him.

In a similar highly affective interaction, a student (A) has an assignment to read from a Persian text.

Transcript 3 [Excerpted from Atoofi, S. (2013). Classroom has a heart: Teachers and students affective alignment in a Persian heritage language classroom. *Linguistics and Education*, 24(2), 215–236. Copyright 2013, with permission from Elsevier].

1	A	bacheha [darpark] ((reading from the text))
2	T	children in park
3		[doresteh] hehehe it is correct
4	T	hehehehe
5	A	bazi mikardand play they do they were playing
6	T	((looks at A)) I love you anghadar khobi I love you that much good you are I love you, you are so lovely
7	A	nagahan Suddenly
8	T	((again points the pen)) I love you hehehe
9	A	sedaicee a voice
10	T	seda::ye ((teacher corrects her)) the voice
11	A	sedaye the voice
12	T	seda::yie dolosteh ((bends toward A & utters the last word in baby talk register)) the voice is correct
13	A	sedaye the voice

From the rational perspective, the teacher's (T) interaction with the heritage language learner does not seem to have any educational value. In fact, it appears to have an opposite effect, since the teacher is distracting the student from the

read-aloud activity and rewarding her instead of reprimanding for the mistake she made during reading. Yet a positive reinforcement is evident in the teacher's verbal utterances (lines 5 and 7, 'I love you, you are so lovely'), use of baby-talk register as endearment (line 11), code switching to English (lines 5 and 7), and her nonverbal behavior by bending to get closer to the student (line 11).

Poetry~Philosophy

But why would the heritage language teachers use such affective language to communicate with their students? How these statements, riddled with poetic devices, endearment, and the expression of love can achieve an educational purpose in a language classroom? Importantly, for Iranians, poetry is not just a form of art, but a way of perceiving and experiencing *life*. In Iran, where classical Persian poetry is read at homes and broadcasted on national TV on a daily basis, a philosopher is a poet and a poet is a philosopher, in an almost mutually inclusive way. Contrary to the Romantics' perspective in the tradition of troubadours perceiving poetry in the context of courtly love or *l'amour* as a defiant measure to the Church doctrine of marriage, the function of poetry in the Iranian society, both ancient and modern, is to raise one's awareness of the relationship between the person and the world. Such awareness is about being wise rather than just acquiring factual knowledge.

In the manner of Deleuze's triadic relation between affects, percepts, and concepts that form a genuine sign with deep meaning leading to wisdom (e.g., Semetsky 2010, 2013b), in the Illumination philosophy of Persian philosopher Shahaboddin Sohrevardi, poetry allows for the acquisition of knowledge by presence. This is knowledge that exceeds immediate sense-data but includes the intellectual, intuitive, imaginative and inspirational aspects (Ziai 1992). Poetry is more than just an art form; it is a sign; and in the Iranian context, poetry is a medium that allows for more inclusive forms of life. Life-experience, in edusemiotics, is an informal school (Semetsky 2011, 2013b).

Emotional states are signs; and in the Iranian culture, emotions are rarely contrasted with rationality: mind and heart are continuous, and human experience exceeds its solely rational aspect. It is emotions that are the guiding forces of intuition. Emotions create a communicative link and can bring the 'unseen' world into physical existence. Crawford (2014) refers to the semiotic *chora* to discuss the idea that emotions reveal the relationship between the Platonic worlds of being and becoming. By involving our emotions, art—whether poetry, pottery, film, painting, or else—allows us to perceive the world beyond any given empirical facts. In the manner of Peirce's semiotic category of abduction, intuition is a path to wisdom and is considered as such in Iran. All forms of emotions, even seemingly negative

such as sorrow, anger, and depression are embraced in Iran as ‘messages’. Jalāl ad-Dīn Muhammad Balkhī, the 13th century Iranian poet and philosopher known in the West as Rumi, said:

this being human is a guesthouse
 every morning a new arrival a joy, a depression, meanness,
 some momentary awareness comes as an unexpected visitor.
 welcome and entertain them all!
 even if they’re a crowd of sorrows who violently sweep your house empty of its furniture.
 still treat each guest honorably; He may be cleaning you out for some new delight!
 the dark thought, the shame, the malice meet them at the door laughing and invite them in,
 be grateful for whoever comes because each has been sent as a guide from the beyond.
 (in Zukav and Francis 2001, p. 47).

[Reprinted from poem “The Guest House” in *The Essential Rumi*, Castle books, 1995, p. 109, with permission from Coleman Banks].

Iran has a longtime Sufi and mystic tradition, but mysticism cannot be reduced to some occult science: according to Semetsky (2010, 2011, 2013b), it can offer us practical wisdom, the wisdom of living ethically providing we learn how to interpret signs that are often ‘hidden’ and portending. In Iranian Sufism, the pinnacle of all emotions is love. Similar to Lakota’s greeting of *Mitakuye Oyasin* (‘we are all related’), love or ‘eshgh’, in Persian, signifies a state of awareness: everything exists in relation to something else. As such, it embraces a semiotic worldview that posits the world as full of signs. For Rumi (in my translation):

All parts of cosmos are lovers, and each part intoxicated with love to meet
 If the sky was not in love, its chest would never be so clear
 And if the sun was not in love, it would never have light in its face
 If the earth and mountains were not in love, no plants would ever grow out of them
 (*Divan Shams*, verse: 2673).

Within this worldview, earthly love—such as love for children, students, country, or romantic love—is a manifestation of the greater cosmic relationship. Thus the heritage language teacher’s statement of love for her student is a declaration of being related to another person, of acknowledging and being concerned about and caring for another person. Such ethics (that parallels the ethics of care and integration in edusemiotics) is a manifestation of a maternal attitude (cf. Semetsky 2013b). Petrilli (2015) comments on Lady Welby’s semiotic theory of meaning to emphasize that if such primal sense continues to be more vital in women than in men, it is because women are more capable of bringing up children in the spirit of preserving and utilizing all aspects of language. This attitude allows for using language for lucidity, grace, melody, dignity, beauty, and the power to express the inexpressible.

In the poetry~philosophy dynamics, human experiences are not divided in terms of rational mind versus emotional heart, but represent continuity including imagination, fantasy, aesthetics, grace, subconscious, etc. In poetry—in contrast to prose, which is frequently associated with authority and utilized as a medium of

stating facts—one can never be wrong about anything; when used in the educational context, poetry empowers learners to be provocative (Webb and Rosen 2014). Poetry assigns equal value to all experiences whether via consciousness (*logos*) or the collective unconscious (*mythos*).

Conscious~Unconscious

When presenting the results of the heritage language study at academic conferences, I was often asked whether the heritage language teachers were conscious of using linguistic repetitions, affective language, and poetry in their interactions with students. That is, the questioners wanted to know if the teachers intentionally aimed to influence or socialize their students by using these particular discourse strategies. Such question presupposes the category of Cartesian egocentric consciousness. If a person demonstrates a certain behavior, then this behavior is for the most part conscious or intentional, while the world outside of oneself is rather unconscious.

Undoubtedly one of the greatest contributions of Freudian psychology to philosophy was to break the bubble of Post-rationalism of the late 19th and early 20th centuries by challenging our preoccupation with rationality and to demonstrate that our behaviors have unconscious underpinnings. Carl Gustav Jung took the unconscious to yet another level by positing the existence of the collective unconscious permeated by archetypes that affect and determine human psyche and actions (Jung 1968). Jung discussed the dynamics of the intricate relationship and continuous communication between human personal consciousness and the archetypes through fantasies, dreams and desires (Jung 1969). As noted by Semetsky (2011, 2013a, b), Jungian overtones are present in Deleuze's philosophy where the conscious~unconscious relation is paralleled (ontologically) by the relation between the virtual and the actual. The virtual world, as real as the actual world, is fitted with the symbolic 'language' of signs, ideas, and archetypal images that influence our actions and create our affective dispositions. Our thoughts are thus riddled with affects and desires as 'unthoughts' (Semetsky 2013c).

A year after the initial heritage language study, I went back to the research site to show some of the clips recorded back then to the teachers and to ask for their comments (Atoofi 2013). The teachers were not able to recall the exact events and reasons behind particular interactions. Such lack of recalling actually allowed me to tease apart the imaginary border between their intentional acts and the unconscious. First, I showed one of the teachers the clip where she had recited a folk song to a new student (as per transcript 2). Initially the teacher could not believe it was her greeting the student in such an enthusiastic way; and she asked for confirmation. When I assured her that it was actually her reciting this folk song for the student, she broke into a nervous laughter. I consoled her saying that I did not mean to judge her. Then, she created several scenarios for her reaction. She mentioned that maybe the student had a problem with her or another teacher; or had a contact with another student; or was not interested in the Persian class; or she said these things to bring

him into a good mood; and lastly, that she wanted to give him a good spirit. All her responses were colored with affects. For her, teaching a heritage language could not be separated from affective dimensions permeating her engagement with students, inside and outside the classroom.

Next I showed the teacher another clip, where she was teasing the student with a pen while saying: 'I love you, you are so lovely' (as per transcript 3). Initially, the teacher became wary and self-conscious. Her face flushed. Then she became very critical of her actions. She stated that what she did was 'ugly and bad', referring to teasing the student. I reminded her about the words she had said while pointing the pen. She claimed that she had difficulty hearing this. I repeated the part, but she was still unable to hear her own words. At the end I had to orally repeat what she had said. She stated that her statements were 'very bad'. I asked her why. She asserted that she should have said it in Persian and not in English. I asked her why then she said them in English. She replied that she was not sure why: maybe it was due to the fact that she also lives in the U.S. and sometimes 'we naturally mix languages.' She reiterated that what she had done was 'bad and ugly' and should have not occurred because pointing with a pen and saying things in English in the Persian class are not appropriate behaviors.

Then I asked her about the reason she told the student 'I love you'. She replied, because the student was doing a good job reading the text. I showed her the clip demonstrating that in many parts the student was actually making mistakes and that she was constantly correcting the student. She stated that independently of students' performance, they should always be encouraged. Then I showed her the part where she had used the baby-talk register by converting the phoneme 'r' in the word 'dorosteh' ('is correct') to the phoneme 'l' in 'dolosteh', as Persian-speaking toddlers usually do. Again she said that she did not hear herself using the baby-talk register and stated that maybe she had a 'slip of the tongue' and must have been 'unintentional'. I asked her what would be a hypothetical situation when she would be using a baby-talk register. She emphatically responded, 'never, never, never'. The responses of the heritage language teachers upon reflecting on their interactions with students demonstrated doubts, confusion, self-criticism, political correctness, or slips of the tongue as a multiplicity of examples that human behavior is neither conscious nor unconscious, either for individuals or for culture as a whole.

John Deely (2001), in reference to St. Augustine, points out that "Augustine proposes the sign as superior to the division of being into natural and cultural: any material structure, whether from nature or art, which, on being perceived, conveys thought to something besides itself functions as a sign" (p. 221). As such, the question of whether the heritage language teachers were conscious of their behaviors is irrelevant, because it assumes that a single behavior has a predefined meaning and, more so, it is authored by definite, delineated, and divided parts of the self. But knowledge as a sign does not reside either in the words the teacher utters, or in oneself, or in the environment. The semiotic field is all-inclusive, and we always have the unconscious ideas of which we are not yet aware. Edusemiotics rejects the *tabula rasa* postulate.

Human actions cannot be explained away by reducing them to the activities of neurons in the brain or being separated from culture. As Stables (2012) states, “cultural forces extend beyond the remit of conscious rational control, involving traditions, habits, beliefs, prejudices, attachments and resentments, all of which motivate human action” (p. 83). More, edusemiotics posits a nature~culture complementary pair as well (Semetsky 2013b). Human behavior is a process, a dynamic event of ‘becoming’ that cannot be reduced to static ‘being’. In such a semiotic event, we can become conscious of the unconscious as one of the pursuits of edusemiotics.

Conclusion

For Peirce, “growth by exercise takes place also in the mind. Indeed, that is what it is to *learn*” (CP 6. 301). Physical and mental realms are in a semiotic relation. Growth is embedded in the semiotic process acting across physical and mental realities, and language is a repository of experiences and practices of a learning community. As Collins (2012) points out, blind people immersed in the discourse of sighted people can report about the world in a visually-rich description compared to those who do not have this experience. Accordingly, a sighted person living and immersed in the community of the blind may eventually lose some of seeing experiences, since despite the fact that his eyes receive the visual information, it may be irrelevant to the communal life of blind people; hence might lose its value.

From the edusemiotic perspective, students do not learn just by memorizing facts; they interpret signs thus acquiring knowledge by discovering, exploring, and experiencing that what is relevant and meaningful. Learning is nothing other than “a term applied retrospectively to changes in the life story” (Stables 2005, p. 67). Respectively, edusemiotics rejects a “failure of the student as a cognitive handicap...or a social handicap, a lack of capital, a lack of social power [or] belonging to certain social strata” (Olteanu 2014). The heritage language learners in the study presented in this chapter were not learning a language in the abstract; their speed of learning cannot be measured by the number of acquired words or grammatical features. Instead, they were learning via lived experience communicated through language.

According to John Dewey, “there is no such a thing as educational value in the abstract. The notion that some subjects and methods and that acquaintance with certain facts and truth possess educational value in and of themselves is the reason why traditional education reduced the material of education so largely to a diet of predigested materials” (Dewey 1938, p. 46). Indeed, if and when teachers and students together are involved in semiotic interpretations, knowledge proves its value as a sign that can always be transformed in other signs. It is within the edusemiotic framework that Petrilli (2015) posits the task of language education as confronting, contrasting, comparing, and associating multiple signs and sign systems (whether verbal or nonverbal), linguistic expressions and value systems,

spheres of knowledge, and lived experiences. Similarly, heritage language learning is not composed of preconceived theoretical knowledge about certain, ‘received’ and out-of-context, meanings of words and grammatical structures—but represents the ways these words and structures are related to particular life-experiences.

This chapter, however, is not just about Iranian philosophy, poetry, elegant writing or highly affective speech. It demonstrates that these features do not have stable meanings in themselves apart from the system of signs within which they are situated. We can assign meaning to words and ‘things’; however the credit of agency should be really given to signs because signs can take the life of their own and become more developed (Nöth 2014). Edusemiotics posits human beings as signs that can also become more developed. Learning happens when we recognize the significance of events. Learning creates an open-ended semiotic space where we act as interpreters. The edusemiotic approach to knowledge contradicts the mainstream philosophy of education derived from Cartesian dualism that implies dichotomies between form and content, consciousness and the unconscious, body and mind. The edusemiotic perspective posits knowledge as a dynamic field of signs which are constantly growing.

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Chapter 17

Julia Kristeva's Semanalysis and the Legacy of Émile Benveniste

Marga van Mechelen

Abstract This essay addresses Julia Kristeva's concept of semanalysis in view of the legacy of Émile Benveniste. Both scholars shared a critical approach to semiotics. Kristeva followed Benveniste's footsteps in looking for support in psychoanalytic theory in order to better understand the genealogy of the signifying process as well as the heterogeneity of texts. Benveniste's notion of the speaking subject becomes crucial for Kristeva's semiotics. While making the concept of *signifiante* central to her scholarship, after 1969 Kristeva continued to rework this and other notions of Benveniste, such as *histoire* (narrative) in relation to discourse. The chapter by and large follows a historical trajectory and traces the theoretical development of semiotics in the works of Kristeva and Benveniste up to date. The concluding section of the chapter addresses the role of Kristeva in inspiring some recent developments in edusemiotics. Her conceptualizations of semanalysis, subject in process, *jouissance*, revolt, and others—especially when positioned in the context of philosophy of education and not philosophy of language—surpass their purely theoretical significance and demonstrate a number of significant implications at the level of cultural practices. Notably, the latest Kristeva herself expanded the field of theoretical semiotics to incorporate socio-cultural and political dimensions of human experience that are proving to be of immense value for educational theory.

The Roots of Semanalysis

This chapter follows a *historical* trajectory, from the earliest signs of Émile Benveniste's influence in the work of Julia Kristeva till the moment that his concepts and ideas become an integral part of her semiotic (more precisely, psychosemiotic) theory. In her research Kristeva not only pays a tribute to Benveniste but explicitly demonstrates their deep affinity that goes far beyond any scholarly

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influence. Such affinity can be described by the German term *Wahlverwantschaft*, meaning ‘elective affinities’ or ‘elective attractions’ as characterizing their friendship, their position as immigrants in France as well as a shared worldview and their leftist political orientation. Such affinity was also affected by the twofold role art and literature played in their work, both as the focus of research and as being instrumental for their respective semiotic theories. The chapter traces the theoretical development of semiotics in the works of Kristeva and Benveniste up to date, while also addressing their views on philosophy of language, linguistics, and the influential (at the time) school of generative grammar as grounded in Noam Chomsky’s linguistics with its concept of transformational grammar.

It was only in 2012 that Seuil and Gallimard published Émile Benveniste’s final lectures at the Collège de France given in 1968 and 1969 (Benveniste 2012). This important, though rather late, publication happened thirty eight years after his death in 1976 and forty five years after his career was cut short by an irreversible accident in 1969. The publishers asked Julia Kristeva to write the preface to this collection. She did. Kristeva summarized Benveniste’s general significance focusing in particular on what became so crucial to her own thinking: the notion of the speaking subject. It was not the first time she paid tribute to Benveniste. An earlier account was *Langue, Discours, et Société* (Kristeva et al. 1975a)—a collection of articles intended as homage to Benveniste (translated as *Language, Discourse, and Society*). Still, the significance of Benveniste’s thoughts for the development of Kristeva’s own conceptualization of semanalysis began with her reading Benveniste’s best-known articles published in the two volumes of *Problèmes de linguistique générale* (Benveniste 1966, 1974)—or *Problems in general linguistics*—some of which date from the mid-fifties. In her first publications on semiotics, Kristeva has already found support in Benveniste for her critique of the then current state of semiotics.

Kristeva’s criticism brings two points into a sharp focus. First, she questions an apparent static character of semiotics and, second, its a-historical character (Mechelen 2005). One is directly related to the critique of the notions of ‘sign’ and ‘signification’ (meaning) as stable and static; and central to semiotics as such. Another point of critique relates to two different practices: first, the way semioticians deal with the history of their field of study and, second, how semioticians conduct their research within this discipline. Kristeva reproaches semiotics both for its lack of historical reflection and also the a-historical manner in which the signifying practices undertaken by semioticians become a subject of research. Her critique acquires its first programmatic form in 1966 when she introduces the notion of the *paragram* (Kristeva 1966) in reference to Saussure’s study of the ‘anagrams’ that he began in 1906 but left unfinished a few years later (Starobinski 1971). While Saussure was searching for codes to decipher the intentionally hidden text, Kristeva was more interested in the symptoms and signs of the unconscious contents in the articulated text, either in literary texts or in other forms of expression.

Three years later, Kristeva introduces the term for which she became known worldwide, namely, ‘semanalysis’ (*la sémanalyse*). In *L’engendrement de la formule* (Kristeva 1969)—translated in English as *Engendering the Phrase*—she

describes semanalysis as the signifying theory that investigates *from within* the origin and development of texts. Within semiotics, semanalysis opens another, hidden, scene addressing as such the genesis of the language system. Kristeva challenges the habitual perspective on language as just a formal apparatus that communicates meaning directly. To her, the text is not just a phenomenon of language (represented by solely verbal signs) that presents itself as a flat stable structure. Therefore her conception of a 'hidden' meaning differs profoundly from Saussure's *a priori* structuralism. This groundbreaking work is the key to Kristeva's thinking: it introduces not only the concept of semanalysis, but also of *pheno-text* and *geno-text*.

The pheno-text is just a punctuated presentation of meaning in verbal signs—words, comprising the imprinted text as such. Yet to fully articulate the text beyond reading, hearing or seeing it (that is, over and above subjective sense-perception) we need to return to its origin so as to include the very engendering of meaning. The engendering of meaning is dual, so Kristeva argues: it concerns the genesis of linguistic categories together with the engendering of the language system, and the position of the subject responsible for the production of meaning. This operation of going back to the origin of a text 'vertically', as she says, is called geno-text. Kristeva creates in this way the opposition between the surface of a text (pheno-text) as possessing structured references in contrast to going back to the deep meaning connected to a signifying productivity. As including the origin, the text becomes the geno-text. Kristeva's choice of words stresses the dynamics of meaning production as well as of the reading process depending in both cases on the subject-position.

Kristeva's understanding of what a hidden text is relates directly to what she wrote earlier about paragrams. She thus adopts a critical position regarding the history of modern semiotics as focusing exclusively on linguistic signs. The pheno-text is considered just a phrase, a reduction, and a sacrifice compared to the geno-text, which is described as a gift and *jouissance*. The concept of *jouissance* makes the Cartesian subject problematical because it is such *jouissance* that brings back the 'body' with its accompanying material, *embodied*, experience. However such body, as *jouissance*, is in no way separate from 'mind'; while 'mind' here is understood as irreducible to its conscious, cognitive aspect. Kristeva's approach adds 'the semiotic' (extralinguistic) dimension to 'the symbolic'—the latter foregrounding all linguistic practices as regulated—thereby moving semiotics in the direction of psychosemiotics.

The pheno-text does serve to communicate, yet it is constantly split up and divided (Moi 1986). Kristeva critiques both linguistics in general and also the linguists of the day, targeting in particular Noam Chomsky. The hidden text, to her, also represents the nexus of drives, affects, and instincts understood in psychoanalytic terms. To get to the roots so that formulate her theory in detail, Kristeva decided to re-read not only Freud's *The Interpretation of Dreams* but also Jacques Lacan's re-conceptualizations of Freud and Saussure. This was not an obvious choice for someone who at that time has just left Bulgaria, a communist country.

It was only a couple of years after she has read Benveniste and discussed with him their thoughts about semiotics, that she wrote *Le sujet en process—The subject in process* (Kristeva 1998). Kristeva argues that both Lacan's idea and her own position on the subject being in process can be considered as a critique of the unitary subject. The component of 'analysis' in the term 'semanalysis' is often understood in reference to psychoanalysis but as originally created, it describes the investigation of the genesis of texts broadly understood. But in 1973 Kristeva calls the process of this genesis or genealogy of meaning *le procès de la signifiance*, translated by me and others as *signifying practice*. In this respect, Kristeva interrogates and discards the term 'significance' often used by Benveniste.

Kristeva formulates her theory to investigate the genesis of texts from within, where the term 'text' refers to broad, translinguistic, apparatus. Every practice, rather than being a coded structure, is a *process* even if the degrees of its expression may differ. Kristeva makes a distinction between stronger and weaker forms of expressions. The strongest 'category' became known as a *poetic language* (the concept that she derives, like previously the concepts of geno-text and pheno-text, from the school of Russian formalists) where the material aspects, both phonetic and graphic signifiers, are emphatically present. This concept is central to her dissertation *La révolution du langage poétique* (Kristeva 1974a) published in English as *Revolution in poetic language*; it also became instrumental for her approach to other, weaker, signifying practices. Kristeva considers these practices as dynamic modalities which do not just represent reality but transform it. Surely, Kristeva found a definite support for her critique in the psychoanalytic theory. Yet, where Lacan focused on the secondary processes, Kristeva contributed profoundly to our understanding of the primary process, that is pre-linguistic and pre-symbolic—or the semiotic—dimension. However in order to make the novel move from linguistics to psychoanalysis and then to psychosemiotics, she needed the support of someone who took this step before her, namely: Émile Benveniste.

Under the Banner of Benveniste's Concepts

Kristeva accompanied Benveniste to an international semiotic conference in Warsaw in 1968—the gathering that paved the way for the creation of the International Association for Semiotic Studies (IASS) of which Benveniste later became the first President and Kristeva—the first Secretary General. The two met when she has just arrived in France to study and was eager to nestle in the heart of the French intelligentsia, just like Benveniste before her. Benveniste was raised in Syria, Aleppo, while Kristeva was born in Bulgaria. Benveniste's mother was a teacher of Russian, Hebrew and French. Both came from polyglot environments, though Benveniste much more so than Kristeva. I'd like to mention Benveniste's sympathies toward rebellious young communists in the antebellum and his devotion to art and artists, especially the surrealists; and, half a century later, the Tel Quel group. As for Kristeva, she was in close contact with Tel Quel that founded its

journal in 1960. So both of them were deeply engaged with the avant-gardes of both pre- and post-war periods, while later having become prestigious lecturers at the French colleges and international universities.

During their initial conversations, they appeared to share an interest in Mikhail Bakhtin and his notion of a dialogue. But still, over and above their mutual intellectual interests, the fact that both of them were 'strangers' (Barthes 1970) should be considered a much deeper ground for their mutual sympathy, friendship and affinity—all sentiments better captured as *Wahlverwantschaft* (Mechelen 1993). A year before Benveniste's death, Kristeva (1975a) writes her first article dedicated to him, *La fonction predicative et le sujet parlant* (*The predicative function and the speaking subject*) paying tribute to the revolution in linguistics created by Benveniste's pioneering work in contrast to that of the philosophers of language in the analytic tradition. The English-language translation of Kristeva's essay on the speaking subject (Kristeva 1975b) was included by Thomas Sebeok in his comprehensive survey of semiotics. According to Kristeva, Benveniste's research in the systematics of language should be considered as preliminary to his analysis of the speaking subject in specific social institutions alongside the diversity of social and cultural practices. Kristeva aims to evaluate his research in the context of the 20th century analytic philosophy of language and generative grammar starting her discussion from W. Quine and B. Russell followed by, among others, P. Strawson and E. Bach.

She stresses what is so distinctive in Benveniste's writings that distinguishes him from other linguists or semioticians: even when they attempted to connect language to social practices, their effort was not satisfactory to Benveniste. While recognizing his original input, Kristeva also presents her own argument concerning the criterion for semiotics and linguistics based on the analysis of artistic practices. The idea of the heterogeneity of language interrogates the linguistic model, placing language at the service of the demand for social communication. Kristeva alerts that the merits of semiotics in the past were to show the importance of signifying rules inherent in the diverse signifying practices. However, by replicating the linguistic model, semiotics restricted itself to registering the systematic and informational aspects of signifying practices, leaving out all other aspects that deviate from the rules of grammar or take away the plurality of implicit meanings.

In *L'éthique de la linguistique* (Kristeva 1974b), she emphasizes that language is a social practice. *The ethics of linguistics* (in Kristeva 1980)—as the English translation of this work—is often considered as representing her feminist inclinations with respect to the notion of desire, conceptually; still the influence of Benveniste (even if his name was not mentioned) showcases itself there. It is Roman Jakobson who takes over Benveniste's position. What the three of them shared is the lesson to be learned from aesthetic practices that traverse or transgress rules, norms, and moral judgments. She publishes her article on ethics initially in the French independent scholarly journal *Critique* the mission of which was to approach contemporary culture from a Marxist perspective.

The culmination of Kristeva's recourse to artistic practices and sociopolitical issues is her metaphorical revolution: revolution in poetic language. The idea of

social practice being punctuated by *revolt* and the deconstruction of existing meanings, beliefs, codes, and values defy a stable set of moral norms represented by the Lacanian Law of the Father. Being signifying practices, poetic and artistic regimes of signs are conducive to social communication by virtue of rejecting the utilitarian sense of ‘langue’. For Kristeva, artistic practices are transgressive and display *jouissance* even in case they exist on the very margins of language and culture. She draws her arguments as based on her own practical experience with poetry, literature, and the visual arts. Kristeva’s research thus elicits a complete break with structural linguistics. The concepts *signifiance*, *discours*, *énonciation*, *énoncé*, and *histoire* (to be addressed further below) are of crucial importance.

Kristeva reinterprets and expands Benveniste’s work and develops an explicitly psychosemiotic direction in semiotics (of a particular importance to edusemiotics as an anti-dualistic, partaking of psychosomatic, philosophy of education; see further below). She focuses, more than Benveniste ever did, on the ‘hidden scenes’ and the heterogeneity of signifying practices. She is also convinced that her concept of semanalysis takes Benveniste’s aim to bridge the distance between the language semantics and translinguistics even further. It is with this in mind that she conceptualized semanalysis as one single process. Her concept of *signifiance* is the answer to the confusion attached to the concept of *significance* that Benveniste has used both as an umbrella term and also as belonging to a system of signs. As uniting the pheno-text and geno-text, *signifiance* is the concept that overcomes the apparent ambiguity of his notion of *significance*.

Signifiance

There are several facts that reveal clearly Kristeva’s indebtedness to Benveniste. In her interview with Coquet (1972) she explained that the important to her concept of *signifiance* had its origins in the writings of Benveniste, who introduced it in his essay *Sémiologie de la langue* translated as *the semiology of language*. Benveniste compares Saussure’s semiology with the semiotics of Charles S. Peirce and explains that the idea of a ‘langue’ as a stable structure hardly plays a role in Peirce. Though much more critical with regard to Saussure, Benveniste is consistent in his decision not to follow Peirce to the end but to introduce his own idea of *signifiance*. In his final lectures (Benveniste 2012) his critique concerning both of them becomes even more clear. While Benveniste argues that Saussure never clearly defined ‘langue’, he takes a step away from defining it himself, discussing instead some concrete practices like music and the visual arts. As if he wants us to understand that it is better to *show* how they work in practice rather than to construct a rational theoretical argument. His main question, however, is: what is the value of the sign in the midst of those practices? To him, the notions of the sign and *langue* appear to be an obstacle for answering this question; thus it is better to start from the individuality and particularity of these practices than from any general

theory, and subsequently to investigate their relations and correspondences. He thereby moves from linguistics to semiotics as an interpretive system. This was sure a novel approach—albeit not totally new for the philosophers in the tradition of American pragmatism: contemporary semioticians, for example, consider Benveniste's thought quite compatible with Charles Morris' pragmatics.

In Europe, it was Kristeva who listens carefully to what Benveniste says next in his article. When he distinguishes between semiotic and semantic *signifiance*, she sees this as a way to delete the concept of a sign (verbal sign, that is) altogether, because it blocks the access to all that exceeds the 'langue'. Her interview with Coquet demonstrates that on the one hand she is following Benveniste's footsteps but also that she is eager to introduce her own concepts, such as semanalysis. She states that her concept of semanalysis is identical to, and encompassing, what Benveniste calls "une sémantique ét une translinguistique" (Coquet 1972, p. 345)—translated as semantics and translinguistics. Benveniste, in his emphasis on artistic practices, refers to the type of structural analysis in the study by art historian and 'great structuralist' (according to Lévi-Strauss) Erwin Panofsky on the relation between gothic architecture and scholasticism. Both are considered 'homological systems' in contrast to, for example, Braille alphabet as a derivative of the 'langue.' For Panofsky, 'language' is a semiotic system containing nonverbal signs. This parallels the semiotic way of meaning production that boils down to interpretation and the need for an interpretative system. The lesson Benveniste learned from other artistic practices was to ask the critical question: what kind of meaning and relevance does the notion of the sign has, when we talk about these art forms? His answer is: don't search for a sign as a linguistic entity, but instead investigate their particularities and their mutual relationships. Apparently there is only one 'langue' that however has a semantic aspect by way of which it signifies. It is closely related to the concrete, particular discourse and to the speaking subject—and this is what of interest to both Benveniste and Kristeva.

***Discours* [Discourse], *Énonciation* [Enunciation], and *Énoncé* [the Articulated Statement]**

In the first volume of the *Problèmes de linguistique générale* (*Problems in general linguistics*) we find a reprint of the controversial article by Benveniste under the unpretentious title *Remarques sur la fonction du langage dans la découverte Freudienne* (*Remarks on the Function of Language in Freudian Theory*) published in 1966. Rather than an elaboration of his thoughts, it sure concerns remarks. Still his connection to Freud's discovery becomes clear. Kristeva discusses two concepts for which Benveniste is probably best known, *discours* and *énonciation*. Not all interpreters of Benveniste follow Kristeva in this direction, though they would agree that with his concept of *énonciation* he draws the attention to the speaking

subject: the subject that speaks and makes of the ‘langue’ his own ‘langue’ while providing indices of his specific position from which he talks. This act of utterance is called *énonciation* (enunciation) and it expresses the relation to the articulated (enunciated) text as *énoncé*—that has its equivalents in English as statement, content, or utterance. Obviously Benveniste wants to create the bridges between the language system, the *énonciation* and the *énoncé*; but also between, on the one hand, a social conception of language and, on the other, the individual character of the ‘parole’ as *discours* (discourse).

Benveniste tries to discover the dialogue between the two and, consequently, their continuous exchange. Such dynamics is not possible without an *énonciateur*—one who enunciates—that is, a properly semiotic, intermediary instance! Kristeva takes Benveniste’s concepts and carries them back into the Freudian context; in this way she not only confirms but also amplifies Benveniste’s idea of the continuous intervention of psychic processes in translinguistic ‘messages’. It is her acceptance of Freud’s theory of the unconscious and the splitting of the subject that strongly affects the traditional theory of communication as being intentional and solely a prerogative of the knowing, conscious subject.

Pronouns and the Deictic Pronominal

Two years after his *Remarks on the Function of Language in Freudian Theory* Benveniste published another article in the psychology journal (*Journal de Psychologie*) where he took the next step by talking about the subjectivity of language in relation to personal pronouns: *De la subjectivité dans le langage*, translated as *subjectivity in language*. There he deals with the pronouns ‘I’ and ‘you’ which are the signifiers that can only make sense in concrete discursive situations. He continues by arguing that the same can be said about deictic pronomina, such as ‘here’ and ‘there’: “Ils ont en commun ce trait de se définir seulement par rapport à l’instance de discours où ils sont produits, c’est-à-dire sous la dépendance du je qui s’y énonce” (Benveniste 1966, p. 262) translated as: *they share this trait that enables a definition only in relation to the instance of speech, where they are produced, that is to say depending on the I that articulates itself in it*. There are a few other interesting examples, like how in utterances, in particular, the meaning of the verb changes considerably when only the personal pronoun has been altered. Let’s compare ‘I assume that he left’ with ‘you assume that he left’. The second sentence implies and confirms the utterance of an imagined former speaker; the first sentence does not.

Another example is the difference between ‘he swears’ and ‘I swear’. With Austen’s speech acts, we could say that the first-person utterance is a performative one, having consequences for a real situation, socially and juridically. To use Benveniste’s word, it is an *engagement*—while ‘he swears’ is nothing but a description. Kristeva sees these pronouns in terms of indexical signs or traces in the

Freudian sense. Indeed they are *indices* pointing to real people and live communication. Thus the subject of enunciation leaves traces of the linguistic act in the articulated statement (*énoncé*) as a text that also has a history and which is part of the heterogeneous, and partially unconscious, process.

A Psychosemiotic Approach: *Histoire* (Story; Narrative)

Two of Benveniste's other concepts are central to his enunciation theory, *discours*—discourse—and *histoire*. *Histoire*, which is usually translated in English as a narrative, is literally a story, yet the one that tells itself, that is, *without* a narrator. Both *discours* and *histoire* have been quite important not only to Kristeva, but to Greimas' semiotics as well. If we compare her interpretation to those of Greimasian semioticians (such as Felix Thürlemann, for example), we hardly find any difference in the way they designate the central notions of this theory (Mechelen 1993, pp. 192–194). However, the ways they look at the function of these concepts in relation to the history and development of semiotics are rather different and quite opposite of each other. While in Greimas' semiotics these notions are instrumental for bridging the gap between Saussure's concepts of *parole* (speech) and *langue* (language system) so as to create an escape from the chaotic and individual idea of *parole*, Kristeva, following Benveniste, unequivocally accepts such unstable and unreliable characteristics present in language. She makes her position even stronger in her works after 1975. We recognize these differences in the use of the notion of trace. With Kristeva, it brings us to the domain of the unconscious, to the depth of the *psyche*, to slips of the tongue, and to ambiguities and metaphors. Traces tell us something about the speaker, the speaking subject, and their impact on the effects of an utterance. In Kristeva's view that relies on Freud's theory of dream interpretation, it makes no sense to distinguish between *discours* and *histoire*.

When someone articulates their dream, it does not matter how it is said. From a psychosemiotic perspective, it is more important to concentrate on the manifest dream content and to investigate how the latent 'thoughts' appearing in dreams can be brought in relation with the former. Notably, Kristeva is focused on operations that exceed the normal formation of sentences and she is eager to demonstrate how the heterogeneity functions on a microlevel as well. We can see the influence of Benveniste in this approach; for example, at the level of the predicative function. While the subject of a sentence has an individual character, the predicate is more general and not so much connected to the immediate perception. The subject represents a state of being and the finite; the predicate, on the other hand, changes endlessly. So, as Kristeva (1975a, p. 56) concludes, even if we do refer to *predication altérante* (alternative predicate), at the end we must speak about *predication infinitisante* (infinite predicate).

Semanalysis as the Road ‘that never says, nor hides, but signifies’

We looked at the path that led from Benveniste to Kristeva and the influence he had on her development and conceptualization of semanalysis. She refers to Benveniste (Kristeva 2012) as a linguist who neither says nor hides, but produces meaning. Though other theorists in the psychoanalytic tradition, such as Melanie Klein, became more important to Kristeva after 1975, her indebtedness to Benveniste remains to this day; this becomes abundantly clear in the preface to the collection of Benveniste’s lectures referred to at the outset in this chapter. Her semanalysis is at once *science critique* (critical science) and *critique de la science* (critique of science). And, most important—and following Benveniste—it is also the expression of the idea to reform, to renew, and to transform. Therefore, in her tribute to him, she emphasizes and praises his ability to encompass the long tradition of linguistics, philology and semiotics not only of the 19th and 20th centuries, but also of the 16th–17th centuries, in particular in reference to Arnauld and Lancelot’s *Grammaire générale et raisonnée* (*General and rational grammar*) also known as the ‘Grammar of Port Royal’ and dated 1660. This work, as she mentions, has brought the notion of the linguistic sign to the fore for the very first time as specifically the sign that points to the inclusion of the speaking subject into the syntax of the ‘langue’. All later rifts appear to be less important than the value of those historical legacies. This positive attitude to histories is what Kristeva and Benveniste apparently had in common.

There was still another personal trait she shared with Benveniste as characterizing their positions in linguistics and semiotics. Kristeva calls it Benveniste’s style of thought, which is explained as an attempt to reconnect the morpho-syntactic details to the overarching linguistic and philosophical categories. Benveniste was able to signify, to ‘tell’, to investigate in detail, hiding nothing behind any aesthetic screens, while at the same time ensuring that messages never became the closed messages or messages that obey just one system of thought or a single current in linguistics or semiotics. They both accept the inherent chaos present in the intellectual developments of the 20th century; the chaos that left its marks on language *per se*. The experience of the living language, of speech, is what should ultimately determine scientific approaches. It is what makes us human beings, one could say. It is a speech act that never has a fixed meaning or exists as a stable state, but is always in an unbounded and never-ending process. Its philosophical status therefore is not of ‘being’ but of ‘becoming’.

Speaking about Benveniste’s approach forty three years later, Kristeva feels the need to clarify why this approach was so extraordinary at the time. Contrary to linguists such as Bloomfield or Harris, for Benveniste linguistics meant to be engaged not only with the non-subjective, formal elements of language, but also with the power of language that far surpasses the ability ‘to name’. As Kristeva points out, these were the days when semiology as a science of signs became synonymous with freedom, in particular with the freedom of expression and

thought. Hence it was accepted and understood internationally, not only in the West, but also in the East. Semiology was the alliance between both worlds; a pre-figuration of the situation after 1989. Benveniste referred to the capacity of language to generate other systems of signs too, however he still considered language in its broadest sense as the only system capable of interpretation. It is here that Roland Barthes speaks to us again.

In 2014, Kristeva appears to have left semiotics far behind; her current topics seem to be of a different nature, even if she still examines them with the intention and an eye of a semiotician. Despite the fact that she was—thanks to Benveniste, it is safe to say—devoted to the International Association for Semiotic Studies for many years as a member of the board, and also serving on the editorial committee of the publishing house Mouton de Gruyter, we should also accept her as a formidable critic of semiotics. She had a major influence on different scientific fields. First, on feminist theory and the psychoanalytic theory of the pre-symbolic phase as well as being a practicing psychoanalyst; later, she became widely known for her thoughts concerning abjection and transgression that inspired not only existing scholarly research in the humanities and anthropology, but also some of the artistic practices. However traces of her later work are not so easy to find in the semiotics of today, except for the new branch of theoretical semiotics, edusemiotics, as a novel direction in philosophy of education and educational theory. Edusemiotics as drawing from Kristeva's scholarship represents a definite renaissance of semiotics as a critical science together with the critique of classical science.

Kristeva for Edusemiotics, in Brief

While Benveniste has so far been absent in the educational discourse, Kristeva is one of the theorists who indeed inspired the creation of edusemiotics. This brief section refers mainly to Semetsky's recent paper *Reading Kristeva through the lens of edusemiotics: implications for education* (Semetsky 2015) even as she earlier conceptualized her *ethics of integration* in education (Semetsky 2004, 2010) as partially derived from Kristeva's semanalysis and her critique of the speaking subject. Semetsky insists that this relational ethics as a mode of existence is a must for pedagogical practice and educational policy that consider edusemiotics (which is posited, first and foremost, as an *integrative* conceptual framework) as their theoretical foundation. Semetsky refers to a continual crisis in education and brings to the attention of educational theorists the ambiguity inherent in Kristeva's conception of 'crisis' that can be interpreted either as a merely pathological case or as a prerequisite for the creative renewal of our life and thinking. It is Kristeva's focus on the dynamic *process* of meaning production as a specific signifying practice, instead of some final and stable *product*, that is shared by edusemioticians in their investigation of the diverse paths of multiple 'becomings' (e.g., Semetsky 2006a; Stables 2012). This approach has far-reaching consequences for education, both with regard to understanding how meanings are produced in the interpretive process

and to the value of creativity in teaching and learning that as such partake of the role of artistic, generative practices so important for Kristeva.

A second point Semetsky brings in is the attention of edusemiotics to the inscription of affects and the unconscious in experience. The presence of ‘the semiotic’ (affective and unconscious) dimension that precedes ‘the symbolic’ (linguistic and self-conscious) interrogates the presupposed unity of the speaking and knowing subject! As Semetsky demonstrates, something by itself non-representational or extralinguistic can still leave its mark as a sign of something other than itself; which manifests as the observable effect at the level of individual or collective behaviors or the whole of culture, sometimes in the form of ‘revolts’, intentionally or not. While delving into the depth psychology of Jung rather than limiting semanalysis to its origins in Freud, edusemiotics elucidates the ‘language’ of images and symptoms the interpretation of which can heal the *psyche*, both individual and collective (e.g., Semetsky 2013): edusemiotics partakes of psychosemiotics.

Genuine signs that demand interpretation at the level of social practice and lead to the transformation of our habitual attitudes presuppose a certain deconstruction of meanings, beliefs, and values leading to the revaluation of the latter up to the point of creating new values as the function of times and sociopolitical contexts. The dimension of ethics is also inscribed in Kristeva’s original theory of abjection that manifests today at the level of social reality captured by Semetsky’s (2006b) neologism ‘the Age of Abjection’. Abjection is what “disturbs identity, system, and order. What does not respect borders, positions, and rules. The in-between, the ambiguous, the composite” (Kristeva 1982, p. 4). Surely, abjection might be considered as an attack on the system of language but it is not restricted solely to ‘langue’. Edusemiotics asserts that culture itself can be read and interpreted as a ‘text’ permeated by signs. Often the interpretation of the cultural text when “revelation bursts forth” (Kristeva 1982, p. 9) partakes of a violent act inscribed in abject-experience. Even if such event shatters one’s set of habitual beliefs and accepted norms, it “rejects the effects of delay” (Kristeva 1998, p. 153) and hence contributes to the creative production of ‘subjects in process’ while signifying a new order of social reality. Abjection deregulates the existing order and breaks the structure open initiating thereby a signifying practice.

Importantly, deregulation should not be confused with destruction, total negation, or as determining the negative effect. It is rather, as Kristeva comments in her referring to Hegel-Marx’s dialectics, a process that involves the negation of negation comprising an event that ultimately carries a positive value. Kristeva talks about a process of going *through* the norms that as such prevents these very norms, values or rules from becoming ossified. The result is a constructive, creative process that demonstrates the signs of hope implicit in Kristeva’s ‘joyful revolt’ entailing a transformative change. Kristeva’s corpus of works and edusemiotics share the psychosomatic, anti-dualistic approach to theoretical notions and extend them well beyond theory to the level of practice. The anti-dualism of edusemiotics combined with the critique of positivism on which educational research tends to be modeled, parallels Kristeva’s criticism of classical science.

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Chapter 18

Black Holes: Engaging with Negation Through the Semiotic Chora

Cair Crawford

Abstract This chapter analyzes the conditions for the formation of thought by revisiting Plato's notion of *chora* and evaluating it in relation to philosophical notions of negation and black holes. Chora and black holes are immaterial objects that serve as openings for something to take place whenever each new development leads back to the unfathomable within the form. By circumscribing an object of perception, the border blurs the difference between inside and outside, and makes it possible to grasp how emptiness is needed for fullness to exert its full effect. Such traversing of boundaries and overcoming habitual binary opposites is a distinguishing feature of edusemiotics as a conceptual framework that informs this chapter. The return to the 'unthought', while preserving the non-separation of presence and absence, makes it possible to go beyond human limitations and to forge new networks of infinite becoming. The chapter employs the discourse of art positing that it may be possible to conceptualize the continuum of existence and the possibility of the renewal of subjectivity, individual and universal. Revisiting Hegel's dialectics and Julia Kristeva's return to chora, the chapter presents the condition for the transformation of signs in experience.

Introduction

In Plato's theory of creation articulated in *Timaeus*, chora is presented as the link between the realms of being and becoming in which two different worlds may converge, collide, or explode based on a set of formal conditions rather than being a perceptible entity. Having no identity of its own, chora is depicted as both a material support, and at the same time, an absolute outside that is designed to receive whatever enters into it. As an immaterial ground that appears to be written into the whole history of philosophy, chora is a disposition to receive everything that is offered and to be a receptacle for all that is inscribed in it. Structurally, it is inscribed

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as a figure for the ‘middle ground’, or as Jacques Derrida (Derrida and Eisenman 1985) puts it, a milieu that exercises its capacity not to be in order to receive that what comes to be. If this milieu is interpreted in terms of flux, in which everything becomes other than what it is, chora would be incapable of becoming ‘other’ because it is already ‘other’ being a genuine sign always already referring to something that it is not as if amounting to a ‘black hole’ of differences. The image of black hole created by the artist (the author of this chapter) is presented in Fig. 18.1.

Artistic practice, which is in a constant negotiation between the conceptual and the affective, is being challenged by engagement with nonhuman networks and a double movement to and away from the mediating role of human experience. Theoretically, any material or object that subsists on the same ontological plane as every other object can mysteriously transform into an aesthetic and philosophically significant experience. This experience, which operates on multiple levels of abstraction, indicates that what is grasped by cognition is not necessarily of its own making. Within this conceptual framework, the relation between the aesthetics and human creativity is retained, but the role of art in human self-conception and self-knowledge is in question: If aesthetics is the embodiment of uncertainty associated with pre-linguistic experience and art plays a role in human development, how do images configure thought when intimately tied to systems in which they operate? The art in question, which arises at the intersection of thought and life, appeals to the nature of thought’s relation to the absolute and the possibility of

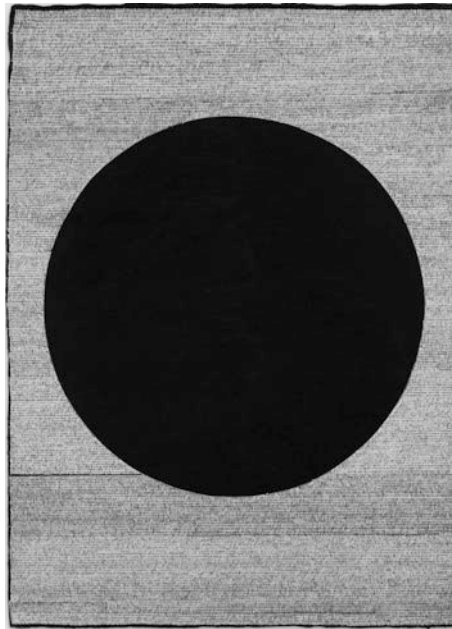


Fig. 18.1 Black Holes Ex Voto 2015, by the artist. Pigmented ink on Japanese Gampi paper 30" × 21.5" (Photo credit 315 Photo)

universal subjectivity. This semiotic relation, when imparted through a material object, is not dependent upon the presence of an actual subject because its formal properties are exempt from that relation. Thus, to ascribe aesthetic properties to works of art engenders the paradox between discourse and its object because if there is no subject, the art only exists as a visible representation of a conception. What is at stake is the nature of aesthetic discourse and how it contributes to describing a world where being may be absent, yet is becoming.

Chora as a Black Hole

Chora can be considered a sign of negation that stands for uncertainty and not-knowing. Purportedly a vacancy that needs to be filled, it is constituted from within by a dark presence that precipitates an escape from the constraints and limitations of human existence. Never empty, it is a matrix from which something else originates, develops or takes form, and at the same time serves as a material in which something is embedded or enclosed for protection or study. Cast as a positive assertion of the existence of relative difference or something ‘other than,’ chora is tied to complex issues of memory and expectations, but if where something comes to be is nothing, is it possible to make something of nothing if everything comes from something that already exists? Such is a persistent philosophical problematic. If there is a possibility that something can occur prior to the existence of thought, what are the conditions for identifying this possibility?

Chora, which is an arcane site associated with beginnings, not only accepts everything that enters into it, but having no identity of its own, does not place any limitations on what may come to be. If consciousness fails to do justice to the full depth of things and we can be taken by surprise by something that lies outside our relationship to these things, something new can arise quite apart from our knowledge of it. The question is whether chora, whose *absence* is paradoxically *present* to consciousness in the way it emerges, unnoticed, in everyday practices, is a divine feature of negation. French intellectual and psychoanalyst Julia Kristeva, who borrowed the concept of chora from Plato, characterized it as a “disposition that is definitively heterogeneous to meaning but always in sight of it or either a negative or a surplus relationship to it” (Kristeva 1980 p. 133).

Derrida (Derrida and Eisenman 1985) points out that the word *chora*, whether interpreted as place, location, site, region, country or mother, nurse, receptacle, or imprint bearer, is a matter of structure that belongs to the order and movement of meaning whenever it is seen as a moment of loss and of anticipation of future recuperation(s). This space, which is the linchpin of Plato’s cosmology and the centerpiece of his story of creation in *Timaeus*, is part of that history of science which has been considered to be obsolete—however the Big Bang theory in cosmology has contributed to its revival with regard to the possibility of a divinely created universe. Black holes are posited by scientists as regions in space from where light is not able to escape. They are invisible, but what can be observed is the

behavior of the material that surrounds or is very close to the holes. The smallest black holes are known as primordial holes which are thought to have formed soon after the Big Bang, and there is scientific evidence to suggest that every large galaxy contains a large black hole at its center. This evidence is based on multiple data as processed, quantified, and measured—but what is operative in these data is not knowledge of the actuality of black holes but, conversely, the inability to establish the impossibility of their existence.

Philosophical notions of the way we perceive negation involve a variety of perspectives that are often the result of operations having to do with what takes place around, inside, and through holes. These operations, which yield certain visual patterns for perceiving a hole and for identifying what is seen, give rise to a series of relational ties between the negative entity and what surrounds it. Empty or full, holes account for distinctions between inside and outside, and things that are not there. Ontologically, if what we think is comprised of holes, and if holes do exist, what is their nature and are they what we attempt to conceive they are? Do black holes qualify as regions of space that allow for engaging in our surroundings, even if they do not exist? If the conception of nothingness is not the end of the world, is it the beginning of becoming some other world?

Black holes, likened to chora, could be emblems for the beginning of becoming, as Deleuze (Deleuze and Guattari 1987) would say—just the ‘unthought’ of signs for the (articulated) thought to (be)come. Whether virtual or actual, the receptacles serve as the ideal vector to secure the necessary coupling to think outside thought in relation to a vision of the universe and its laws. Symbolic of unknown worlds in both art and science, what black holes stand for constitute a right of passage toward another sphere of knowledge that is accessed indirectly, or semiotically. The non-observation of lost moments occupies this in-between space that can make the invisible visible and asserts the possibility of the impossible.

Chora is a ‘changing room’ where subtle transformations arise and can become enfolded into artifacts by way of formal methodologies. Differences are revealed in an ongoing process that does not resemble what takes place in the building up of an image, but the routine of attending to and accounting for what is processed does allow for intimate lives and identities to be perceived and thus presented. Although chora cannot exist in physical terms, its immaterial, yet real, nature depicts an unseen world and mirrors the kind of activity that goes into the making of a work of art. The image, which is rooted in evolutionary history, becomes a container for the uncontainable and a visual mimesis associated with incarnation that encourages complex readings of encounters with the divine.

The Art~Science of Semiotics

Any philosophical or scientific theory resting on the notion of negation/divination suggests that we perceive some discontinuity in the surfaces of material objects. According to Charles S. Peirce (in Casati and Varzi 1994), it is meaningless to

attribute any color to the dividing line—the cut—between a black spot and the white color of its background. The line could be either black or white, or neither black nor white, yet something could be inside or outside the space defined by the surface. A black hole on a white ground is a disposition of visual space that is perceived as two differently colored surfaces. The boundary line between these two surfaces delineates the form as a material object and at the same time envelopes the form and is part of the object of which it is a boundary. Together, boundary and hole comprise a disturbance for thinking about what can be pictured and thus conceived.

Aesthetic objects carry out philosophical aims in visual language of extralinguistic signs so as to show something about the dark uncertainty of unmediated thought that arises from the creative process itself. As yet unthought of, the unconscious abstract ideas, which acquire concrete specificity through aesthetic mediation, separate the object from where it came from and bind the object with an absentee being. This experience, which straddles the boundary between the banal and the profound, has the potential to say something about what is seen and not seen, to say something else, and to determine what it is. This potential, when attributed to the dimension of the unthought of, is found in signs of negation that go beyond the verbal words to contest our understanding of how things exist in the world. If what cannot be put into words can be manifested in images and aesthetics is a semiotic agent of education, then it is not impossible for the unthought to exist.

Physicist Stephen Hawking and his group of researchers propose that information about matter is stored in the mysterious boundary that surrounds black holes. This imaginary sphere is referred to as the event horizon, and anything that happens within this sphere is invisible. Whenever a disturbance takes place, a hologram that slides along the border secures information that drifts into the black hole, and when something leaks out, it carries the information out.

According to Hawking, there is another universe inside every black hole and black holes are possible gateways to other universes. He argues that if it were possible for something to pass through the event horizon, it would be ‘sent’ by an object called a ‘white hole,’ on the other, opposite, side. Theoretically, white holes are not known to exist, but Hawking suggests that they might have been responsible for the birth of our own universe. This theory, which is regarded as a solution to the information paradox (cf. Semetsky 2013), answers to the apparent contradiction between the notion that black holes disappear along with the information they contain and the laws of physics that contend that information about the universe can never be lost.

What happens around the edges of black holes provides clues to the black hole’s presence and situates negation as the centerpiece of its surroundings. Negation, which is a form of aesthetic disappearance that has to do with omitted, missed, time demands finding information so as to stretch the limits between what is seen and what never existed. Its pivotal role is to make room for an addition, which is the basis of art that posits a ‘negative space’ which is necessary for bringing balance to a composition.

Charles S. Peirce, who used the expression ‘other than’ to define negation as an assertion of relative difference, echoes *Sophist* dialogue, where Plato insisted that negation is not plainly contrary but is ‘other’. Indeed, chora—to exercise its

capacity not to be and its capacity to be other—has to submit to being a paradoxical entity just like a genuine sign that embodies an apparent contradiction in contrast to the law of non-contradiction pursuant to logical discourse. Signs sure enough interrogate the principle of non-contradiction that contemporary analytic philosophy inherited from Aristotle. Semiotics discards any presupposed binary opposites in favor of a dynamic relation between them that can bridge visible and invisible, matter and mind, reason and affect, art and science. If a contradiction is interpreted in terms of the flux as a semiotic process of transformation in which everything becomes other than what it is, then chora appears to be perfectly eternal, incapable of becoming other than it is because it is always already other. This paradoxical characteristic of chora duly positions it within the sphere of interest to semiotics and edusemiotics.

Chora is what It is not

As an indeterminate, blank, lusterless placeholder that continues to exist in its non-existence, chora is akin to a concept of ‘zero’, the mathematical symbol denoting the absence of all magnitude or quantity (cf. Semetsky 2001). The slang word for zero is ‘kill’ or ‘cut’ and it is a positional notation for ‘severance’—a particular moment of time when something must or does happen—which also is the original definition of the ‘absolute’. Standing apart from the usual, chora—which is the origin of all contradiction and absurdity—operates through a series of cuts to both put things in motion and to guard against excessive excitation. Like a primitive organic bubble, it sacrifices a part of itself to effect a definitive separation between organic interiority and inorganic exteriority. For Reza Negarestani (2011), the cut that takes place within and by way of a ‘universal continuum’ interweaves the particular and the universal in a cosmic field that includes human beings. As such, it is a way to think about the self-referential relation pertaining to the universe as the whole and thereby having a propensity for self-organization. It is a feature of self-reference or ‘feedback’ which potentially ensures any system’s self-organization.

For Plato, the world is an intelligent organism guided by its own nature that displays mathematical order and proportion in both body and soul. Anything that cannot be accounted for can be brought to order in the course of time. The first line of *Timaeus* sets the scene for dealing with some ‘lost time’ in a dialogue that has taken place the day before: *One, two, three—but where, my dear Timaeus is the fourth of my guests of yesterday who were to entertain me today.* The missing fourth guest forces Socrates to call upon those present to fill in for his absence and to make up for what is lacking in his description of an ideal society. The ‘craftsman of the intellect’ is charged with linking time and space with the conception of good life—but it is the characterless receptacle that creates space, where all change takes place.

Plato’s chora is a sign for negation situated between being and becoming in which unexpected disruptions precipitate new beginnings. Catherine Malabou

(2012), who takes up the negative possibilities constituted by an absent self, argues that disruptions that arise accidentally, offer “an ontology in which being is becoming” and “a mode of being that is becoming” (p. ix). In art and education, this would entail moving beyond differences and embracing practices in which to begin means to become as if detached from everything – so as to experience what comes one after the other in the form of mechanical sequence, having no apparent connection to one another.

Malabou associates the work of negation with the kind of disappearance that imposes a new form on an old form without mediation or accountability. She refers to it as the metamorphosis by destruction, which is a form of impossibility that pushes the subject toward an outside that does not exist and which has the power to create a total deviation of being. What she attempts to bring to light is a *negative possibility* that “bears witness to a power or aptitude of the negative that is neither affirmed nor lacking, a power that forms” (Malabou 2012, p. 75). Symbolically, the possibility of negation represented as a primitive gesture of exclusion, has an affective origin, whether or not it is perceived. This black hole, constituted from an absent self, gives way to other possible beginnings, including an unthinkable nothingness of which we do know nothing. For Malabou, the real question is: “how to think the void of subjectivity” (2012, p. 24).

Reading and interpreting paintings and drawings of the black hole—or any picture or image for that matter (cf. Semetsky 2011)—lead us to the barely perceptible traces as the signs of primordial selfhood associated with the unthought and the unconscious; hence in some way affirming the *absence* of subjectivity. Brought into existence through a process that makes it possible to access what is not already mediated by thought, blackened surfaces do not reflect anything nor do they mirror any original insight or self-consciousness. Technically, the hole is a matter of structure that belongs to the order and movement of meaning which is seen both as a moment of loss and an anticipation of the future.

The image of the black hole (Fig. 18.1) projects a laborious, craftsman-like quality—yet lacking the purposefulness to provide a very reason *to be*. Row after row, the tiny consecutive ‘stitches’ in the painting are the *indices* (as Peirce would call this type of signs) of a series of instances traveled by the artist’s hand and eye that become the very basis for the production of the appearance of the hole. Singular digits embossed on a two-dimensional plane capture the passing of time in a train of thought that surpasses what is purposefully intended and implies a certain automatism, which is exercised in a trance-like existential state. Moving methodically from one ‘stitch’ to another without thinking constitutes a process of equivocating states of being and becoming, fueled by the desire to see what is unfolding and what is left behind. This slow deliberate procedure for arriving at an image allows for the possibility of contemplating something other than what you think you are doing; and that what is being created is so far ahead of what you think that you can never catch up with it. From the edusemiotic pedagogical perspective (cf. Semetsky and Stables 2014), the question is whether thinking is what one thinks, or does not know that one is thinking, or if it is something else altogether.

Art and Reason

Non-reflexive blackness makes ‘seeing’ impossible, but whatever comes into being from within the semiotic movement allows for the possibility of liberating the black hole and giving back an image assigned to the place of emptiness (cf. Gasche 1986, p. 208). Lacking the aestheticism of *reflection*, it is the creative act of *production* that thus decides what becomes visible. As for non-reflexivity, which has to do with things that are not consciously intended, it is similar to what Georg Wilhelm Friedrich Hegel would call a speculative germ—one that is found in the self-destruction of reflection. This ‘germ’ belongs to a class of becoming that develops in those practices, which call for rethinking the relation of thought to being. Hegel, who assigns this relation to the opposition between being and nothingness, insists on a third position to bring them together. This third position enables an apparent synthesis of opposites and creates the ‘ground’ for a new dialectical movement. The included ‘third’ would make it possible for human beings to progress to the point of seeing the world beyond them as an integral part of themselves. The feature of triadic mediation is part and parcel of genuine signs functioning on the basis of the logic of included middle (Semetsky 2013) as a necessary philosophical ‘foundation’ for edusemiotics even as such triadic structure is always dynamic, that is of the nature of a process that as such can never be structurally stable.

According to *Phenomenology of Spirit* (Hegel 1977), mediation is achieved by self-negation; and the process of departing from the present self is its very fulfillment: the self thus is becoming the integral part of the environing scene. When the inner limit of thinking about what is being done is reached, Hegel argues that philosophical reflection faces the necessity of passing over into another mode of thought that will accomplish what is to be done. With the recognition of opposites as relative terms within the limits of the absolute, philosophical reflection functions as reason that can make the leap into absolute or speculative reflection. Displacement, which is the difference between an initial position and a later position, disrupts personal history while extending and embedding a personal story into a body of work that does not necessarily belong to the artist *per se*. Spatio-temporal histories that pass through an artistic medium and thus survive are the result of various operations that cut away from the presupposed individual identity tending to become something else.

A split between the artwork and the fully fledged subjectivity makes what is encountered not so much the authentically revealed self but rather presents a collection of signs that insinuate this absent self as somewhere present in it. In mediated idioms, imperfections are a fundamental part of universal subjectivity and according to Hegel, it is paintings that move us because we feel (rather than see) what is missing and thus assume that painting itself is able to exhibit an independent mental life. For Hegel, it is some allusion to an element of the mind that endows art with affinity to thought and feeling. The art-object functions as a free concrete intellectual being which ‘aims’ at revealing itself as a spiritual existence

for the inward world of the spirit. Once again, a semiotic bridge is created between the opposites, namely (in this case) the realms of matter and spirit, the sensible and the intelligible—thus traversing a dividing line between them. The notion that paintings think, act, observe, and want to make contact implies that the mechanical application of painting is imbued with a form of consciousness and that subjectivity can be transferred from humans to artifacts. Entering into a relation with a work of art can be active or passive and much of what is learned proceeds as if without the knowledge of it.

If we consider aesthetics to be a semiotic agent of education and as such a constitutive element of edusemiotics (cf. Semetsky 2013), then images and paintings have a mental life of their own; and it is not impossible at all for the ‘unthought’ to exist—or rather, as Gilles Deleuze would put it, to *subsist* in its potential, virtual state at the border of becoming conceivable. Theodore Adorno (1997) argues that art is grasped through a complex relation between the object and what it is not. For him, “its law of movement is its law of form” and “what appears is the product of an inner-technical evolution” that “acquires its specificity by separating itself from what it developed out of it” (Adorno 1997, p. 3). What speaks out in art negates subjective reason’s claim to totality, and the more the subject invests in the work of art the more successfully does the subject forget itself and become aware of the work’s objectivity (Adorno 1997). According to Adorno, every artwork requires thought to be fully experienced and stands in need of a philosophy that refuses all restrictions. This philosophy, which is ‘nothing but thought’, participates in the realization of the work by submitting to objective criteria and surrendering to the art of form (Adorno 1997, p. 266). This kind of objectivity, when mediated by the disparity that transpires from within the materiality of the work of art and the negation of subjectivity, allows itself to be directed by external factors whose source is internal: the subject–object dualism is thus overcome in accordance with the major premise of edusemiotics.

Utilizing our perceptual resources to speculate on who we are and where we are, the interior matter of what is seen is being intuited in the very act of looking. Since figuration is implicated in looking and spatial absence refers to the internal composition of things, there is no need to mimic our objectivity in a work of art. By minimizing the gesture and getting the hand out of the way to think that what can be there when there is no thought, images reverberate with ‘color’ and equip us with a sense that the inner world is the same as the cosmic world. The correspondence between inner and outer, when taken in moderation, is supported by the semiotic justification that “all inner qualities possess their unique signs through which they recognizably manifest things in the world” (Jullien 2007, p. 62). When new attention is brought to what is conveyed in an image, it is possible to draw attention to perceptible expressions of an invisible reality together with its various corresponding symbols and signs. For Quentin Meillassoux, for instance, it is not a question of something happening prior to thinking but that an event “can actually have occurred prior to all thought” (Meillassoux 2012, p. 122) and such ‘schism’ thereby undermines all received ideas that otherwise may appear indubitable.

Discontinuities associated with negation and the properties of holes parallel a process of individuation as a semiotic becoming where parts that are cut away can generate a new surface, on which two distinct entities are in contact with one another. The relation an individual bears to discontinuity is the same as the relation to another object in the sense of being affected by, or recovering from, an interaction with it. As the surface undergoes a modification through some sort of mediation, an invisible being takes upon itself a life of its own. From a psychological perspective, a dark shape that goes deep implies that the integrity of the individual can be restored, even if a productive work needs to be done.

Absence as Presence

Chora is positioned between becoming and being; it is a sign in the eternal process of becoming being. The paradox is implicit in the semiotic movement. Every hole is necessarily dependent on its host in order to grow and come to be and it cannot exist without the object in which it is embedded or as it is configured within a common part. Constituted by space, holes are closely tied to what they are in; but the complementary relation to material objects can be conceptually unchained if we accept holes as immaterial bodies that can be filled by other possible worlds. If holes, like Plato's chora, can be described as receptacles of non-being they could be the basis for the possible "explanation of the ultimate grounds of individuation of spatio-temporal (concrete) individuals" (Casati and Varzi 1994, p. 33).

Absence as presence is brought to light through a process of departing from the present self and becoming other. Using images to think something outside thought revolves around the notion that consciousness fails to do justice to the full depths of things, and that the possibility of what lies outside our relationship to these things can arise apart from our knowledge of them. While it might seem meaningless to think anything outside thought, there may be a semantic content to visual language, even if we do not know what it is. Inscriptions, such as words, possess shapes that seem to move autonomously and enter into descriptions of the world through concrete entities. These entities, which are conceptual links between holes and how they are represented in language, depict what we perceive to be empty or full. The parts that are holes make shapes, and the letters appear as the sum total of these holes. Like Rubin's famous illustration of a vase-profile reversible figure, two elements in the same context interact in such a way so as to make one of them emerge and the other disappear (Casati and Varzi 1994).

Black holes suspended within the subtle shades and nuances of an embroidered galaxy of stitches (Fig. 18.1) are constituted through the fabric of time. Time, as the 'outside' dimension that exists whether we can conceive of it or not, is incarnated in works of art. Such dimension cannot be observed directly, but we can experience it in a certain volume of space through sensory qualities like color and shape. These qualities, which amount to the modes of relation between individuals and their environment, represent a specific reality—the reality of signification. To revisit a

work of art is to speculate on whether it appears in the way it is described or if it is something that comes into being while possessing consciousness of its spatio-temporal forms. When put on display for the purpose of interpretation, the art is defined from within cognitive limitations; but if art is part of a universal continuum and thought is not distinct from the material process—in accordance with the reconciling relation between body and mind as posited in edusemiotics (e.g., Stables and Semetsky 2015)—then it becomes possible to take up a creative project oriented to the (im)possible position of the absolute in the world.

Practices of production in art and science overlap in the sociopolitical realm, and perpetual experimentation which is associated with new media (and new science) may be a cause for abandoning the certain for the uncertain. As Peirce made clear, semiotics demonstrates that knowledge is always fallible. Analogously, human subjectivities as themselves signs are constantly developing. There is no unambiguous and certain Cartesian maxim, ‘I think therefore I am’: edusemiotics rejects the priority of human consciousness and considers subtle unconscious affects—that nevertheless may leave their experiential marks (being the signs of something other than themselves)—as a potential source of knowledge. Since the structure of representations is a product of cognitive, sensory, and affective frameworks combined, the boundaries of our perception are transitional and provisional: they can be creatively transcended.

What is made to appear to be one thing is shown to be something else and leads to questioning what it is meant to signify. In the semiotic world, there is no stable ontological ground for phenomena, only a negotiation of complex relationships among changing phenomena as well as between the phenomenal and noumenal realms. These relationships include and implicate the human as just another sign in the field of art and science permeated by signs in various degrees of representation. It is always possible to go beyond human limitations by analyzing the conditions under which thought is formed. This would entail a correlation between art and thought and forging new networks of infinite becoming. Being is becoming; while to become does not necessarily mean to come into existence: the sign-process of becoming maintains an ontological priority.

Some of the Edusemiotic Implications in Lieu of Conclusion

From the perspective of edusemiotics, education is less concerned with any technical quantifiable achievements than with a creative production of human subjectivities both inside and outside schools, both formally and informally, both for children and adults. Human development is a semiotic process of becoming. The interplay of signs combining thoughts and non-thoughts in their dialectical movement brings into the conversation not only the importance of artistic practices, but the value of educational experience as creative and making us to learn in our real lives. Life as such is to be considered, and needs to become, a metaphorical work of art in terms of its creative potential for becoming significant and meaningful.

Chora can be conceptualized as a matrix (Crawford 2014). Julia Kristeva intends to return chora to its primordial roots as the ambiguous site of the potential to become. Acknowledging the dynamic character of chora being “formed by the drives and their states in a motility that is as full of movement as it is regulated” (Kristeva 1984, p. 25), Kristeva stresses its provisional and seemingly non-expressive quality. The process of becoming originates in the midst of different affective states comprising multiple non-thoughts evading cognition but including erotic desire, love, hate, or suffering that may cause crises for the always already ‘subjects in process’. Still these crises often represent the revolt of habitual being: in a way, getting a subject out of the metaphorical black hole and toward becoming other whenever chora fulfills its creative regenerating purpose. The artistic potential of chora manifests in the “relaunching...of life” (Kristeva 1998, p. 144) while simultaneously “breaking down of a world [of being] that has erased its borders” (Kristeva 1982, p. 4) and thereby letting in the signs of becoming. Kristeva appropriates Hegelian dialectics with its logical operation of negation and the synthesis of opposites that is considered as the basis for symbolic activity. Building upon psychoanalytic ‘psycho-logic’, Kristeva posits it as a foundation for the signifying practice and the production of meaning (cf. Semetsky 2015).

It is the semiotic “logic of symbolic change” (Kristeva 2002, p. 75) that enables the existence of artistic moments not only on canvases and in paintings but in real life-experiences. These experiences are genuinely edusemiotic and always already double-sided. They may present us with “the symbolic deconstruction [as] the symbolic renewal, which comes from creation—psychic creation, aesthetic creation, rebirth of the individual” (Kristeva 2002, p. 76). It is learning from life-experiences, some of which sometimes make us feel as if existing in a black hole, that contribute to the renewal of our subjectivities embodied in events represented by “symbolic mutations” (p. 76) as the transformation of signs in real life at the level of social practices.

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Chapter 19

Erotica and Semiotica: What's Love Got to Do with Edusemiotics?

Farouk Y. Seif

Abstract There is a tendency to reduce erotica to sexual desire or lust according to the conventional perception of Eros. By liberating Eros from mere eroticism, the relation between erotica and semiotica is revealed. As the generator-of-desire, Eros seduces us to engage in a learning process awakening a sense of wholeness. This process has remarkable features of reciprocity and infinity, where love manifests in the desire to create a microcosmic whole and to seek its expansion into an evolving macrocosmic whole. Drawing on Bataille's eroticism, Baudrillard's seduction, Gebser's aperspectival consciousness, and Peirce's evolutionary love, a case for the role of love in edusemiotics as an integrative conceptual framework is proposed. The chapter revisits the relation between erotica, beauty, imagination, design, and intentionality. Teaching and learning the love of wholeness is the *raison d'être* of edusemiotics.

Introduction: A Double Entendre!

There is a double meaning in the questions: What's love got to do with edusemiotics? What's love got to do with education in general? Does love negate eroticism? How do we convey the primordial concepts of Eros and erotica that could be socially awkward or culturally invasive? It is extremely difficult to speak about love without facing the unjustifiable attitude toward eroticism as a mere satisfaction of carnal appetite, and the narrow understanding of Eros as a primarily sexual desire. Nor is it a simple task to talk about Eros without facing the widespread cultural perception of erotica as pornography. Exploring the relation between erotica and semiotica is like gazing into a double exposure that, while it challenges the conventional perception, reveals the quintessential quality of the role of love in education. Such a shocking experience is like being exposed for the first time to the naked truth in Lois Weber's *Hypocrites*. But we may declare, with Jean Baudrillard

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(1990), that “we wish to uncover the truth because it is so difficult to imagine it naked” (p. 181). It is really liberating to reveal the concealed truth about erotica and its connection with teaching and learning.

This chapter, in order to explore the evocative connection between erotica and semiotics, love and edusemiotics, discusses a few interrelated points: (1) debunking some widespread concupiscent views about Eros and misconceptions of eroticism that are rooted in tempestuous thought and shamed action in contemporary societies; (2) examining whether eroticism negates love or both wonderfully relate to one another; (3) revisiting the relation between erotica, beauty, imagination, and intentionality; (4) drawing attention to the intimate relation between the love of learning and the desire for creation; (5) underscoring the indefatigable yearning for wholeness as the *raison d'être* of edusemiotics.

The Mystery of Eroticism and the Idea of Eros

The term erotica etymologically derives from the Greek word *Érōs*, which associated love with desire; for this reason the perception of Eros has been focused mainly on sexual love and mere erotic sensation. Interestingly, however, is what perceived as sexually suggestive is culturally different; what is considered as erotic in some cultures is a desirable behavior in others (cf. Danesi 1999). The idea of Eros has been abused and misused, moving through many interpretations, from being the god of love, the son of Aphrodite and the god of desire, Cupid, to the tragic god or the entity that provokes sexual desire and eroticism, leading to what Georges Bataille (1989) calls ‘little death’ as a way into the infinite.

After getting over an attack of hiccups, Aristophanes says in Plato’s *Symposium* that love, in the pain of anxiety as in the bliss of desire, is a demand for a whole. The relationship between love and sexual desire is a complex one. While love may exist without sexual desire, sexual desire may be triggered without love. However, “the feelings of being in love with, and sexually attracted to, another person are frequently intertwined” (Danesi 2013, p. 74), as in the case with romantic and sensual kisses. Although the role of sexuality in love remains not abundantly clear, the relationship between sexual desire and love is paradoxical rather than dualistic (Seif 2015). In general, human beings seem not only to avoid speaking about eroticism but also to hastily escape from Eros’ seductive nature, which, as will be demonstrated further below, transcends a mere sexual act. While eroticism was often trivialized and confused with pornography, they are far apart from each other from the viewpoint of the role of Eros in each. Pornography relies on sensation without feeling; whereas eroticism depends on aesthetic experience that, while engaging feeling, does not reject sensation. While pornography is the mechanical pleasure of beauty, eroticism is the spiritual joy of beauty.

It seems that we drift into the sensation of sex in order to avoid the seduction of Eros, and the more we become engrossed in the sexual act, the more truncated and shrunken becomes our experience of Eros as creator (May 1969); therefore,


ironically, “we fight against that which seeks to seduce us” (Baudrillard 1990, p. 119). As a result of this narrow understanding and skewed behavior, “Eros is demoted to the function of a pretty bartender, serving grapes and wine, a stimulation for dalliance whose task is to keep life endlessly sensuous on a bank of soft clouds” (May 1969, p. 95). We live in an unstable and commercialized world that puts more premium on satisfying sexual desire through advertisement than it does on spirituality and wisdom (Danesi 1999). More often than not, we escape from or avoid altogether the seduction of Eros, using sex as the vehicle for our escape; consequently, we perceive eroticism more narrowly, as in case of the Freudian superseded view that arrests the nature of seduction in mechanical and physical interpretations of sexual repression.

The desire to seduce for the purpose of engaging in sexual intercourse has unjustifiably overshadowed other, deeper, meanings of love and seduction. But as Baudrillard (1990) argues, seduction plays on both sides and no boundary separates the seducer and the seduced; both engage in an erotic relationship (albeit not sexually) that brings their own centers of gravity into balance—a simple idea that seems to often be intellectually and emotionally missed by educators. A sexual act as an immediacy of gratification becomes the convenient and handy drug to overcome the anxiety related to the creative aspects of Eros. Human beings are certainly faced with the most difficult paradoxes about eroticism. Like in Plato’s allegory of the Chariot of Zeus, they seem to face the double-edge-sword character of Eros, whether in engaging in the blessed experience of love and beauty or in the finality of erotic gratification. If eroticism is desirable yet religiously inadmissible and prohibited, then it appears that both the seducer and the seduced must make the choice between virtuous living and sexual experience.

While the phenomenon of eroticism is the greatest animator of reality, it is also the most ignoble aspect of our life (Bataille 1989); still human beings cannot escape their own nature (Bataille 1986) being always vulnerable to encounter the seduction of Eros, simply because they yearn for the sense of *completeness*. The conventional view may confine Eros to the domain of eroticism; still it does not necessarily reject the sensuous and seductive features of Eros oriented toward wholeness. It is in Jungian psychology that *libido*, traditionally reduced to its sole aspect of being a sexual drive, acquires a greater spiritual dimension in relation to the collective psyche, what the ancients called *anima mundi*. The seductive nature of Eros as the creative energy in all of us is surging from our deepest evolutionary roots to create new life. Other than biological models of sex that view love as an erotic drive similar to hunger and thirst or as a cognitive social phenomenon, the broad and deep concept of love is a difficult phenomenon to explain. The Eros phenomenon (Marion 2007) can be optional or even superficial because it is capable of not happening or of being suddenly dissipated. While we experience love, as soon as we attempt to define it, it moves away from us. Even as we attempt to demystify eroticism, the magic of love continues to unfold. What is most relevant in the present context is the paradoxical interconnection between love and erotica. Such relation is indeed a province of edusemiotics that acknowledges the creative power of paradoxes (Semetsky 2005).

Erotica and Love: A Negation or *Mirabile Dictu*?

The connection between erotica and love is not radically new. The roots of our understanding of the nature of Eros extend back to Plato's dialogue *Symposium* and Phaedrus' speech in Plato's most famous drinking party in history. It is not surprising that Plato viewed philosophy itself as an erotic activity, one that is not divorced from philosophy as the love of wisdom: *philo-sophy*. Erotica and wisdom appear to be inseparable. Edusemiotics is an educational philosophy that does not limit itself to the analysis of formal education (Semetsky 2013; Semetsky and Stables 2014; Stables and Semetsky 2015); as such it has the capacity to conceptualize an informal pedagogy that is augmented by the love for wisdom (Semetsky 2009). Love partakes of an infinite semiosis as the continuous transformation of signs; and learning, living and loving (Semetsky 2012) represent the three interconnected components embedded in the semiotic process.

Before the time of Plato, the idea of love in ancient Egypt signified something like 'a long desire,' an ongoing mutual seduction between two entities, which affirmed an everlasting beautiful, sweet, and happy relationship beyond space and time; a relationship that is sustainable and unselfish. The Egyptian hieroglyphic sign for love——consists of a hoe, a mouth, and a seated man with his hand touching his mouth, which literally means to want or to desire for a long time. The hand touching the mouth is a sign indicating any function of the mouth or of the heart—for example, eating, drinking, speaking, and also thinking. Beyond the narrow interpretation of the Egyptian Erotic Papyrus in Turin, the illustrations of sexual acts can be viewed as signs that, while depicting the long desire for intimacy and erotic pleasure, are also mnemonic signs hinting at the process of rebirth and the creation of the cosmos. The Egyptians did not intend to show sexual positions pornographically or aiming to mere entertainment, as contemporary societies would have it. Neither did the Egyptians detach themselves from intelligible and integrative interpretations of natural phenomena and human nature, which were communicated through remarkable images as products of imaginative interpretation and transcendental knowing.

It is not accidental that the word 'know' in the Bible is used to convey love-making, reflecting the essence of education as an intimate pursuit. For instance, the book of Genesis contains a creation narrative, where the serpent is seducing Eve to experience God's knowing by consuming the forbidden fruit in the Garden of Eden (cf. Noddings 1989). As in the Hebrew Biblical story, the ancient Egyptians may have depicted Eros as the serpent that gives birth to the cosmos. In Egyptian myths of creation, the serpent is the divine energy, which offers protection while also expressing the seduction that transforms the chaotic universe into beautiful order. The serpent combines the birthing attribute of Isis and the regenerative quality of Osiris. This mythic imagery is by no means mere fantasy or metaphorical allegory separated from mythopoetic thought, which celebrates the erotic encounter between human beings and gods as elaborated in the pioneering work *The Golden Bough* (Frazer 1922). The love poems in the Song of Songs in the Old Testament represent

a celebration of erotic encounters, just as the Christians extend the allegorical relation between Christ (the bridegroom) and Church (the bride) to the one between God and humans, divinity and humanity.

Certainly, the erotic encounter is the most intense of all happenstances residing at the highest peak of the human spirit (Bataille 1986); it is innate to the very nature of human flesh and its sensuous attraction. Because “only flesh feels that which differs from it” (Marion 2007, p. 113), dismissing the sensuous attraction to connect with others or denying the desire of the flesh is not only counterintuitive to human nature, but also partakes of false spirituality. For true spirituality represents the regeneration of the flesh itself, the resurrection from the dead (cf. Solovyov 1985). And in doing so, the flesh is utterly eroticized, beyond what it can—and even what it cannot—do, giving more than it possesses and receiving that what it does not have (Marion 2007). Experiencing a love encounter is really a reciprocal exchange of seductive desire, which is the primary strength of Eros *par excellence*. In this love encounter, the sexual act becomes an addendum; hence the eroticization of the flesh becomes the ongoing seduction attracting us by the physical beauty.

Yet, the moralists among us may deprecate the lust of the eye as part of our surrendering the spirit to flesh (see Dewey 1934). We seem to have forgotten that the very nature of our interactions with an environment (*Umwelt*) depends on our ‘innerworld’ (*Innenwelt*). Our flesh and senses are the organs through which we participate in and relate to the ongoing events of the life-world (*Lebenswelt*). It makes no difference whether we experience physical beauty through the sexual act or imagine it erotically, for the same part of the mind lights up and the heart rate increases (Ackerman 1994) to the extent of experiencing ‘free eroticization’ (Marion 2007) which succeeds without caving into performing a sexual act. Such free eroticization opens an immense field of activity that allows one to give and receive an eroticized flesh where the sexual act does not reach; such eroticization may exist between parent and child, between friend and friend, between teacher and student, between human beings and God. Triggered by the spirit of Eros, this free eroticization mediates between the divine and the mortal, heaven and earth. Love is driven by the generative spirit of the immortal winged Eros that, in a manner of a genuine semiotic relation, connects the apparent opposites, including those of the sacred and the profane.

So, what is eroticism? Is it the playful imagination we enjoy, the oceanic memories in which we swim, or the way we embrace and adore things with our senses? Ultimately, it is our willingness to be seduced by Eros and stirred by the presence of voluptuous beauty: “What is erotic is our passion for the liveliness of life” (Ackerman 1994, p. 256). Such is the love of life which is more than the love of sensuous life. In the words of Mikhail Bakhtin (1993), “Only love is capable of being aesthetically productive; only in correlation with the loved is fullness of the manifold possible” (p. 64). The relation between erotica and love, whether as a form of negation or *mirabile dictu*, deepens our semiotic imagination in approaching and experiencing beauty.

Erotica: The Pathless Journey of Beauty and Semioethical Imagination


Eros cannot be delighted without invoking the relationship with beauty. The challenge, however, is that our pleasurable experience of beauty embodies the temptation of erotic encounter that consummates our relationship sexually. Such temptation is risky but to persevere through it is rewarding. As ‘philosophic souls’, lovers of wisdom, we fall in love with the beautiful beloved, but we need to be aware of being tempted by the ‘black horse of desire’. The presence of sexual desire and intellectual insight is a double binding challenge that echoes the one in Zeus’s chariot: controlling the black horse of sexual desire and, at the same time, observing what is really at stake (Hyland 2008). And yet, even in the core intensity of erotic passion, as Socrates reminds us, there is some intellectual uneasiness in play; deeply immersed in our desire, we recognize nevertheless the insight of true beauty.

The heart of the matter is not to surpass the experience of physical beauty: beauty intensifies the pure trembling pleasure of physical desire by hearing its joyful melody echoing in the intimate chamber of meaning and significance (Seif 2012b). Beauty implies a sense of nobility and a kind of eroticism that produces a union of delightful reason and sensible emotion. This suggests that if sensuous beauty inspires pleasure and love, “then all true education is education in beauty” (Grudin 1990, p. 61). An excellent mind and compassionate heart can be learned through the type of education augmented by love and beauty—that is, edusemiotics *par excellence*. It is immortal Eros that animates human psyche (Semetsky 2011a); and it is the activity of Eros that enables the “potential becoming of the soul toward apprehension of eternal patterns of beauty” (Dewey 1934, p. 291). Eros always seeks the beautiful because of the desire to overcome its incompleteness. The purpose of beauty, then, is to seduce us to fall in love, to pay attention to the generative spirit of Eros, to seek out a fresh meaning that exceeds the ones we have come to rely on.

Beauty is the revelation of something through the transformative quality of the imagination (Seif 1999). The act of *making an image* is a ‘philomorphic’ or form-loving act (Grudin 1990). As James Hillman (1992) puts it, “when we fall in love, we begin to imagine; and when we begin to imagine, we fall in love” (p. 9). Imagining intensely and comprehensively can begin only when we have a sense of the integral whole. That is, in order to function properly, the imagination must perform a genuinely poetic operation combined with Peircean abductive reasoning that in turn partakes of insight, intuition, and imagination (Semetsky 2011b, 2013). Thoughts occur through images, where images come before words; yet they can become words in the edusemiotic process (Semetsky 2015). As self-generated and self-maintained, imagination is congruent with the notion of autopoiesis (Maturana and Varela 1987); and through love, this free-willed faculty of imagination has the capacity for changing the nature of reality, where human beings can face the unknown and the uncertain by co-participating in the everlasting process of learning and creating. In the true sense of semioethical responsibility, imagination is a means

of seeing and feeling things as they form an integral whole, bringing together interests and love, where the mind and heart interact with the world.

Semioethics (Petrilli 2014) is a concept indicating human ethical task to use signs as the vehicles of transformation for personal and social change and in this respect is closely linked to edusemiotics that posits education and learning as a step toward the re-organization and 're-symbolization' (Semetsky 2011a) of lived experiences. When imagination is combined with volition, not only does love reveal to us the beloved object through a sign (an image) that 'stands for' it in a genuine semiotic relation; but we ourselves delight in the phenomena of love and imagination capable of transforming our reality. Due to the transformative power of imagination, the semiotic connections are formed up to the point that "God transcends the World" as much as "the World transcends God" (Whitehead 1978, p. 348). Signs that perfuse the semiotic process are double-sided, relational, entities. Beauty revealed through imagination is linked to contemplation as a mode of mystical perception. In the philosophy of Plato and Plotinus, contemplation is the most critical component for one to connect with the primordial mystical oneness (*henosis*) and reach a sense of wholeness. In the German language there is an etymological kinship between the words *schön* (beautiful) and *schauen* (to contemplate, to view): "Both words have a predominately psychological connotation; contemplation is the mode of mystic perception, while the beautiful is only one—the more luminous—manifestation of the psyche" (Gebser 1985, p. 24).

Eros is connected with *eudaimonia* (happiness). Importantly, while genuine education opens the way to the pursuit of happiness, it also functions as the practice of freedom, by which human beings can "deal critically and creatively with reality and discover how to participate in the transformation of their world" (Freire 1970, p. 34). Eros is also connected with conspiracy thanks to its seductive nature. To conspire (from the Latin *conspirare*) is to breathe together, to harmonize, to unite, and to ignite the wisdom in each other. The act of breathing to give life is an age-old idea. According to ancient Egyptian and Greek mythologies, it was Eros who breathed into the clay to form man and woman, as did Isis when she breathed into the corpse of Osiris, giving them the spirit of life. The hieroglyph *ba*——denotes such spirit that animates things and objects and can resurrect the dead through breathing. Breathing together then describes the essence of animating the world. Such re-conceptualization of conspiracy is significant for learning together, co-creating, and engaging with others in the mutual experience of love.

The Love of Learning and the Desire for Creation

Since all erotic phenomena stem from love, we encounter Eros when we take the first step as lovers of learning. This statement takes us beyond the Cartesian maxim 'I think, therefore I am' and into Archimandrite Sophrony's mantra 'I love, therefore I am' (cf. Sakharov 2002). We can face the unknown and the uncertain as lovers, using our full responsibility in delighting in Eros. In *Phaedrus*, Plato

demonstrated how affection and love could motivate a philomath, a lover of learning and studying. The love of learning and the desire for creation or forming are intertwined in a reciprocal relationship; and it is Eros that triggers the desire for two processes, *philomathic* and *philomorphic*, making possible the creative experience and the genesis of forms. The nature of Eros is tied to the emergence of consciousness (Gebser 1985) and intentionality at the heart of the act of creation as *design*. The notions of design, sign, and desire are interrelated. The word ‘desire’ stems from the same roots as ‘desiderate’ or *de-sidere*—as longing for the constellation of heavenly bodies, wholeness, or the original source. In Italian, the word *segno* means sign, *disegno* means design, and *disegnatore* means designer. The prefix ‘de’ as inherited from French and Latin means ‘down from’, ‘concerning’, or ‘down to the bottom’—but not, ‘do the opposite of’ or ‘undo’ as is the primary function of the English prefix. The ‘de’ prefix is also used in French, Spanish, and Portuguese personal names to indicate the place of origin.

The place of intentionality in semiotics has been explored by John Deely (2007), through which he makes a connection between intentionality and imagination. Intentionality is a mark of (a sign of) the mental; and semiotics and intentionality are, as Deely contends, in a relation of mutual fecundation. Embedded in the structure of meaning-making, such relation makes it possible for humans to perceive and understand both mind-dependent and mind-independent realities (Deely 2001). And because intentionality manifests in the inseparability of our knowledge and our formation of reality, it implies the interrelation between semiotics and design, between knowledge and action. Design is a form-loving process and represents a lovemaking act.¹ The desire for lovemaking and the making of images constitute an intentional act of giving life to form, while imagination can be in turn achieved through the design approach so that adult students as lovers can overcome their lustful desires and learn to see beauty as a metaphysical object of contemplation and reflection.

The theory and practice of adult education is andragogy (originally used by the German educator Alexander Kapp in 1833). The term arose from the practice of pedagogy to address the specific needs of adults as opposed to the schooling of children. The approach is encouraged in adult education for its characteristics of experiential and self-directed learning based on critical thinking, reflection, and contemplation. Andragogy appears to be the most appropriate approach to semiotics and design education linked through the concept of intentionality. The andragogical approach implies *leading* the adult learners to knowledge as a process associated with seduction: to teach is to lead. Andragogy has close ties with edusemiotics in view of the latter’s approach to self-knowledge and self-formation in the process of lifelong education. By introducing the practice of contemplative reflection on beauty, adult learners can engage in a meaningful integration of factual information

¹Connecting design with lovemaking has been one of the most effective ways to introduce my graduate students at Antioch University in Seattle to the design approach, initiating and leading social/cultural change. Design as lovemaking utilizes the notion of seduction to trigger the desire to serve others and persevere through the paradoxical aspects of design thinking and acting.

and imaginative interpretation; while teaching strategies give way to the andragogical approach (Seif, forthcoming).

Because a design approach and semiotics are both transdisciplinary, they are inclusive of the realms of humanities and sciences and thus duly belong in the field of edusemiotics that posits a complementary relation between art and science, as well as between all other categories that are habitually perceived as binary opposites (Semetsky 2013). Neither semiotics nor design negates either realm. Semiotics as a third branch of human knowledge (Locke 1955) shares the characteristics of design as a 'third culture.' As we "think only in signs" (Peirce, CP 2.302) and "the real thinking-process presumably begins at the very percepts... [yet] a percept cannot be represented in words" (Peirce, CP 2.227), our understanding starts from what we perceive as a surprising fact and works in practice by means of sign interpretation and sign creation. As design and semiotics are interconnected, it is impossible to engage in the process of sign creation without first engaging in design as an act of creation.

As the first act of God, creation is what all human beings strive to emulate. All humans under the spell of the sensuous have the potential to create, to design. And yet, we cannot see or know our unborn creation, but we surrender to the love of knowing; and this love drives us to the manifestation of our creation (Nachmanovitch 1990). Indeed, design is motivated by abduction, desire, and a sense of wonder toward emergent and as yet unexpected outcomes—such an erotic experience is falling in love. We cannot approach love by merely calling on what has already been or repeating our previously failed experiences. In this sense, *design as lovemaking* is about how things ought to be, creating what is 'to become' (cf. Semetsky 2006) rather than just maintaining what already exists. Design outcomes reveal a new sense of wholeness, and design deliverables concretize that which cannot otherwise be explicitly communicated.

The Indefatigable Yearning for Wholeness

Founded in spiritual traditions, the origin of knowledge is love; and genuine learning takes us beyond needs or necessities, and transcends the fragmentation of knowledge. Phenomenologically (Merleau-Ponty 1962), since things and human beings come to exist through desire and love, there must be an entity like Eros that breathes life into the world and contributes value and meaning to human lives. It is through love that our earthly existence partakes of the entire universe as one whole. The whole that cannot be broken into parts manifests the undivided wholeness (Bohm 1980). Such whole must achieve a degree of coherence and consistency in order to endure across space and time. The love for wholeness or *wholophilia* (Seif 2012a, b) is an unbearable desire to constantly engage in a co-evolutionary process seeking a greater whole. Wholophilia is a prerequisite for learning and a manifestation of our choice to act on this learning. Beyond immediate perception and individual moral judgment, even a sexual act represents a strong desire for

completeness; and Eros seduces us to desperately and passionately seek the original wholeness out of our present incompleteness. Eros is grounded in the interrelated phenomena including our present ontological incompleteness, the recognition of this incompleteness, and our desire to overcome such incompleteness to realize the longed-for wholeness (Hyland 2008).

Jean Gebser (1985)—a linguist, a philosopher, a poet—reminds us that nothing exists in life independently, autonomously, and for its own sake; what exists does so for the sake of the whole; it also exists to relentlessly seek to be in a larger whole. According to Gebser, to participate in the unfolding whole, it is important to experience an aperspectival consciousness. Edusemiotics shares Gebser’s ‘perspective’ (pun intended) and agrees with him that “human consciousness undergoes various phases of intensification toward greater degrees of transparency, ultimately achieving the state of Integral consciousness when what is latent and opaque becomes manifest and fully transparent” (Semetsky 2013, p. 153). It is in such transparency that lovers, through Eros, become united or integrated with their beloved as one whole.

Since “we ware the whole, and the whole wares us” (Gebser 1985, p. 543), a sense of wholeness can be mediated through the act of creation or design, which requires a way of knowing and learning coupled with love. Love in the form of Eros is the seductive power that generates our closest understanding of eternity, infinity, and immortality, while acknowledging our humanity and humility. Eros can be perceived as the *generator-of-desire*, or *G.O.D.* (Seif 2012a, b, 2015). It may be reasonable to postulate that Eros *per se* is God. Certainly, the generator-of-desire is at the very heart of creation and the desire for learning. The link between Eros and the Creator goes back to the time of Zeller, the Greek historian of philosophy, who said: “The Creator, to form the universe, had first to transform himself into *Eros*, the love-god” (Peirce 1958, p. 240).

So, What’s Love Got to Do with Edusemiotics?

Indeed, Eros is not the only kind of love. Eros is the trigger of all other kinds of love: (1) *Amour* (personal, romantic, and courtly love); (2) *Libido* (sexual desire or life instinct); (3) *Philia* (friendship or fondness); and (4) *Agape* (altruistic or brotherly love, or charity devoted to the welfare of others). There are numerous scholars who discussed the ideas of romantic love, erotic love, philic love, and agapic love; yet all these different loves share one thing in common—that is, put it simply, love. However, “each kind of love has an element of the other three, no matter how obscured it may be” (May 1969, p. 320); while the ultimate transcendence toward wholeness may be achieved not solely by Eros but by Agape that Peirce posited in terms of the evolutionary love. When we declare that ‘God is love’ and consider Peirce’s notion of agapasm as the process of evolution (non-Darwinian) by means of the desire for love, we recognize that God transcends us; but first and above all is the fact that God loves us infinitely better than we love

God. God surpasses all of us as the greatest lover. If we are created in the image and likeness of God, we are conditioned to delight in what is unlimited or infinite, and carry in our minds and hearts the quality of the divine imagination. While Agape tends to be ascribed solely to God because of the 'fallen nature of man', in the undivided universe Agape manifests as the law of evolutionary love enabling, as Peirce contends, *cosmic* evolution as well.

There cannot be any contradiction between Agape and Eros (cf. Hausman 1974, 1993); nor do they negate each other. For Peirce, there are three modes of evolution: "evolution by fortuitous variation, evolution by mechanical necessity, and evolution by creative love" (Peirce, CP 6.302). The third mode is agapasm that incorporates the other two. Agapasm is the synthesis of chance and necessity, tending toward an expanding continuity that supports "vital freedom which is the breath of the spirit of love" (Peirce, CP 6.305). Such continuity when the human mind extends into the world manifests in semiosis that, to reiterate, is constituted by three dynamic moving forces: living, learning and loving. It is this triad which is the basic 'unit' of edusemiotics. The erotic desire is what enables "the immediate attraction for the idea itself, whose nature is divined before the mind possesses it, by the power of sympathy, that is, by virtue of the continuity of mind" (Peirce, CP 6.307). In Peirce's view of higher education, a university is a community of scholars not only devoted to expanding the sphere of knowledge but also the place for teaching the desire to learn how to engage in evolutionary love and create new relations. Devoted to creating connections at all levels, edusemiotics augmented by design is about knowing as lovemaking and creating as falling in love—for the ultimate purpose of enabling humanity to thrive. It has never been more essential in human history to cultivate the love for wholeness to overcome the widespread violence and fix the rampant fragmentation in our lives.

So, what's love got to do with edusemiotics? Education in the spirit of edusemiotics as an *integrative* conceptual framework necessitates bringing together imaginative interpretation, sensible understanding, desire for learning, and the intelligence of the heart as *nous*. *Nous* is the *noetic* faculty in Eastern and Coptic Orthodox Christianity, meaning the 'eye of the heart or soul' or the 'mind of the heart'. The concept of *nous* relates to the metaphysical and cosmological theories about the immortality of the soul. In this respect *nous* is divine reason. As the ordered whole, the Platonic *Kosmos* implies that the intelligence of the heart (*nous*) and the soul of the world (*anima mundi*) are inseparable, while human reason as *nous* manifests in the form of intuition in intelligence.

Educators can mentor learners across the lifespan to create *noetic* knowledge not only by relying on search and research, but also by design inquiry (Seif, forthcoming) in conjunction with the edusemiotic 'faculties' of insight, intuition and imagination. In such mode of integrative education, it is love that informs the relations and new knowledge is created within the Peircean unbounded community of inquirers. Reflecting on my own learning and teaching experience, the only truth I have known, and what continues to surprise me, is love—the love of learning and the desire for creation. This naked truth of love, in all its forms, is not a forbidden sin or shameful act in studying, knowing and creating. For the only shame is our

complacency toward love, and the fallacy of a distorted sense of virtuous and sinful acts. For humans and other species, only love in its various forms transcends survivability and sustainability and enables thrive-ability and liveliness. The semioethical responsibility of educators, then, is to provide the context that opens the gateway of evolutionary love for learners, attracting them toward seeking new connections and creating meaning in the world. For teaching and learning the love of wholeness is the *raison d'être* of edusemiotics.

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Chapter 20

Learning from the Unconscious

Inna Semetsky

Abstract While human consciousness speaks in verbal language, the unconscious expresses itself in different regimes of signs including pictorial language: the language of images. This chapter addresses a specific theory-practice nexus centered on learning from the unconscious in the process of reading and interpreting the language of Tarot pictures. Combining Jung's archetypal psychology with Deleuze's philosophical method of transcendental empiricism and Husserl's phenomenology, the chapter presents the hermeneutics of Tarot as encompassing multiple lessons embedded in human experiences, situations and events. Tarot assists us in achieving an expanded and intensified scope of awareness that encompasses the level of existential meanings and values while also developing our intuitive abilities so that we learn to read, interpret and understand the language of the unconscious. Tarot edusemiotics relates to what Nel Noddings describes as a feminine or maternal factor: a mother is able to empathically 'read' and understand her, even preverbal, children.

Introduction

Semiotics differs from linguistics, which reduces signs to their verbal representation. Semiotics generalizes signs as embedded in any medium or sensory modality, thus broadening the range of semiotic systems and sign-relations and simultaneously extending the notion of language to include its analogical or metaphorical sense. According to contemporary cognitive scientist Ray Jackendoff (2001), who holds an ecological perspective on mind, even verbal utterances should be understood semiotically rather than linguistically, that is, in terms of their establishing a relation between a conscious mental representation as an expression and the unconscious as a hidden message. Images and pictures are extralinguistic signs (Sonesson 1989). Not only do "pictures have a continuous structure... [but] it [also]

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induces the reader to... read the picture as if it were a written text” (Posner 1989, p. 276). Our deep ‘thinking’—so deep that we may remain unaware of the inferential processes at this subtle level—proceeds in signs, in images, and not solely in the language of propositions employed by the conscious Cartesian subject. Semiotics posits cultural artifacts as capable of communicative potential; different objects and events in our life carry cultural, psychological and social significance and represent symbolic texts to be read and interpreted. This chapter addresses a specific theory-practice nexus centered on learning from the signs of the unconscious comprising the semiotic system of Tarot images and symbols.

Tarot readings, from the semiotic perspective, belong to “a branch of divination based upon the symbolic meaning attached to individual Tarot cards... interpreted according to the subject or purpose of a reading and modified by their position and relation to each other from their specific location in a formal ‘layout’ or ‘spread’” (Sebeok 1994, Vol. 1, p. 99). Learning from signs demands their reading and interpretation at the level of practical action. This learning is marked by Tarot symbolism. Such is the edusemiotics of Tarot images. Reading and interpreting the diverse signs embodied in Tarot pictures partakes of Julia Kristeva’s *semanalysis* (cf. Nöth 1995). *Semanalysis* is a portmanteau word referring to both semiotics and psychoanalysis and emphasizing interpretation and becoming conscious of the unconscious, thus challenging the self-conscious subject as the fixed product of the traditional educational system. Making the unconscious conscious is the prerogative of Tarot edusemiotics. Tarot assists us in achieving an expanded and intensified scope of awareness that encompasses the level of existential meanings and values while transcending times, places, language barriers, disparate beliefs and cultures. As pictorial artifacts, Tarot images represent dynamic patterns of thoughts, affects, emotions, feelings, and behaviors. Our experiential learning from the unconscious continues throughout life.

The Semiotics of Tarot

The Tarot sign-system consists of 78 images called Arcana: 22 Major and 56 Minor. The meaning of the word *Arcanum* (singular) is a creative, yet missing or obscured, element in our experiences, which is necessary to know in order to ‘solve’ multiple life-tasks in the midst of problematic situations and our complex relationships with others when we face decision-making or encounter moral dilemmas. If and when discovered—that is, made available to consciousness—it becomes a powerful motivational force to facilitate a change for the better at our emotional, cognitive or behavioral levels and thus to accomplish an important ethical and educational objective. Each *Arcanum* thus implies a moral dimension pertaining to what John Dewey (1922/1988) called human conduct. What is called a Tarot layout or spread is a particular pattern of pictures that stand for (as signs do, by definition) many ‘lessons’ derived from collective human experiences across times, places and cultures; yet the moral of these symbolic lessons—the very

meanings of Tarot signs—may be hiding deep in the field conceived by Carl Gustav Jung as the collective unconscious. Jung’s analytical or depth psychology presents the unconscious as ‘populated’ by archetypes that manifest by virtue of their effects but cannot be directly represented in consciousness: they need a specific medium. According to Marshall McLuhan, the medium is the message! The Tarot images communicate messages ‘hiding’ in the unconscious as the universal memory shared by humankind, thus theoretically having the same significance cross-culturally, at different times and in different places, even as pictures are polysemous. Even a photographic image is polysemous, that is capable of potentially acquiring a variety of meanings depending on its interpretation in a variety of contexts that may adopt a specific cultural code.

According to Roland Barthes’ example of the photo of the bald eagle, a physical image serves as a signifier, while the concept *per se* of the bald eagle is the signified. The photographic image of an eagle as such, representing the level of denotation, is a sign or a signifier. But importantly it is also a signified at the higher-order level of possible connotations: it is polysemic and may connote a plurality of meanings. Functioning as a potential signified, this image is characterized by a surplus of signification: it may mean either patriotism, or be a symbol of the American flag, or represent endangered species, or whatever else might be associated with it in a given cultural code, thereby producing a sign called by Barthes an associative total. Despite the form remaining the same, the content (meaning) is polyvalent.

Learning from signs is equivalent to pursuing education in three I’s as insight, imagination, and intuition; contrary to the long-standing tradition of three R’s of formal education. Tarot provides us with the system that fills the gaps “where education and trained sensibility are in short supply” (Hederman 2003, p. 86). Therefore,

each of us should be given at least the rudiments of one of the most elusive and important symbolic systems if we are even to begin to understand human relationships. This would require tapping into a wavelength and a communications system other than the cerebral, reaching what has been called the ‘sympathetic system’ as opposed to the cerebro-spinal one which covers the three Rs of traditional education (Hederman 2003, p. 87).

Tarot edusemiotics is equivalent to constructing and learning clinical and critical (Deleuze 1997; Noddings 2006) lessons that are embedded in the experiential process of human growth, both intellectual and ethical. The 56 minor cards comprise four suits numbered from Ace to 10 and include four ‘court’ cards in each suit; the progression of images represents problematic situations as important learning experiences. The action of signs (semiosis) never stops: pictures tell us multiple stories about feeling happy or being sad, making plans or breaking promises, winning or losing, experiencing financial difficulties or laying foundations for a marriage, falling in love or getting out of an abusive relationship, starting a new venture or experiencing separation anxiety, etc. The educational journey through the 22 major cards represents the process of Jungian ‘individuation’ from the Fool to the World (Fig. 20.1). The last Major Arcanum (the World) represents the

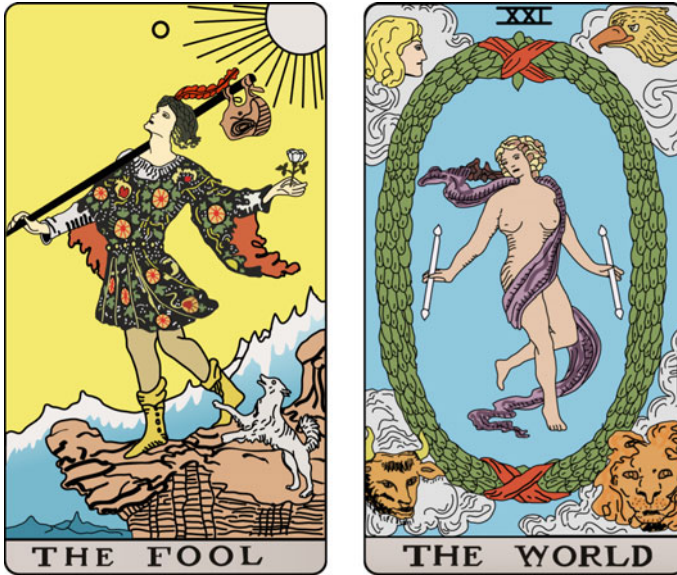


Fig. 20.1 Examples of Major Arcana

ultimate archetype of the Self as the ideally individuated “greater personality” (Jung, CW 7, 136) that has learned many of the lessons encountered in life and now strongly relates to the enviroing world, both cultural and natural.

The semiotic relation, established by means of a synchronistic connection (cf. Koestler 1972) enables insight into the meaning of a current situation, thereby making sense out of it. In cooperation with physicist and Nobel laureate Wolfgang Pauli, Jung posited synchronicity as a natural principle of meaningful coincidence between the psychical and physical worlds. As such, synchronicity constructs a bridge functioning in accord with the semiotic logic of the included middle equally applicable to the levels of ontology, epistemology and ethics.

Understanding the symbolic meanings embodied in the archetypal images of Tarot and bringing them to consciousness contributes to the re-symbolization of the Self (Semetsky 2011, 2013) in the process of gradually removing the Ego from its ‘center’ and enriching the human mind with other ways of knowing, including intuitive. Jung insisted on intuition’s unconscious nature, and it is Tarot edusemantics that ‘educates’ the human intuitive function invaluable for meaning-making and self-knowledge. Referring to self-education, Jung said:

At present we educate people only up to the point where they can earn a living and marry; then education ceases altogether, as though a complete mental outfit has been acquired... Innumerable ill-advised and unhappy marriages, innumerable professional disappointments, are due solely to this lack of adult education (Jung 1954, p. 47).

Jung was adamant that “the education of the educator...” “will eventually redound to the good of his pupils” (Jung 1954, p. 47). Such self-education,

however, should not be defined in terms of the currently popular continuing education as lifelong professional training, but “should make him properly conscious of himself” (Jung 1954, p. 46). Adults are educable; still, such education should not proceed exclusively along the lines of compulsory schooling. Jung considered the analysis of dreams to be “an eminently educational activity” (Jung 1954, p. 94). The interpretation of Tarot signs amounts to the method of adult education comprising a “process resulting from the independent activity of the unconscious” (Jung 1954, p. 49). Tarot readings are enabled by the relational dynamics of semiosis and create a ‘widened consciousness’ which

is no longer that touchy, egotistical bundle of personal wishes, fears, hopes, and ambitions which always has to be compensated or corrected by unconscious countertendencies; instead, it is a function of relationship to the world of objects, bringing the individual into absolute, binding, and indissoluble communion with the world at large (Jung, CW 7, 5).

The Feminine Factor

Nel Noddings, a renowned philosopher of education and founder of the relational ethics of care, addresses a mother’s ability to read her children as the “capacity for ‘empathy’” (Noddings 2010, p. 6). She refers to “the ‘reading’ process” (2010, p. 53) motivated by love, care and “*empathy* [as] the constellation of processes” (p. 56) that connects self and other in a relation which is ontologically, epistemically, and ethically basic. We can awaken such a maternal attitude at both individual and social levels via the medium of Tarot. Such “medium of communication is not merely a passive conduit for the transmission of information but rather an active force in creating new social patterns and new perceptual realities” (Logan 1986, p. 24). Tarot images speak ‘in a different voice’ (cf. Gilligan 1982/1993) and brings to the fore ‘women’s ways of knowing’ (Belenky et al. 1986) including insight, imagination and intuition (Greene 2000; Noddings and Shore 1984; Semetsky 2004, 2011). Michael Peters and John Freeman-Moir dedicate their volume *Edutopias: New utopian thinking in education* (2006) to future generation of educators capable of understanding that, with imagination, education can transform individuals, raise collective consciousness, and contribute to the development of a global civic society.

Analyzing the historically evident conflict between word and image, Shlain (1998) noticed “the plunge in women’s status” (p. viii) contingent on literacy taking over nonverbal means of expression. Even if the development of literacy is equated with progress, “one pernicious effect of literacy has gone largely unnoticed: writing subliminally fosters a patriarchal outlook. Writing... especially its alphabetic form, diminishes feminine values and with them, women’s power in the culture” (Shlain 1998, p. 1). Shlain reminds us of anthropologist Claude Lévi-Strauss challenging the supremacy of literacy and insisting that the establishment of hierarchical societies was linked to the appearance of writing: “Misogyny and patriarchy rise

and fall with the fortunes of the alphabetic written word” (Shlain 1998, p. 3). The interpretation of images depends on the ability of ‘feeling with’ (Noddings 2010, p. 73), on empathy and sympathy. Jim Garrison, a philosopher of education, refers to sympathetic data as describing intuitions and perceptions that make possible our understanding of others; he is aware nonetheless that “our culture has not evolved highly refined methods of collecting [those] data... researchers do not perform careful interpersonal experiments, [and] the theories of human thought, feeling, and action remain... remarkably underdeveloped” (Garrison 1997, p. 35). Yet it is precisely sympathetic, inter-subjective, data that are maximally “relevant to the topic of teaching” (p. 36) and learning, to pedagogy as a whole that includes “learning to read the other” (Noddings 2010, p. 73).

Describing the two paths to morality, Noddings (2010) expresses hope for the convergence between traditional and relational ethics that includes “reading the emotional state, needs, and intentions of others” (p. 170). She notices that with appropriate guidance such capacity can be brought to a high level. Tarot edusemiotics can provide the required guidance when a reading functions as a pedagogical aid or a counseling practice that can contribute to human development; but also by virtue of Tarot’s potential ability to bring back into the culture *becoming-woman* (using Gilles Deleuze’s poignant expression) as symbolic of the revitalization of society that has long subscribed to a solely masculine worldview embedded in “*linear, sequential, reductionist, and abstract thinking*” (Shlain 1998, p. 1; italics in original). Tarot images demonstrate the possibility of the complementary perceptual mode in terms of “*holistic, simultaneous, synthetic, and concrete*” (Shlain, 1998, p. 1; italics in original) qualities that appear to have been lost in the course of modernity during which the verbal word became the major medium of communication.

Presenting feminist spirituality as an alternative to traditional patriarchal religion, Noddings (1993) acknowledges that women have long suffered inferiority under the prevailing theological and philosophical theories. The different, feminine, language of Tarot images not only voices out spiritual values that thus can be re-created and absorbed into culture, but also puts these values into practice so as to help those *in need*. The ethics of care and its follow-up, the ethics of integration (Semetsky 2010), derive not from human rights but from human needs. Still, educational theorists and policy makers, even if working with the concept of needs, often remain uncertain of how to identify and interpret needs. The basic need at the forefront of Tarot edusemiotics is

the need to be heard, recognized. In the conditions of natural caring, each human being is comfortably aware that *if* a need arises, someone in the circle of care will respond... A particular need may or may not be met, but it will receive a sympathetic hearing (Noddings 2010, p. 181).

Such a circle of care is enabled by the process of semiosis, by the action of signs as fundamental *relations* that lay down a semiotic bridge connecting self and other. So it is the natural dynamics of sign-process together with the “conditions of natural

caring [that] establish the best climate for the identification of needs” (Noddings 2010, p. 181) that people often fail to verbalize. Yet they can become available to consciousness when the language of images is read, interpreted and understood.

The Role of the Unconscious in Deleuze’s Philosophy

For Gilles Deleuze, rational consciousness is insufficient because what is yet ‘unthought’ is capable of producing practical effects in human experiences. Deleuze considers “*an unconscious of thought* [to be] just as profound as *the unknown of the body*” (Deleuze 1988b, p. 19; Deleuze’s italics). The quality of profundity relates Deleuze-Guattari’s mode of the production of subjectivity to Jung’s depth psychology where the unconscious is a major factor. It is a semiotic, transpersonal, unconscious that resists a reduction to the master-signified represented by the Freudian Oedipal complex. Contrary to behaviorist psychology positing an individual born as *tabula rasa*, the Jungian unconscious is inhabited by archetypes. Analogously, Deleuze is adamant that “one never has a *tabula rasa*; one slips in, enters in the middle” (p. 123). Deleuze’s ontology posits the world as consisting not of substances but of relational entities (signs) or multiplicities. The geography of relations transcends the dualistic split of nature and mind by establishing a bond between them. The conjunction ‘and’ is a feature of the logic of multiplicities, the defining characteristic of which is the relational dynamics of becoming in contrast to static being.

Deleuze is an odd figure in continental philosophy because of his affinity with the pragmatic tradition (Semetsky 2006) and such philosophers as Peirce and Dewey. Deleuze-Guattarian semiotics is a-signifying, that is, defying a simple dyadic relation between signifier and signified, content and expression. There is no *a priori* identity between word and object; rather they are variables in a mutual assemblage. Linguistic truths are not all there is: we “are wrong to believe in truth; there are only interpretations” (Deleuze 2000, p. 92). From the perspective of semiotics, language and the world form a single extralinguistic fabric, and meanings are conferred by virtue of mediation in the relational network constituting a sign-process, resembling the growth of a rhizome as an a-centric web of signs that are ‘regulated’ not by mechanical laws but by organic growth. Rhizome is a metaphor for unlimited growth through multiple transformations characterized by “new connections, new pathways, new synapses” (Deleuze 1995, p. 149) as a result of experimental and experiential learning. The rhizome, as a complex network of relations, describes an open system of interactions; there isn’t a single crossing point but rather a multiplicity of “transversal communications between different lines” (Deleuze and Guattari 1987, p. 11). Such conceptualization permits a shift of focus from the static body of factual knowledge to the dynamic process of experimental knowing, thereby having far-reaching implications for education as a developing and generative practice. Fixed facts give way to the production of new

meanings in accord with the logic of sense (Deleuze 1990). Rhizome as a biological notion defies the primacy of *classical* physics as a scientific model for all other discourses, including education that tends to be located in social sciences where research methods are often borrowed from the outdated paradigm of classical mechanics with its *direct* linear causality.

Semiotics, however, demonstrates an *indirect* (mediated) connection by virtue of the included middle ‘element’ forming a transversal communication as a conjunction of opposites analogous to Peirce’s triadic semiotics and Dewey’s transactional logic. Philosophers, like creative artists, are semioticians, symptomatologists and *apprentices* who read and interpret signs as symptoms of life. In accord with a-signifying semiotics, signs enter into self-referential relations (dubbed circular, thus begging the question, in analytic philosophy). The included third puts to flight direct representations of the philosophy of language. Deleuze and Guattari employ Peirce’s notion of a diagram as a constructive part of sign-dynamics. A diagram is a semiotic bridge connecting two “inseparable planes in reciprocal presupposition” (Deleuze and Guattari 1987, p. 109). These planes can take many guises. Ontologically, the creation of a semiotic ‘assemblage’ depends on the actualization of the virtual because “from virtuals we descend to actual states of affairs, and from states of affairs we ascend to virtuals, without being able to isolate one from the other” (Deleuze and Guattari 1994, p. 160). Both planes are metaphysically real, and the difference between them is bridged by a transversal connection. Epistemologically, the virtual field ‘contains’ the unconscious ideas of which we can become aware when they are actualized in the material encounters constituting lived experience. The virtual produces effects which are embodied in actual experiences, in practical learning as the interpretation of signs and reevaluation of experience: becoming conscious of the unconscious! The conjunction of the unconscious and consciousness takes place in the material, sensible, world at the level of empirical reality. Deleuze’s empiricism is radically transcendental, bringing together different series of signs. The conjunctive, yet only apparently mystical, event constituting a participative encounter, in contrast to detached observation, is exemplary of Tarot edusemiotics that demonstrates “a different logic of social practice, an intensive and affective logic of the included middle” (Bosteels 1998, p. 151).

Narrating the pictures brings to the surface the structural homology in the relations between the image and its *Sens*. The French word *Sens* means at once sense (or meaning) and direction of the course of action in our practical life, and therefore has both epistemological and ethical connotations. Such a ‘surface’ is at once metaphorical and literal, as Tarot pictures are spread on a flat surface in a particular layout during readings. A complex and *incorporeal* concept is capable of being expressed in a pictorial, that is *corporeal*, language and thus of acquiring meaning via its very *embodiment*. Surface serves as “the locus of *sense*: signs remain deprived of sense as long as they do not enter into the surface organization which assures the resonance of two series” (Deleuze 1990, p. 104): incorporeal mind and corporeal matter. It is lines of flight—lines of becomings—that lead us

into the World, alternatively called the Universe in some Tarot decks. As Deleuze says, “Each one of us has his own line of the universe to discover, but it is only discovered through tracing it” (1986, p. 195), through living and learning as the means of acquiring deep self-knowledge or Gnosis via the ‘esoteric’ language of images.

The layout of Tarot pictures is a type of cartography; and “the cartographies of the unconscious would have to become indispensable complements to the current systems of rationality of the science, politics, and all other regions of knowledge and human activity” (Guattari, original French, in Bosteels 1998, p. 155). Cartography, in semiotic terms, is a mode of graphic communication capable of transmitting information by means of a visual channel. Graphic information may be expressed in the form of a diagram, network and a map, or in a mixed format of a cartogram as a diagram superimposed on a map. Tarot layout displays a certain structure. According to Deleuze, anything can possess a structure insofar as this ‘thing’ maintains even a silent discourse, such as the language of signs and images. Deleuze presents semiotic structures as unconscious and necessarily overlaid by their products or effects. The subtle language of the unconscious is to be perceived: the imperceptible (yet intelligible) is *shown* (made sensible) by means of transversal communication so as to bring “assemblage of the unconscious to the light of day, to select the whispering voices, to gather the tribes and secret idioms from which I extract something I call my Self (*Moi*)” (Deleuze and Guattari 1987, p. 84). Prior to readings, human subjectivity is pre-personal and a-conceptual; and comprises “the fractured I of a dissolved Cogito” (Deleuze 1994, p. 194). These fractures are to be made *whole* by integrating the unconscious into consciousness within the hermeneutics of Tarot.

An authentic Tarot reader pursues different series, travels along different levels and crosses thresholds of the barely liminal, thus bringing to awareness the unthought, unconscious, dimension via the self-referential relation represented by “*a power to affect itself, an affect of self on self*” (Deleuze 1988a, p. 101). Says Deleuze: “I undo the folds of consciousness that pass through every one of my thresholds, the ‘twenty-two folds’ that surround me and separate me from the deep” (1993, p. 93). These 22 folds correspond to the number of Major Arcana in a Tarot deck. Each subsequent card represents the evolution in human consciousness as a function of experience in the phenomenal world. The unfolding of non-thought in the process of becoming presents “life as a work of art” (Deleuze 1995, p. 94). In order to become the individuated Self one has to engage with the signs of experiences so as “to bring something to life, to free life from where it’s trapped, to trace lines of flight” (Deleuze 1995, p. 141). Indeed without taking a risk and leaping ahead into the abyss of experiences—tracing a line of flight—the Fool (Fig. 20.1) would have forever remained a fool, without the possibility of ever reaching the final Arcanum, the World. The Fool’s growth proceeds along a paradoxical “line of becoming [that] is not defined by points that it connects, or by points that compose it; on the contrary, it passes *between* points, it comes up through the middle” (Deleuze and Guattari 1987, p. 293). Such a paradoxical ‘middle’ is at the core of

semiotics and edusemiotics. Deleuze addresses paradoxes in his book *The Logic of Sense* (1990). This logic is not “the logic of a [verbal] language. It is a description of the [semiotic] structures that appear when being is understood as the encounter of events and series” (Williams 2008, p. 23; brackets mine). This is logic pertaining to diverse regimes of signs encompassing the paradoxical language of Tarot. Williams notices that the key cases in Deleuze’s book relate to contradictions and paradoxes, and Deleuze demonstrates how they make sense despite their apparent “logical invalidity” (Williams 2008, p. 24) within the framework of the classical logic of the excluded middle.

As “the presentation of the unconscious” (Deleuze 1994, p. 192), it is the transversal connection materially represented by the Tarot layout that constructs what Deleuze called the plane of immanence, while “bring[ing] into being that which does not yet exist” (Deleuze 1994, p. 147) and subsequently engendering “the representation of consciousness” (Deleuze 1994, p. 192). The plane of immanence is populated by dreams and esoteric experiences; the plane must be laid out—shown rather than thought—such is the “supreme act of philosophy” (Deleuze and Guattari 1994, p. 59) that manifests in *practice* when the Tarot spread is being read and interpreted. The plane of immanence “does not immediately take effect with concepts... and its layout resorts to measures that are not very respectable, rational or reasonable” (Deleuze and Guattari 1994, p. 41); it is pre-rational and a-conceptual while enabling “the conquest of the unconscious” (Deleuze 1988b, p. 29) when it is constructed by means of a Tarot layout expressing multiple contingencies and contexts embodied in pictures.

The interpretive process necessarily includes involuntary, virtual and unconscious, ‘memories’ similar to those of which the protagonist in Marcel Proust’s novel became aware when he actually tasted a madeleine. Such is the process of experiential learning and becoming conscious of the unconscious. Deleuze (2000) discusses such learning in terms of an apprenticeship in signs, tracing the stages whereby the protagonist learns that signs are to be apprehended neither by means of objective nor subjective criteria, but in terms of their “extra-propositional or sub-representative problematic instance” (Deleuze 1994, p. 192) immanent to experience, to life. The realm of the virtual is reminiscent of the Jungian archetype of the Shadow or, as Deleuze put it, the shadow around the words. Nonetheless it can be actualized or made conscious. Deleuze and Guattari’s cartographic method, manifesting in Tarot readings, becomes a means for mapping the structural multiplicities of behaviors, feelings, and (un)thoughts. The Tarot Arcana are literally laid out on the plane of immanence, thereby mapping the deep worlds of the *psyche* that often “suggest ‘highs’ or periods of depression” (Deleuze and Guattari 1987, p. 70) at the subtle, affective, level. The process of individuation is impossible without the implicit presence of the unconscious affects which exceed subjective feelings but are “becomings that spill over beyond whoever lives through them (thereby becoming someone else)” (Deleuze 1995, p. 127). Deleuze and Guattari say that affects traverse one’s universe of being “like the beam of light that draws a hidden universe out of the shadow” (1994, p. 66); this hidden, invisible, universe becoming

known—visible—to us in the form of inner, Gnostic, knowledge embodied in the edusemiotics of Tarot. This is not just knowledge of empirical facts: Tarot readings bring to awareness existential meanings and “sense is essentially *produced*. It is never originary but is always caused and derived” (Deleuze 1990, p. 95).

Jung emphasized the prospective function of the unconscious or what Deleuze, following Henry Bergson, called the memory of the future that, together with all of the past, is enfolded in the cosmic “gigantic memory” (Deleuze 2001, p. 212) combining all three syntheses of time. Indeed the past, present and future aspects paradoxically coexist in the Tarot layout. It is during esoteric experiences, for Deleuze, such as dreams, or *déjà-vu*—and of course, Tarot readings—when both the past and the potential future can be unfolded. Genuine edusemiotics reflects the future-oriented productivity of affect and is capable of transcending “spatial locations and temporal successions” (Deleuze 1994, p. 83). We can achieve an expanded perception of time and space that become “released from their human coordinates” (Deleuze 1986, p. 122). Deleuze used the term parallelism with regard to the mind-body problem, asserting that there must be a threshold that brings thought to the body. Such a semiotic relation exists between the virtual and the actual—both real—that require a threshold for their connection achieved by the method of transcendental empiricism which is founded on “the doubling process” (Deleuze 1988a, p. 98). Doubling is taken in a sense of unfolding that presupposes the necessary existence of an extra dimension, without which the concept of fold wouldn’t make sense. It is Tarot edusemiotics that allows us to actually *see* “an interiorization of the outside” (Deleuze 1988a, p. 98): that is not attempting to grasp an abstract concept but see it as a concrete material object when the assemblage of body and mind is created in practice. Just to become able to see it, we have to re-redouble or *transcend* it in a ‘primitive’ mode of a layout of cards.

The term ‘transcend’ acquires the meaning of bringing down to earth, or grounding the concept by embodying it so as to project or unfold that what was enfolded. This is done by literally out-placing ‘the other in me’ on the transversal link created by Tarot between parallel planes or levels. The transversal link produces a triadic quality in the relationship between the two and makes Tarot a sign *par excellence*. The layout is “installing [itself] transversally to the machinic levels [such as the] material, cognitive, affective and social... and it is this abstract machine that will or will not give these levels an existence” (Guattari 1995, p. 35). The layout creates the conditions for actualization, hence serving a function of a semiotic “bridge, a transversality” (Guattari 1995, p. 23) constructed in practice and not solely formulated in theory! What Deleuze calls thinking is “not just a theoretical matter. It [is] to do with vital problems. To do with life itself” (Deleuze 1995, p. 105). This true, vitalistic and enduring, even if invisible and virtual, life is a life as pure immanence (Deleuze 2001) which is concealed in the transcendental field of the Jungian collective unconscious. The embodiment of the transcendental field allows it to merge with its own ‘object’ which, despite always being immanent in perception, would remain disembodied or virtual—and as such unknown—in the absence of reading and interpretation.

Revisiting Husserl's Phenomenology

While 'reading' is a conventional term for interpreting a Tarot spread, the meaning of it comes close to what contemporary cognitive science conceptualizes as a theory of content determination for mental representations; and especially with regard to habits as their psychological grounding. If "certain sorts of ink spots... have certain effects on the conduct, mental and bodily, of the interpreter" (Peirce, CP 4.431, in Von Eckardt 1996, p. 151), then interpretation of their meanings would lead to habit-change. Due to the mediating, diagrammatic, function of interpretation, the latent, unconscious, contents of the mind are rendered conscious, and the signs which are brought to the level of awareness, that is, intensified and amplified up to the point of their integration into consciousness, are capable of creating a momentous feedback in the psychodynamic processes. Such a self-reflective process is capable "of producing a change in the subject's mental life which, in turn, changes his or her disposition to act... in ways dependent *on the content of the representation*" (Von Eckardt 1996, pp. 283–284). The ability of the mind to be about something or to have some content constitutes intentionality as the mark of the mental. Edmund Husserl's phenomenology is a study of intentional objects or *noemata*. *Noema* is a structure of experience and is present to consciousness even if in the form of implicit meaning of which we are unaware.

The element of self-reflection enabled by the triadic logic during Tarot readings makes Husserl's theoretical concept a lived reality by virtue of laying out noemata as extralinguistic virtual meanings that constitute the experiential structures of the life-world. Noematic objects are simultaneously transcendent to and immanent in the mental process. Husserl and Deleuze were both looking toward transcending the limitations of ordinary experience and expanding the realm of meanings beyond the common sense. Tarot edusemiotics demonstrates in practice that "immanence and transcendence [are] inseparable processes" (Williams 2010, p. 94) and enables us to intuit the character and nature of such an extraordinary experience as reading and interpreting Tarot images. *Noesis*—or intuition—as an operation of the *Nous*, represents the highest portion of human knowledge. Phenomenology assigns an important function to intuition in terms of its sense-fulfilling or meaning-making quality. Husserl referred to intuition as "*a source of authority... for knowledge, ... whatever presents itself... in primordial form... is simply to be accepted*" (in Noddings and Shore 1984, p. 31; italics in original). The noetic and noematic are ideally two sides of the same experience: in semiotic terms they comprise a single, albeit double-sided and Janus-faced, entity, a genuine sign.

Analogously, the realms of the sensible and intelligible are not opposed to each other: they form a semiotic fold. A structure laid down by Tarot pictures consists of meaningful patterns that would otherwise remain outside of sensible experience, subsisting at the level of the intelligible. The process of reading and interpretation is of virtual objects, yet represented by actual cards. These objects—as new concepts, meanings and values—become "given through the [interpretive] act" (Zahavi 2003, p. 90)—the act of unfolding hidden meanings. The fold was specifically described

by Deleuze as “the inside *of* the outside” (Deleuze 1988a, p. 97). Thoughts, emotions, hopes, fears, interpersonal relationships, intrapsychic conflicts, in short, all the patterns of the life-world, of which however the subject of the reading is not yet aware at the conscious level, are represented in the layout. The integration of the unconscious into consciousness takes place during readings, thereby overcoming our alienation from others (as well as from one’s authenticity) and leading, in accord with Husserl’s original project, to a progressive disclosure of transcendental inter-subjectivity, within which a subject is to be individuated, that is constituted as an individual via the relational dynamics of becoming-other. Signs, in the process of their evolution (as semiosis) are becoming other signs. Human subjectivity grows and develops as the function of learning from the unconscious.

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Index

Note: As sign, meaning, semiotics, edusemiotics, language, learning, education, human and linguistics appear frequently, they are not included in isolation.

A

- Abduction, 8, 13, 16, 61, 68, 79, 88–90, 108, 120, 139, 140, 143, 146, 147, 149, 185, 188, 191, 202, 228, 271
- Abductive, 88, 139, 141, 143, 148, 149, 185, 268
- Ability, 8, 19, 81, 101, 115, 116, 126, 134, 151, 154, 172–174, 176, 182, 244, 281, 282, 288
- Object-experience, 246
- Abjection, 245–247, 261
- Absence, 112, 118, 124, 142, 146, 210, 216, 249, 251, 254, 255, 257, 258, 287
- Absolute, 10, 58, 59, 153, 249, 250, 254, 256, 259, 275, 281
- Abstraction, 36, 50, 51, 53–56, 58, 59, 72, 171, 180, 200, 250
- Academic self, 151, 154, 156, 162
- Academy, 10, 15, 25, 156
- Achievement, 22, 26, 41, 94, 95, 101–103, 105, 106, 128, 259
- Act, 50, 55, 83, 85, 86, 88, 90, 109, 110, 112, 113, 123, 129, 130, 133, 138, 139, 143, 146, 158, 167, 170, 173, 176, 181, 184, 186, 208, 210, 213, 218, 220, 233, 242, 244, 246, 256, 257, 264, 265, 267–274, 286, 288
- Action, 3, 5–8, 10, 12, 17, 18, 20, 22–26, 32, 83, 85–87, 89, 90, 94, 99, 104, 105, 116, 123, 126, 130, 133, 134, 137–139, 141–143, 146, 148–151, 168, 172–177, 180, 182, 187, 188, 191, 198, 203, 204, 207, 208, 215, 230–232, 264, 270, 278, 279, 282, 284
- Action of signs, 3, 10, 17, 18, 20, 22, 23, 25, 26, 85, 137, 138, 143, 204, 279, 282
- Activity, 17, 20, 29, 35, 47, 52, 84, 86, 90, 94, 101, 174, 197, 201, 211, 213, 217, 222, 228, 252, 260, 266–268, 281, 285
- Actor, 17, 134, 220
- Actual, 7, 17, 19, 21, 22, 26, 33, 34, 49, 51, 56, 58, 63, 64, 68, 73, 126, 185, 202, 230, 251, 252, 284, 287
- Actuality, 31, 33, 83, 86, 205, 252
- Adaptation, 194, 202, 204
- Adorno, T., 156, 157, 159, 257, 260
- Adult education, 9, 49, 270, 280, 281
- Adult(s), 9, 159, 215–219, 259, 270, 280, 281
- Aesthetic(s), 41, 54, 82, 93, 95, 98, 116, 130, 147, 163, 179–183, 204, 210, 220, 224, 229, 239, 244, 250, 251, 253, 257, 260, 261, 264
- Affect, 1, 5, 10, 100, 101, 105, 134, 144, 147, 148, 175, 227, 228, 230, 231, 234, 237, 242, 246, 254, 259, 278, 285–287
- Affinity, 137, 145, 235, 236, 239, 256, 283
- Affirmation, 128–130, 168
- Agape, 272–274
- Agency, 8, 36, 161, 174, 208, 218, 233
- A-historical, 160, 236
- Alêtheia, 124
- Algebra, 9, 53, 58, 73
- Algebraic, 35, 51, 53, 61
- Algorithm, 149
- Alienation, 174, 289
- Allegoresis, 195, 198
- Allegorical, 195, 267
- Allen, W., 151–153, 162
- Alphabet, 61, 241, 290
- Alterity, 212, 218
- Ambiguity, 125, 132, 153, 180, 181, 240, 245
- Ambiguous, 176, 246, 260

- Analogy, 71, 86, 169, 172, 198–200
 Analysis, 1, 3, 5, 16, 54, 56, 59, 64, 68, 70, 71, 99, 102, 105, 108–112, 119, 120, 125, 139, 156, 160, 169, 201, 209, 219, 220, 223, 238, 239, 241, 266, 281, 290
 Analytic, 3, 5–8, 36, 83, 95, 140, 142, 145–147, 149, 169, 174, 211, 239, 254, 284
 Ancient, 1, 4, 9, 13, 26, 79, 149, 154, 183, 184, 197, 198, 200, 204, 228, 233, 265, 266, 269, 274
 Anderson, D., 80, 90
 Andragogy, 270
 Animal, 21, 23, 24, 26, 125, 185, 201
 Anthropocentrism, 8
 Anthropological, 26, 193, 197, 201, 290
 Anthropology, 19, 25, 200, 201, 219, 245
 Anthropos, 26, 200
 Anthropeomiosis, 19, 20, 26
 Anti-dualism, 17, 246
 Anxiety, 130, 152–154, 162, 163, 189, 222, 264, 265, 279
 Aoki, D., 156
 Application, 36, 50, 55, 56, 58, 106, 130, 135, 139, 145, 191, 257
 Apprenticeship, 49, 202, 286
 Arbitrary, 29, 32, 33, 36, 51, 179, 180, 187
 Arcana, 278, 280, 285, 286
 Arcanum, 278, 279, 285
 Archetypal, 230, 277, 280
 Archetype, 176, 189, 230, 233, 279, 280, 283, 286
 Argument, 25, 41, 63, 67, 87, 89, 98, 183, 184, 187, 198, 203, 210, 239, 240, 290
 Aristotle, 7, 18, 22, 24, 122, 145, 184, 222, 254
 Arithmetic, 50, 52, 53
 Art, 2, 3, 9, 12, 25, 39, 44, 48, 49, 54, 56, 61, 90, 95–98, 116, 127, 128, 130, 150, 153–155, 157, 164, 167–169, 171, 176, 177, 180, 193, 194, 199, 200, 204, 205, 218, 219, 222, 224, 225, 228, 231, 234, 236, 238, 240, 241, 247, 249–259, 261, 271, 274, 275, 285, 289, 290
 Artifact(s), 11, 16, 252, 278
 Artistic, 11, 128, 145, 239–241, 245, 246, 250, 256, 259, 260
 Artistic practice, 239–241, 245, 250, 259
 A-signifying, 283, 284
 Assessment, 7, 49, 82, 106, 163, 214, 220
 Association, 2–4, 19, 85, 89, 115, 116, 181, 182, 184, 188, 190, 210, 213, 238, 245, 275
 Assumption, 19, 21, 36, 74, 95, 97, 98, 100–102, 108, 115, 126, 148, 156, 158, 160, 167, 170, 171, 202, 222
 Atom, 41, 65, 66
 Atoofi, S., 221, 225–227, 230, 233
 Australian Values Education Program, 93, 102
 Authentic, 98, 99, 106, 151, 155, 160, 285
 Authenticity, 126, 127, 157, 289
 Author, 12, 79, 121, 151, 155, 165, 166, 169, 171, 172, 174, 175, 179, 181–183, 191, 198, 199, 201, 203, 208, 250
 Autonomy, 97, 157
 Autopoiesis, 268
 Awareness, 10, 16, 21–26, 84, 117, 124, 143, 180, 182, 215, 228, 229, 234, 277, 278, 285, 287, 288
 Axiological, 214
 Axiology, 109
 Ayer, A. J., 95–98, 102–104
B
 Bacon, R., 184
 Bakhtin Circle, 213
 Bakhtin, M., 12, 207, 209–214, 217, 219, 220, 239, 267, 274
 Balance, 105, 130, 144, 253, 265
 Barthes, R., 12, 239, 245, 247, 279
 Bataille, G., 263–265, 267, 274
 Baudrillard, J., 263, 265, 274
 Beautiful, 147, 149, 185, 220, 225, 234, 266, 268, 269
 Beauty, 146, 229, 234, 263–265, 267–270, 274, 275
 Behavior, 56, 71, 94, 102, 103, 116, 142, 154, 156, 168, 222, 228, 230–232, 246, 252, 264, 265, 278, 286
 Behaviorism, 64, 70
 Behaviorist, 63, 222, 283
 Belief, 21, 36, 43, 97, 99, 100, 102, 141, 144, 148, 168, 175, 184, 232, 240, 246, 278, 290
 Benveniste, E., 235, 236, 238–245, 247
 Bergson, H., 156, 287
 Besley, T., 13, 150, 152, 157, 162, 163
 Best practice, 221
 Bible, 195, 198, 266
 Biblical, 195, 198, 199, 266
 Big Bang, 251, 252
 Bildung, 121–123, 126, 127, 134, 157, 204
 Binaries, 5, 144, 222
 Binary opposites, 7, 8, 139, 146, 222, 249, 254, 271
 Biological, 26, 114, 115, 202, 265, 274, 284
 Biology, 4, 12, 25, 32, 100, 204, 205
 Biosemiotics, 2, 193, 196, 202, 203
 Bipolar, 59, 144, 145
 Black hole, 249–253, 255, 256, 258, 260
 Black, M., 63, 65, 75
 Blind spot, 95, 98–100

- Body, 4, 5, 12, 17, 23, 24, 41, 63, 70, 72, 93, 100, 131, 138, 139, 141, 145, 146, 148, 149, 160, 187, 193, 194, 196, 200–202, 205, 210, 222, 233, 237, 254, 256, 259, 283, 287
 Bodymind, 6, 138, 234
 Bohm, D., 146, 271, 274
 Bohr, N., 65, 67, 146
 Bollnow, O.-F., 122, 125–127, 129, 131, 133, 134
 Book of nature, 19, 25, 186, 188, 195, 202, 203
 Borges, J. L., 184, 185, 190, 191
 Bosteels, B., 284, 285, 289
 Boundary, 4, 6, 20, 253, 265
 Brain, 72, 95, 101, 104, 105, 197, 202, 222, 232, 233
 Butler, J., 161, 162
- C**
 Calculus, 49, 50, 54, 56
 Cantor, G., 72
 Capacity, 2, 31, 35, 36, 39, 50, 73, 81, 86–88, 90, 95, 98, 99, 145, 167, 172, 175, 197, 199, 245, 250, 254, 266, 268, 281, 282
 Capra, F., 5, 12
 Care, 8, 81, 82, 94, 95, 154, 159, 160, 176, 229, 275, 281, 282
 Care of the self, 154, 159
 Carnap, R., 36, 44
 Cartography, 285
 Cassirer, E., 210–212, 219
 Categories, 6, 9, 16, 18, 33, 55, 58, 61, 64, 71, 74, 76, 83, 84, 127, 134, 137–139, 183, 197, 202, 210, 213, 217, 222, 237, 244, 271
 Category theory, 47, 48, 56, 58–61
 Causality, 22, 26, 129, 146, 190, 284
 Cause, 18, 22, 32, 57, 84, 130, 152, 155, 183, 190, 199, 259, 260
 Centrifugal, 188, 209
 Centripetal, 188, 207, 209, 216
 Certainty, 96, 98, 150, 165, 169, 190, 197, 208, 212, 217
 Challenge, 9, 10, 12, 13, 27, 44, 50, 54, 60, 61, 76, 77, 90, 93, 100, 105, 123, 125, 127, 135, 147, 148, 171, 208, 214, 217–220, 221, 233, 234, 237, 260, 261, 263, 268, 275
 Chance, 22, 82, 138, 150, 197, 273
 Change, 3, 4, 6, 7, 18, 25, 49, 66, 102, 110, 116–118, 121, 127, 132, 133, 141, 143, 155, 166, 171–173, 197, 208, 213, 232, 242, 243, 246, 254, 260, 261, 269, 270, 278, 288, 290
- Character education, 8, 104, 163
 Child, 9, 33, 106, 167, 209, 214, 267
 Childhood, 50, 107, 207, 209, 214, 218–220
 Children, 58, 71, 73, 150, 154, 159, 161, 211, 216, 218–220, 227, 229, 259, 270, 275, 277, 281
 Choice, 74, 109, 117, 142, 143, 152, 155, 223, 237, 265, 271
 Chomsky, N., 236, 237
 Chora, 228, 249–254, 258, 260
 Christian, 160, 177, 193, 195, 198, 205, 267
 Christodoulou, A., 107, 112, 120
 Chronotope, 210, 217
 Church, 185, 195, 204, 228, 267
 Churchland, P., 101, 104, 222, 233
 Cipher, 190
 Circle, 18, 20, 50, 108, 126, 129, 133, 165, 166, 169, 170, 172, 175, 196, 213, 282
 Classroom, 2, 6, 9, 11, 24, 30, 31, 34, 35, 37, 40, 42, 49, 50, 52, 55, 56–58, 70, 73–76, 94, 95, 209, 211, 218, 219, 221–228, 231, 233
 Clinical, 148, 150, 279, 289
 Clue, 18, 96, 181, 185, 189, 207, 208, 253
 Code, 49, 97, 109, 111–119, 131, 166, 171, 179–182, 187, 188, 195, 207, 209, 211, 223, 225, 228, 236, 240, 279
 Coding, 53
 Coercion, 123
 Cogito, 140, 149, 156, 285
 Cognition, 5, 6, 13, 21, 48, 52, 61, 68, 69, 74, 77, 86, 93, 100, 101, 140, 141, 184, 191, 250, 260
 Cognitive, 11, 22, 29, 48–50, 52, 54, 55, 63, 64, 69, 74–77, 83–85, 93, 99–101, 103, 104, 143, 180, 185, 210, 219, 222, 232, 237, 259, 265, 277, 278, 287, 288, 290
 Cognitive science, 76, 77, 210, 222, 288, 290
 Colapietro, V., 30, 44
 Collective, 114, 162, 184, 230, 233, 246, 265, 278, 279, 281, 287
 Collective unconscious, 230, 233, 279, 287
 Color, 23, 202, 253, 257, 258
 Common sense, 20, 57, 147, 288
 Communicate, 52, 171, 194, 228, 237, 279
 Communication, 2, 3, 8, 11, 13, 18, 33, 43, 49, 94, 107, 108, 120, 146, 161, 166, 170, 172, 180, 212, 214, 218, 230, 239, 240, 242, 275, 279, 281–285
 Communion, 281
 Community, 3, 10, 12, 22, 26, 44, 49, 52, 97, 99, 163, 167, 168, 196, 232, 234, 273

- Competence, 19, 71, 100, 123, 130, 131, 134, 135, 194, 200–202, 204
- Complementarity, 5, 11, 145, 146
- Complementary, 5, 8, 9, 11, 69, 128, 137, 139, 141, 145–147, 149, 150, 175, 194, 222, 232, 233, 258, 271, 282
- Complementary pair, 8, 11, 137, 141, 145, 147, 222, 232
- Complete, 10, 40, 58, 68, 87, 102, 125, 150, 153, 172, 184, 186, 191, 205, 226, 240, 280
- Completeness, 265, 272
- Complex, 2, 5, 66, 93, 99, 100, 102, 142, 145, 161, 172, 188, 203, 208, 209, 212, 215, 217, 251, 252, 257, 259, 264, 275, 278, 283, 284
- Complexity, 60, 84, 87, 95, 99, 100, 102, 103, 105, 106, 161, 165, 171, 209, 213, 214, 218
- Complexity science, 95, 99, 100, 102, 103, 105
- Complexity theory, 99
- Computation, 76, 149
- Computer, 50, 53, 69, 99, 154, 171, 189
- Conan Doyle, A., 184, 185, 190, 191
- Conception, 1, 6, 9, 10, 25, 52, 55, 84, 86, 87, 95, 101, 124, 134, 138, 139, 141, 160, 166, 181, 184, 202, 217, 237, 242, 245, 251, 252, 254
- Concept(s), 3, 13, 22, 23, 30–33, 35–37, 39, 43, 44, 47, 49, 50, 54, 58, 59, 68, 74, 87–89, 98, 99, 109–111, 113, 118, 121, 122, 124–131, 135, 139, 148, 150, 152–154, 156–158, 160, 162, 163, 171, 173, 186, 196, 197, 199–202, 204, 208–212, 214, 215, 221–223, 228, 235–238, 240–243, 251, 254, 263, 265, 269, 270, 273, 279, 282, 284, 286–288, 290
- Conceptual, 1, 4, 5, 12, 36, 44, 47, 48, 51, 54, 59, 61, 63, 73–77, 93, 96, 107, 109, 140, 141, 144, 148, 166, 181, 207, 211, 245, 249, 250, 258, 263, 273
- Confession, 151, 155, 163, 182, 200
- Conjectural, 187, 190
- Conjecture, 77, 149, 181, 185–188, 190
- Connection(s), 3, 11, 19, 29, 32, 33, 35, 48, 51–53, 63, 67, 75, 80–83, 85–88, 90, 94, 122, 135, 142, 143, 155, 169, 177, 179, 180, 182, 188, 204, 211, 222, 241, 255, 264, 266, 269, 270, 273, 274, 280, 283, 284, 286, 287
- Connotation, 2, 43, 156, 180, 269, 279, 284
- Connote, 2, 100, 141, 226, 279
- Conscience, 26, 127, 131–134
- Conscious, 6, 80, 94, 101, 140–144, 148, 149, 153, 182–184, 197, 230–232, 237, 242, 277, 278, 281, 284, 286, 288, 289
- Consciousness, 8, 9, 15, 22, 87, 100, 119, 127, 139–145, 149, 152, 157, 193, 198, 199, 230, 233, 251, 257–259, 263, 270, 272, 277–281, 283–286, 288, 289
- Consequence, 2, 25, 43, 51, 52, 88, 89, 115, 121, 141, 143, 153, 155, 161, 189, 190, 242, 245
- Consistency, 43, 271
- Consistent, 34, 47, 102, 240
- Conspiracy, 188, 269
- Construct, 8, 65, 126, 133, 168, 171, 181, 196, 240, 280, 286
- Construction, 48, 58, 63, 64, 66, 69, 160, 175, 181, 186, 191
- Contemplation, 5, 152, 198, 199, 208, 218, 269, 270
- Contemporaneous, 15, 31, 84
- Content(s), 7, 11, 18, 22, 37, 41, 50, 55, 68, 74, 75, 100, 109–112, 115, 116, 131, 143, 152, 180, 183, 186, 190, 191, 223–225, 233, 236, 242, 243, 258, 279, 283, 288
- Context, 4, 8, 9, 12, 15, 17, 20, 35, 36, 41, 43, 44, 48, 49, 52, 55, 56, 58, 63, 80, 96, 100, 107–113, 115, 116, 118, 119, 123–125, 128, 133, 134, 146, 156, 158, 160, 168–170, 181, 196–199, 208, 209, 213, 214, 217, 221, 225, 228, 230, 235, 239, 242, 246, 258, 265, 274, 279, 286
- Contingency, 167, 168, 177, 190, 261
- Continuity, 41, 47, 48, 104, 121, 172, 173, 203, 229, 273
- Contradiction, 7, 129, 140, 145, 184, 211–213, 216, 253, 254, 273, 286
- Control, 9, 15, 99, 101, 115, 116, 144, 157, 190, 232
- Controllable, 87
- Convention, 29, 32, 33, 36, 44, 57, 170, 183, 186, 207, 210, 225
- Coordination, 55, 137, 145–147, 222
- Coordination dynamics, 137, 145–147
- Corporeal, 132, 146, 190, 196, 284
- Cosmic, 153, 229, 254, 257, 273, 287

- Cosmology, 66, 97, 201, 251
 Cosmos, 13, 60, 104, 120, 191, 193, 194, 200, 229, 266
 Counting, 47, 52, 53, 61, 173
 Coupling, 146, 252
 Covering, 53, 94, 112
 Crawford, C., 228, 233, 249, 260
 Creation, 7, 54, 140–142, 156, 166, 176, 181–183, 188, 213, 238, 245, 249, 251, 260, 264, 266, 269–273, 284
 Creativity, 11, 16, 97, 105, 114, 128, 149, 216, 217, 246, 250, 274
 Creator, 70, 190, 264, 272
 Crises, 213, 260
 Crisis, 107, 129, 130, 134, 245
 Critical, 4, 10, 15, 16, 31, 64, 74, 81, 97, 99, 101–103, 105, 116, 135, 138, 139, 148, 150, 151, 156–159, 163, 167, 169, 177, 210, 231, 235, 237, 240, 241, 244, 245, 269, 270, 279, 289, 290
 Critique, 16, 74, 102, 105, 122, 135, 158, 160, 161, 163, 171, 219, 236, 238–240, 244–247
 Cryptic, 2, 81, 186, 188
 Cryptosemiotic, 19
 Cultivate, 47, 122, 273
 Cultivation, 114, 116, 123, 127
 Cultural, 6, 7, 9, 12, 13, 19, 64, 71, 107, 108, 110, 111, 113–119, 122, 128, 135, 138, 148, 150, 151, 160, 162, 163, 174, 176, 201, 202, 207, 218, 219, 222, 223, 231, 232, 235, 239, 246, 263, 270, 275, 278–280
 Culture, 3, 5, 15–17, 19, 20, 22, 24, 26, 27, 49, 64, 71, 76, 106, 107, 110, 111, 128, 131, 132, 135, 151, 153–156, 158–163, 169, 171, 195, 196, 210, 218, 220, 228, 231, 232, 234, 239, 240, 246, 271, 274, 275, 281, 282, 289, 290
 Curriculum, 15, 82, 90, 94, 96–98, 102–105, 193, 194, 204, 214, 218, 219

D
 Damasio, A., 93, 100, 101, 103–105, 222, 233
 Damaskinidis, G., 107
 Dance, 53, 146, 163, 218, 261
 Danesi, M., 2, 3, 13, 19, 26, 49, 61, 63, 65, 72–77, 79, 90, 191, 202, 222, 233, 264, 265, 274
 Darwin, Ch., 4
 Dasein, 123–125, 127–130, 134
 Data, 29, 42, 51, 56, 60, 71, 93, 94, 99, 108, 110–112, 114, 117, 168, 221, 223, 252, 282
 De Tienne, A., 5, 13
 Deception, 43
 Decipher, 166, 168, 176, 182, 236
 Decision, 10, 41, 100, 131, 143, 148, 168, 170, 173, 176, 240
 Deconstruction, 183, 240, 246, 260
 Deduction, 8, 68, 79, 80, 88–90, 140, 176, 202
 Deely, J., 1, 4, 10, 13, 15, 16, 19, 21, 26, 141, 149, 194, 195, 197, 199, 204, 231, 233, 270, 274
 Deleuze, G., 12, 13, 47, 54, 55, 60, 61, 77, 135, 157, 205, 228, 230, 234, 247, 252, 257, 260, 275, 277, 279, 282–290
 Deliberation, 52, 152, 163
 Delors, J., 9, 13, 107, 108, 110, 120
 Denotation, 180, 279
 Denote, 87, 141, 269
 Depression, 101, 152, 229, 286
 Depth, 32, 35, 149, 155–157, 243, 246, 251, 258, 279, 283
 Depth psychology, 156, 157, 246, 279, 283
 Derrida, J., 167, 168, 171, 176, 212, 250, 251, 260
 Descartes, 4, 21, 87, 104, 139, 140, 156, 160, 222, 233
 Design, 22, 58, 94, 172, 263, 270–273, 275
 Desire, 8, 104, 130, 131, 133, 142, 144, 153, 159, 160, 181, 182, 188, 189, 205, 230, 239, 247, 255, 260, 261, 263–273, 289
 DEST, 93, 94, 104
 Detective, 179–185, 188–191
 Detective story, 179, 183, 188, 190
 Determination, 32, 57–59, 176, 288
 Determinism, 22, 129
 Development, 2, 4, 9, 11–13, 15–17, 19–22, 24, 26, 37, 50, 54, 56, 58, 64, 70, 71, 80, 87, 89, 93, 96, 106, 110, 111, 114–117, 123, 125, 126, 131, 132, 134, 147, 150, 155, 159, 160, 163, 169, 191, 194–197, 199, 201, 203, 204, 212, 213, 220, 234, 235–237, 243, 244, 249, 250, 259, 261, 275, 281, 282, 289, 290
 Dewey, J., 4, 12, 37, 91, 98, 105, 137, 141–144, 146, 148–150, 232, 233, 267, 268, 274, 278, 283, 284, 289
 Diachrony, 22
 Diagram, 11, 13, 19, 30, 33, 35, 36, 47, 48, 51, 52, 55, 57–60, 63, 65–70, 72–77, 120, 139, 191, 284, 285
 Diagrammatic reasoning, 11, 75
 Diagrammatic teaching, 29
 Diagrammatics, 51
 Diagrammatology, 27, 45, 61, 77, 205
 Dialectical, 130, 132, 165, 168, 172, 175, 182, 215, 216, 256, 259
 Dialectic(s), 24, 47, 55, 59, 120, 173–176, 246, 249, 260

- Dialogue, 2, 13, 41, 99, 114, 145, 150, 162, 163, 172, 174, 176, 181, 207, 209, 212–214, 216–218, 239, 242, 253, 254, 266
- Dichotomies, 55, 145, 200, 222, 223, 233
- Dichotomy, 4, 5, 26, 55, 90, 201, 225
- Difference, 9, 21, 22, 25, 49, 54, 60, 63, 99, 106, 109, 113, 115, 116, 127, 129, 140, 162, 173, 176, 210, 212, 213, 242, 243, 249–253, 255, 256, 267, 284, 289
- Digital, 50
- Dilemma(s), 7, 140, 148, 180, 182, 185, 196, 207, 278
- Diligence, 93–95, 102, 106
- Direct, 5, 6, 9, 18, 21, 22, 32, 33, 49, 75, 97, 99, 139, 142, 146, 156, 166, 168, 171, 184, 186, 194, 203, 284
- Disability, 101
- Disadvantage, 101
- Disciplinary, 15, 20, 99, 157
- Discipline(s), 2, 4, 12, 20, 25, 26, 30, 31, 35, 48–50, 54, 56, 64, 65, 82, 197, 236
- Discontinuity, 104, 125, 127, 133, 134, 252, 258
- Discourse, 2, 11, 13, 58, 63, 71, 93–95, 101, 103, 104, 108, 109, 111, 120, 137, 139, 145, 154, 157–160, 172, 177, 181, 182, 191, 196, 201, 209, 210, 214–219, 221, 230, 232, 235, 236, 241–243, 245, 247, 249, 251, 254, 275, 284, 285
- Discover, 23, 25, 35, 107, 142, 155, 168, 180, 185, 189, 195, 242, 269, 285
- Discovery, 8, 51, 77, 112, 124, 142, 168, 189, 241
- Discursive, 37, 43, 68, 155, 161, 170, 171, 181, 225, 226, 242
- Disembodied, 100, 287
- Disposition, 137, 139, 158, 173, 230, 249, 251, 253, 288
- Diversity, 24, 207–209, 214, 215, 218, 239
- Divination, 197, 252, 278
- Divine, 183, 198, 199, 251, 252, 266, 267, 273
- Divinity, 198, 267
- Domain, 19, 47, 48, 50–53, 56, 58–60, 63, 66, 72, 95, 98, 104, 105, 208, 210, 213, 243, 265
- Duns Scotus, J., 197
- Doubt, 21, 148, 152, 182, 185
- Dreams, 3, 98, 230, 237, 243, 281, 286, 287
- Dretske, F., 29, 44
- Drive, 43, 104, 214, 260, 265
- Dual, 144, 145, 174, 213, 237
- Dualism, 1, 5, 6, 11, 14, 22, 59, 93, 137, 139, 143, 195, 221–233, 257
- Dyad, 186
- Dyadic, 7, 17, 18, 33, 84, 140, 283
- Dynamic(s), 4, 6–8, 17, 18, 37, 53, 55, 59, 84, 87–89, 115, 126, 127, 129, 131, 132, 137, 138, 143, 145–147, 166, 167, 169, 172, 173, 175, 193, 195, 196, 207, 210, 213, 216, 218, 224, 229, 230, 232, 233, 237, 238, 242, 245, 254, 256, 260, 273, 278, 281–283, 289
- Dynamical, 17, 83, 85, 146
- E**
- Early childhood, 50, 207, 209, 214, 218–220
- East, 13, 150, 245
- Eastern, 4, 5, 12, 18, 148, 224, 273
- Eco, U., 12, 179–191, 203, 204
- Ecological, 115, 193, 194, 200, 203, 277
- Ecology, 111, 115, 162, 203, 204, 290
- Economic development, 111
- Economy, 12, 13, 53, 96, 116, 120, 160
- Educational philosophy, 3, 4, 12, 19, 30, 44, 80, 91, 98, 105, 120, 122, 126, 137, 145, 150, 163, 193, 195, 198, 203, 205, 234, 248, 261, 266, 275, 290
- Educational policy, 6, 12, 245
- Educational reform, 10
- Educational research, 3, 5, 11, 88, 105, 106, 151, 168, 197, 246
- Educational theory, 2, 5, 17, 36, 97, 121, 123, 126, 135, 145, 197, 202, 204, 235, 245
- Edusemiotician, 12, 245
- Edusemiotic turn, 3, 7, 201, 205
- Effect, 17, 18, 31, 66, 69, 75, 85, 86, 89, 93–101, 103, 105, 126, 134, 146, 182, 190, 207, 211, 227, 246, 249, 254, 281, 286, 290
- Egan, K., 167, 176
- Ego, 280
- Egotistical, 187, 188, 281
- Elegant solution, 41
- Elegant writing, 224, 233, 234
- Embodied, 6, 8, 47, 52, 53, 59, 74, 89, 90, 137, 141–145, 149, 173, 182, 196, 208, 211, 214, 222, 237, 260, 278, 280, 284, 286, 287
- Embodied mind, 76, 137, 219, 234
- Embodiment, 53, 141, 186, 194, 196, 202–204, 284, 287
- Emerge, 3, 48, 49, 64, 74, 101, 103, 161, 170, 173, 174, 199, 201, 213, 226, 251, 258, 270, 271

- Emergent, 3, 271
- Emmeche, C., 19, 26, 202, 204
- Emotional, 2, 37, 40, 41, 42, 86, 87, 94, 95, 102, 103, 106, 113, 114, 118, 134, 155, 160, 223–225, 228, 229, 234, 265, 278, 282, 289
- Emotional interpretant, 85, 86
- Emotionality, 101, 224
- Emotion(s), 85, 93, 96, 100, 104, 134, 233, 268, 289
- Empathy, 281
- Empirical, 6, 11, 12, 55, 63, 72, 95–100, 103, 145, 176, 180, 181, 190, 194, 196, 228, 284, 287
- Empirical science, 95, 97, 99, 100, 145
- Empiricism, 97, 144, 184, 277, 284, 287
- Emptiness, 130, 154, 249, 256
- Encounter(s), 122, 124, 127, 129, 134, 135, 175, 185, 208, 212, 214, 220, 265, 267, 268, 269, 278, 284, 286
- Energetic, 37, 40, 85, 86, 142
- Energetic interpretant, 86
- Energy, 13, 115, 131, 265, 266
- Engagement, 13, 94, 99, 169, 176, 205, 207–209, 212, 215, 217–219, 222, 231, 234, 242, 250
- Engström, D., 144–146, 150, 222, 233
- Enlightenment, 20, 123, 125
- Entertainment, 42, 266
- Enunciation, 241–243
- Environment, 7, 8, 16, 17, 23, 48, 54, 59, 74, 93, 94, 100, 101, 104, 111, 114, 125, 130, 134, 143, 154, 193, 194, 196, 201–203, 226, 231, 258, 267
- Epistemological, 21, 24, 95, 124, 184, 186, 196, 284
- Epistemology, 3, 5, 20, 21, 26, 36, 97, 99, 100, 102, 103, 152, 194, 222, 280
- Equation, 54, 68, 153
- Equilibrium, 117, 166, 172
- Eros, 41, 263, 264–275, 289
- Erotic, 11, 198, 260, 264, 265–269, 272, 273, 274
- Eroticism, 266, 267, 269, 272, 273
- Error, 71, 104, 162, 187, 222, 233
- Esoteric, 188, 285–287
- Esotericism, 190
- Essence, 3, 19, 35, 51, 65, 124, 125, 127, 134, 135, 139, 148, 166, 167, 181, 182, 266, 269
- Essential, 9, 18, 26, 44, 47, 51, 59, 61, 66, 69, 82, 101, 122, 125, 160, 171, 174, 176, 194, 219, 229, 273
- Eternity, 272
- Ethical, 8, 9, 26, 81, 103, 130, 131, 139, 152, 157, 167, 173, 181, 269, 278, 284
- Ethic(s), 3, 5–9, 10, 12, 13, 55, 82, 98, 106, 108, 114, 120, 141, 147, 150, 160, 162, 163, 168, 176, 219, 229, 234, 239, 245–247, 275, 280–282, 290
- Ethics of care, 8, 160, 229, 281, 282
- Ethics of integration, 8, 13, 147, 150, 160, 163, 219, 245, 247, 275, 282, 290
- Etymology, 75, 183
- Eudaimonia, 269
- Evaluation, 94, 163
- Event, 17, 84, 124, 144, 152, 172, 184, 207, 210, 212, 213–217, 222, 230, 232, 233, 246, 250, 253, 257, 260, 284
- Event horizon, 253
- Evidence, 6, 11, 59, 85, 95, 101–103, 105, 159, 168, 171, 252
- Evil, 9, 10, 189, 275
- Evolution, 1, 3, 4, 11–13, 17, 20, 21, 26, 106, 120, 139, 148, 149, 176, 195–197, 202, 204, 234, 257, 274, 289
- Evolutionary, 16, 75, 138, 141, 145, 252, 263, 265, 271–274
- Excess, 32, 35, 43, 159
- Excluded middle, 7, 140, 145, 286
- Existence, 10, 17, 34, 65, 90, 91, 110, 126–128, 144, 153, 163, 171, 183, 188, 194, 198, 212, 228, 230, 245, 251, 255, 259, 260, 271, 287
- Existential, 3, 6, 8, 9, 13, 58, 66, 77, 122, 124, 128–135, 142, 152, 165, 167, 175, 176, 190, 255, 277, 278, 287
- Existential graphs, 58, 66, 77
- Existentialism, 152, 156
- Existential pedagogy, 122, 131
- Existential semiotics, 122, 124, 125, 127, 128, 130–132, 135
- Experience, 2, 6, 12–14, 16, 23, 27, 31, 37, 49, 54, 59, 60, 77, 81–84, 87, 90, 91, 95, 106, 116, 122–128, 135, 137–143, 149, 150, 176, 203, 205, 210, 219, 223–225, 228–230, 232–234, 237, 240, 246, 250, 260, 264–274, 284, 288
- Experiential, 6, 9, 25, 49–51, 53–55, 60, 75, 83, 126, 128, 141–143, 147, 159, 202, 259, 270, 278, 279, 283, 286, 288
- Experiment, 20, 39, 64, 65, 67, 88, 89, 96, 141, 173, 282
- Experimental, 9, 31, 56, 75, 100, 141, 153, 283
- Expertise, 81, 186, 189
- Explanation, 58, 70, 166, 174, 175, 177, 186–188, 190, 195, 201, 258

- Explanatory hypothesis, 88
 Expression, 30, 104, 109, 116, 117, 148, 155, 159, 167, 175, 180, 186, 190, 210, 217, 228, 232, 236, 238, 244, 253, 257, 277, 281–283
 External, 21, 22, 24, 49, 67, 97, 130, 131, 143, 183, 184, 186, 190, 191, 257
 Extralinguistic, 1, 111, 193, 202, 225, 237, 246, 253, 277, 283, 288
- F**
 Facticity, 123
 Facts, 6, 11, 26, 37, 66, 83, 88–90, 95, 96, 99, 141, 146, 184, 185, 196, 221, 223–228, 230–232, 240, 252, 283, 287
 Faith, 96, 97, 105, 109, 152, 180, 187, 188
 False, 6, 43, 101, 145, 187, 267
 Falsification, 66, 175
 Farquhar, S., 165, 167, 177
 Fecundation, 270, 274
 Feedback, 132, 146, 254, 288
 Feeling, 40, 85–88, 98, 100–102, 104, 128, 134, 138, 140, 143, 144, 152–156, 202, 224, 225, 256, 264, 269, 278, 279, 282, 286
 Feminine, 8, 13, 163, 277, 281, 282
 Feminist, 160, 161, 239, 245, 282
 Fiction, 34, 40, 47, 133, 173, 174, 179, 180–183, 189–191
 Finite, 10, 11, 69, 99, 123, 148, 165, 172, 175, 243
 Firstness, 83–85, 138–140
 Fitzsimons, P., 165, 167, 177
 Flesh, 73, 76, 219, 267
 Fold, 146, 205, 234, 285, 287–289
 Form, 9, 11, 15–18, 21, 32–34, 36, 37, 39, 40, 43, 49–51, 54, 55, 60, 66–68, 71–75, 77, 79, 84–86, 88, 89, 97–99, 102, 118, 119, 121, 124, 128, 129, 133, 134, 138–141, 143–145, 149, 152–157, 160, 161, 166–170, 172–175, 179, 181–184, 186, 188, 190, 194, 199, 200, 207, 211–215, 217–219, 223–228, 233, 236, 238, 241, 246, 247, 249, 251, 253, 255, 257, 259, 267–270, 272–274, 279, 281, 283, 285, 287, 288
 Formal, 2, 6, 9, 11, 22, 47–50, 53–56, 58–60, 67, 68, 76, 94, 107, 108, 140, 142, 148, 149, 159, 186, 202, 216, 223, 237, 244, 249, 251, 252, 266, 278, 279
 Forms of knowledge, 97–99
 Forms theory, 98
 Foucault, M., 151, 154–157, 159, 162, 163, 289
 Foucault's pendulum, 187, 188, 191
 Foundation, 1, 2, 7, 11, 12, 14, 19, 20, 26, 27, 44, 48, 53, 82, 85, 91, 93, 103, 104, 106, 123, 128, 133, 135, 137, 159, 168, 177, 203, 205, 220, 245, 256, 260, 261, 288
 Fragmentation, 10, 24, 271, 273
 Freedom, 61, 114, 125, 134, 138, 152, 153, 155, 188, 244, 269, 273
 Freud, S., 155–158, 162, 237, 241–243, 246
 Function, 2, 3, 6, 7, 9, 11, 20–22, 26, 32–35, 40, 52, 56, 59, 69, 87, 95, 99, 100, 110, 113, 125, 140, 141, 145, 179, 182, 185, 186, 190, 191, 201, 224, 228, 231, 239, 241–243, 246, 256, 265–270, 280–282, 285, 287–289
 Future, 2, 10, 11, 16, 18, 22, 34, 42, 89, 115, 117, 118, 123, 125, 133–135, 141–143, 148, 149, 163, 167, 173, 176, 189, 251, 255, 281, 287
- G**
 Gadamer, H.-G., 169, 170, 177
 Galileo, 20
 Gangle, R., 47, 51, 52, 60, 61
 Garrison, J., 282, 289
 Gebser, J., 263, 269, 270, 272, 274
 Gender, 161
 Genealogy, 120, 156, 219, 235, 238
 Generality, 52, 58, 87, 88
 Generalization, 54, 56, 71, 89
 General law(s), 82, 89, 109
 Generation, 115, 118, 134, 139, 148, 156, 157, 161, 186, 218, 222, 223, 267, 281
 Generative grammar, 236, 239
 Generative practice, 246, 283
 Genesis, 55, 197, 199, 201, 237, 238, 266, 270
 Genre, 155, 163, 172, 179, 183, 185, 188, 191, 208, 217
 Genuine signs, 4, 5, 7–9, 83, 85, 86, 140, 145, 146, 148, 149, 196, 212, 213, 228, 246, 250, 254, 256, 288
 Geometry, 50, 56, 72, 80
 Gestalt, 127, 208
 Gilligan, C., 281, 290
 Global, 9, 10, 26, 108–111, 115, 116, 118–120, 150, 160, 163, 208, 281
 Glottocentrism, 16
 Gnosis, 285
 God, 96, 97, 105, 153, 159, 167, 184, 198–200, 225, 234, 264, 266, 267, 269, 271–273
 Grammar, 54, 70, 75, 202, 203, 222, 236, 239, 244
 Graphic, 19, 67, 73, 75, 238, 285

- Greene, M., 281, 290
 Greimas, A.J., 12, 107–109, 111, 120, 121, 128–131, 135, 243
 Growth, 1, 3, 6, 7, 16, 81, 84, 96, 110, 114–116, 121, 127, 132, 134, 141, 148, 167, 204, 232, 279, 283, 285
 Guattari, F., 12, 54, 61, 252, 260, 283–287, 289, 290
 Guess, 154, 161, 175, 185, 225
- H**
- Habermas, J., 12, 93, 98–100, 102, 103, 105
 Habit-breaking, 137
 Habit(s), 6, 7, 10, 12, 15, 29, 32–36, 54, 64, 70, 71, 74, 89, 90, 94, 131, 137–144, 147, 148, 173, 194, 232, 288
 Habit-taking, 137, 138
 Hadot, P., 155, 162
 Happiness, 106, 212, 269
 Harmonious, 5, 116, 203
 Harmony, 144
 Hausman, C., 273, 274
 Hawking, S., 150, 253
 Heart, 16, 19, 20, 23, 24, 51, 60, 80, 90, 98, 104, 157, 161, 188, 209, 225–229, 233, 234, 238, 266–270, 272–274
 Hederman, M. P., 279, 290
 Hegel, G.W.F., 156–158, 249, 256, 260
 Heidegger, M., 12, 91, 121–126, 133–135, 148, 156, 157, 169, 175
 Heritage language, 221–234
 Hermeneutic circle, 108, 129, 165, 166, 169, 170, 172
 Hermeneutic(s), 6, 99, 108, 122, 126, 129, 132, 135, 150, 156, 157, 163, 165–170, 172, 174–177, 182, 183, 187, 193, 195, 197–201, 203, 234, 261, 275, 277, 285, 290
 Hermes, 167
 Hermeticism, 4
 Heterogeneity, 181, 219, 235, 239, 240, 243
 Heteroglossia, 207–209, 211, 213, 215–219
 Heuristic, 72, 73
 Hidden, 35, 72, 111, 186, 195, 229, 236, 237, 240, 277, 286, 288
 Hierarchy, 61, 99, 199
 Hieroglyph, 19, 266, 269
 Hillman, J., 268, 274
 Hirst, P., 97, 98, 105
 Historical, 15, 22, 47, 50, 56, 63, 99, 115, 117, 126, 134, 160, 169, 174, 183, 188, 235, 236, 244
- History, 1, 12, 13, 22, 26, 35, 49, 50, 56, 61, 69, 76, 96, 97, 120, 122, 127, 129, 134, 135, 151, 153, 154, 156, 162, 169, 174, 177, 183, 184, 187, 188, 190, 193–197, 201, 203, 204, 220, 236, 237, 243, 247, 249, 251, 252, 256, 266, 273, 274
 Holism, 95, 139, 200, 202
 Holistic, 5, 10, 19, 26, 48, 68, 93, 95, 96, 98–101, 103, 105, 106, 134, 139, 142, 146, 193, 196, 200–203, 282
 Holomovement, 146
 Homology, 284
 Hope, 26, 82, 152, 189, 218, 246, 261, 281, 282, 289
 Hopelessness, 101, 153
 Horizon, 172, 175, 197, 253
 Houser, N., 31, 44
 Human being(s), 2, 3, 5, 6, 10, 12, 23, 40, 103, 123–125, 153, 194, 196, 212, 217, 233, 244, 254, 256, 264–269, 271, 282
 Human experience, 1, 6, 7, 9, 16, 97, 128, 148, 228, 229, 235, 250, 277, 278, 283
 Humanism, 114, 157, 168, 176
 Humanities, 12, 25, 72, 95, 134, 137, 145, 154, 158, 169, 245, 271
 Humanity, 111, 115, 119, 121, 127, 153, 198, 200, 267, 272, 273
 Humankind, 15, 24, 116, 117, 279
 Human sciences, 97, 98, 158, 166, 169, 177
 Human subject(s), 13, 21, 22, 47, 53, 122, 128, 129, 194, 259, 285, 289
 Hume, D., 158
 Husserl, E., 52, 156, 277, 288–290
 Hyland, D. A., 268, 272, 274
 Hypothesis, 49, 64, 65, 69, 72, 88, 109, 119, 171, 188, 197, 201
- I**
- Ibn Arabi, 193, 200, 201, 203
 Icon, 29, 30, 32–37, 42–44, 51, 85, 86, 139, 200, 202, 203
 Iconicity, 51, 52, 56, 199, 212
 Idea, 3, 7, 9, 16, 17, 19, 21–23, 26, 32, 33, 35, 36, 39, 47, 49, 55, 57, 59, 65, 68, 72, 79, 82, 85, 86, 88, 89, 96, 110, 119, 122, 124, 126, 128, 130, 131, 134, 139, 141, 146, 147, 149, 153, 154, 167, 168, 170, 171, 173, 180, 186, 188, 194–196, 202, 204, 211, 212, 228, 230, 231, 235, 238–240, 242–244, 253, 257, 264–266, 269, 272, 273, 284

- Ideal, 10, 22, 55, 88, 89, 113, 117, 118, 181, 252, 254
 Ideation, 63
 Identity, 37, 39, 41, 57, 58, 116, 131, 140, 155, 161, 165, 166, 168, 172–174, 176, 177, 190, 217, 246, 249, 251, 256, 283
 Ideological, 108, 110, 112, 113, 117, 119, 148, 160, 179–181, 191, 207–210, 213–215
 Ideology, 104, 109, 110, 120, 157, 196, 211–213
 Idolatry, 203
 Illogical, 142, 149
 Illusion, 153, 158, 182
 Image(s), 11, 13, 19, 24, 30, 37, 40, 44, 51, 57, 61, 63, 64, 66, 67, 69, 72–74, 76, 135, 139, 140, 144, 150, 152, 157, 164, 167, 177, 185, 186, 188–190, 198, 199, 205, 230, 234, 246, 247, 250, 252, 253, 255–258, 261, 266, 268–270, 273, 275, 277–285, 288–290
 Image schema, 66, 67, 74
 Imaginary, 34, 66, 171, 200, 230, 253
 Imagination, 10, 11, 32–34, 39, 47, 66, 72, 139, 149, 152, 157, 158, 217, 219, 229, 263, 264, 267–270, 273, 279, 281, 290
 Imitation, 64, 70, 145, 149, 211, 218, 249, 251, 259, 288
 Immanence, 55, 61, 286–290
 Immanent, 286–288
 Immediacy, 84–87, 140, 265
 Immediate, 12, 17, 19, 21, 23, 37, 84, 86, 87, 97, 140, 175, 181, 185, 188, 198, 208, 228, 243, 271, 273
 Immortality, 272, 273
 Impact, 1, 12, 50, 89, 94–96, 101, 103, 104, 106, 111, 156, 195, 225, 227, 243
 Implicit, 58, 94, 99, 141, 148, 195, 239, 246, 258, 286, 288
 In-between, 10, 145, 198, 213, 214, 217, 246, 252
 Included middle, 5–7, 10, 11, 140, 141, 144, 145, 222, 256, 280, 284
 Incompleteness, 268, 272
 Inculcation, 9, 148
 Independent, 9–11, 16, 20, 23, 52, 81, 132, 138, 145, 149, 239, 256, 270, 281
 Indeterminate, 57, 58, 109, 254
 Index, 30, 32–34, 36, 37, 51, 85, 56, 115, 145, 188
 Indices, 29, 32–36, 43, 51, 85, 86, 139, 242, 255
 Indirect, 7, 35, 137, 284
 Individual, 3, 6, 8–12, 16, 25, 43, 68, 73, 99, 115–117, 126, 128, 130, 138, 147, 152–155, 157, 160–162, 169, 173, 176, 179, 180, 184, 186, 191, 197, 207, 209, 213, 216, 217, 222, 231, 240, 242, 243, 246, 249, 256, 258, 260, 271, 278, 281, 283, 289
 Indoctrination, 9, 148
 Induction, 8, 70, 79, 88–90, 140, 202
 Inductively, 16, 53
 Inference, 8, 65, 66, 68, 88, 108, 139, 140, 143, 149
 Infinite, 65, 69, 97, 186, 187, 190, 197, 198, 243, 249, 259, 264, 266, 272, 273
 Infinity, 69, 263, 272
 Information, 3, 10, 11, 29, 34, 39, 42–44, 68, 70, 75, 77, 97, 110, 141, 148, 188, 196, 198, 225, 232, 239, 253, 270, 275, 281, 285
 Innate, 64, 98, 267
 Innenwelt, 19, 69, 77, 267
 Inquirer, 18, 22, 273
 Inquiry, 10, 11, 15, 17, 18, 20, 21, 26, 35, 79, 88–91, 98, 126, 142, 148, 166, 182, 198, 200, 201, 204, 208, 273, 275
 Insight, 31, 35, 36, 39, 53, 64, 65, 68, 70, 73–75, 90, 93, 97, 101–103, 139, 140, 147, 149, 155, 156, 182, 185, 197, 214, 216, 218, 233, 234, 255, 268, 273, 274, 279–281
 Institute for Edusemiotic Studies, 4
 Instruction, 11, 40, 49, 50, 70, 72, 74, 80, 142, 185, 199
 Integral, 8, 15, 107, 108, 171, 180, 235, 256, 268, 269, 272
 Integrated, 5, 6, 36, 142, 146, 148, 149, 173, 272
 Integration, 8, 9, 13, 140, 144, 147, 160, 161, 163, 219, 229, 245, 247, 270, 282, 288–290
 Integrity, 34, 258
 Intellect, 139, 158, 184, 254
 Intellectual, 1, 4, 15, 20, 23, 24, 31, 47, 54, 60, 86, 94, 106, 112–117, 139, 154, 157, 186, 188, 199, 228, 239, 244, 251, 256, 265, 268, 279
 Intelligence, 19, 83, 106, 143, 145, 149, 273
 Intelligent, 83, 142, 143, 190, 254, 290
 Intelligible, 34–36, 40, 42, 50, 60, 148, 199, 257, 266, 285, 288
 Intention, 103, 167, 169, 171, 175, 180, 195, 209, 214, 245, 282
 Intentional, 112, 126, 171, 230, 242, 270, 288

Intentionality, 125, 134, 263, 264, 270, 274, 288
 Interaction, 17, 21, 23, 55, 58, 65, 83, 116, 119, 132, 134, 142, 166, 219, 221, 227, 230, 231, 258, 267, 283
 Interconnection, 84, 146, 147, 265
 Interdependent, 11
 Interdisciplinary, 1, 24–26, 64, 76, 119, 290
 Interest(s), 30, 43, 54, 60, 79, 97, 99–101, 103, 105, 109, 113, 116, 118, 155, 160, 170, 239, 241, 254, 269
 Interface, 47, 54, 60, 140
 Interference, 43, 69–71
 Interlocutor, 30, 32, 40, 41, 208, 210, 214
 Internal, 23, 55, 58, 69, 111, 130, 132, 134, 143, 175, 209, 216, 257
 International Association for Semiotic Studies, 3, 4, 238, 245, 275
 Interpret, 2, 3, 8, 23, 25, 69, 85, 109, 128, 129, 156, 166, 169, 175, 179, 181, 183, 195, 198, 207, 208, 215, 216, 222, 229, 232, 277, 282, 284
 Interpretant, 4, 17, 18, 26, 79, 83–90, 137–141, 145, 148, 180, 185, 200, 201, 213, 222
 Interpretation, 6–8, 10, 11, 13, 29, 37, 40–42, 52, 58, 83–86, 94, 99, 121, 125, 133, 141, 143, 144, 153, 165–177, 179, 180, 186, 188, 191, 194, 195, 197, 200–202, 204, 209, 210, 212, 215, 216, 218, 221, 232, 237, 241, 243, 245, 246, 259, 264–266, 271, 273, 275, 278, 279, 281–284, 287, 288, 290
 Interpreter, 52, 68, 122, 165, 166, 170, 171, 175, 183, 193, 194, 198, 200–202, 224, 233, 241, 288
 Inter-subjective, 21, 99, 161, 168, 176, 218, 282
 Inter-textual, 184, 190
 Intuition, 39, 50, 52, 54–56, 58, 139, 140, 149, 202, 228, 268, 273, 279–282, 288, 290
 Irrational, 126

J

Jackendoff, R., 277, 290
 Jakobson, R., 213, 239
 Jastrow, J., 31, 34, 35, 39, 44, 140
 Johnson, M., 66, 76, 210, 212, 216, 219
 Jouissance, 235, 237, 240
 Judgment, 10, 81, 98, 120, 139, 140, 148, 149, 184, 211, 215, 239, 271
 Jung, C. G., 230, 233, 246, 277, 279–281, 283, 286, 287, 290

K

Kant, I., 21, 36, 96, 105, 122, 135, 160
 Kauffman, L., 146, 150
 Kelso, J. A. S., 144–146, 150, 222, 233
 Kierkegaard, S., 122, 151–153, 162, 163
 Knowing, 8, 18, 19, 60, 95–100, 125, 140, 150–153, 161, 162, 167, 170, 176, 184, 186, 289, 194, 197, 198, 242, 246, 266, 271–273, 280, 281, 283
 Knowledge, 5, 8–13, 15, 17, 19–21, 24–27, 29, 30, 35, 36, 42–44, 47, 49, 51, 54, 67–69, 72, 74–76, 82, 90, 95–99, 102, 105, 115, 116, 125, 133, 141, 146, 148, 150, 152, 153, 155, 159, 161, 166, 168, 170, 171, 177, 184, 186, 187, 190, 194–196, 198, 199, 201, 204, 220–224, 228, 231–233, 251, 252, 257, 259, 270, 271, 273, 274, 283, 285, 287, 288
 Knowledge economy, 12, 13, 96
 Kristeva, J., 12, 235–248, 251, 260, 261
 Kuhn, T., 168, 177
 Kukkola, J., 121, 127
 Kull, K., 202, 204

L

Labyrinth, 179–182, 184, 186, 187, 190
 Lacan, J., 157, 238
 Lakoff, G., 64, 66, 72, 76, 210, 212, 216, 219
 Langer, S., 68, 76
 Language learning, 64, 69, 70, 72, 74, 233
 Language of faith, 96
 Language of propositions, 124, 144, 147, 278
 Language of signs, 230, 285
 Law, 6, 7, 64, 89, 90, 97, 108, 109, 120, 138, 145, 150, 184, 186, 190, 252–257, 273, 283
 Law of the Father, 240
 Layout, 72, 278, 284–287, 289
 Learn, 2, 8, 30, 32, 33, 51, 60, 71, 72, 75, 83, 105, 123, 144, 176, 194, 200, 203, 223, 225, 229, 232, 259, 270, 273, 277
 Learner(s), 29, 35, 36, 69, 71, 74, 97, 98, 103, 122, 207–209, 211, 214, 215, 217, 218, 221, 227, 230, 232, 270, 273, 274
 Lebenswelt, 194, 267
 Legg, C., 29, 32, 43, 44
 Lesson(s), 13, 135, 150, 177, 214, 222, 239, 241, 277–280, 290
 Lévi-Strauss, C., 241, 281
 Lexical, 179, 181–183, 210, 211
 Liberal education, 163, 193, 195, 199
 Liberalism, 43, 44, 163
 Libido, 265, 272

- Library, 186, 187, 190, 205
 Library of Babel, 190
 Life, 6–9, 12, 15, 44, 76, 83, 89, 98, 108, 111, 115–117, 121, 123, 126, 127, 130, 133, 143, 144, 148, 146, 152, 158, 159, 162, 165, 169, 174–176, 184, 189, 194, 197, 199, 201, 202, 204, 213, 218, 228, 232, 233, 245, 250, 254, 256–260, 265, 267, 269–272, 275, 278, 284, 286–289
 Lifelong, 9, 108, 134, 151, 159, 170, 270, 281
 Likeness, 33, 142, 273
 Linear, 66, 101, 146, 167, 181, 282, 284
 Linguistic turn, 3, 201
 Literacy, 70, 104, 105
 Literature, 15, 25, 50, 76, 97, 116, 127, 152, 157, 168, 169, 171, 176, 195, 236, 240, 247, 275
 Living, 13, 150, 188, 196, 200, 202, 205, 208, 209, 214, 217, 219, 229, 232, 244, 265, 266, 273, 280, 285, 288
 Lizska, J., 30, 32, 44
 Locke, J., 1, 16, 21, 23, 160, 271, 274
 Logan, R., 281, 290
 Logic, 5–8, 10, 11, 15, 31, 37, 76, 77, 80–83, 86, 93, 95–98, 104, 105, 140, 141, 145, 146, 149, 150, 166, 169, 183, 184, 189, 190, 195, 202, 212, 214, 217, 222, 234, 256, 260, 280, 283, 284, 286, 288–290
 Logical, 1, 3, 5, 7, 9, 30, 36, 37, 40–44, 53, 72, 75, 77, 80–82, 85–90, 93, 95–97, 99, 100, 106, 108, 110, 139, 140, 184, 187, 202, 212, 225, 254, 260, 286
 Logical form, 43
 Logical interpretant, 86–90
 Logic of discovery, 8
 Logocentrism, 16
 Logos, 156, 183, 230
 Lovat, T., 93–95, 99, 101, 102, 104–106, 108, 120, 150, 163, 247, 290
 Love, 96, 114, 156, 210, 227–229, 231, 234, 260, 263–275, 279, 281
 Loving, 11, 13, 219, 266, 268, 270, 273, 275
 Lying icon, 42
 Lyotard, J.-F., 168, 177, 196, 204
- M**
 Machine, 26, 54, 75, 197, 202, 287
 Malabou, C., 254, 255, 261
 Manipulation, 29, 51, 109, 131, 225
 Man-sign, 147
 Maori, 161–163, 215
 Map, 29, 30, 32–34, 36, 76, 153, 285
 Mapping, 33, 41, 52, 132, 210, 212, 286, 289
 Marcus, S., 69, 77, 156, 157
 Marion, J.-L., 265, 267, 274
 Marmo, C., 199, 204
 Marshall, J., 152, 162, 163
 Marx, K., 156, 157, 159
 Material, 4, 5, 7, 22, 23, 37, 39, 47, 49, 54–56, 59, 68, 107, 108, 114, 115, 145, 146, 152, 156, 174, 179, 180, 193, 198, 200, 203, 221, 223–225, 231, 232, 237, 238, 249–253, 258, 259, 284, 287
 Maternal, 13, 229, 281, 290
 Mathematics, 12, 13, 25, 35, 41, 47–56, 58–61, 64, 65, 67, 69, 72, 105, 178, 80–82, 95–98, 100, 102, 103, 130, 203
 Matrix, 19, 36, 53, 251, 260
 Maturana, H., 268, 274
 Maturation, 93, 122
 May, R., 264, 265, 272, 274
 McLuhan, M., 279
 Meaningful, 9, 12, 29, 30, 35, 40–42, 52, 75, 83, 104, 109, 125, 128, 142–144, 174, 180, 215, 232, 234, 259, 270, 280, 288
 Meaning-making, 3, 11, 182, 187, 196, 208–211, 214, 215, 218, 270, 280, 288
 Measure, 7, 22, 88, 93, 94, 100, 103, 106, 134, 228, 286
 Measurement, 94
 Mechanical, 35, 81, 83, 184, 190, 255, 257, 264, 265, 273, 283
 Mechanistic, 22, 146
 Mechelen, M. van, 235, 236, 239, 243, 247
 Media, 2, 40, 53, 219, 259
 Mediate, 168
 Mediated, 7, 16, 18, 32, 86, 140, 149, 169, 174, 214, 217, 255–257, 272, 284
 Mediation, 7, 85, 86, 113, 137–140, 143, 175, 186, 199, 253, 255, 256, 258, 283
 Medieval, 24, 183, 188, 193, 195, 199, 202–204
 Medium, 18, 96, 127, 217, 228, 229, 256, 277, 279, 281, 282
 Meillassoux, Q., 257, 261
 Memory, 3, 41, 47, 49, 53, 100, 110, 129, 141, 251, 279, 287
 Meno, 43
 Mental, 6, 17, 19, 21, 63, 65–67, 72, 86, 88, 90, 116, 139, 146, 147, 149, 181, 186, 195–197, 220, 221, 232, 256, 257, 270, 277, 280, 288
 Merleau-Ponty, M., 271, 274
 Merrell, F., 5, 6, 13, 138, 139, 150

- Message, 7, 36, 49, 110, 120, 166, 167, 172, 180, 198, 224, 229, 242, 244, 277, 279
- Metamorphosis, 255
- Metaphor, 11, 40, 49, 63–70, 72–75, 120, 148, 161, 165–168, 170, 171, 173, 176, 177, 179, 190, 202, 207, 209–213, 216, 219, 220, 283
- Metaphor-as-Practice Hypothesis (MPH), 64, 72–75
- Metaphor-as-Theory Hypothesis (MTH), 64–67, 69, 75
- Metaphorical, 5, 63–70, 72, 74, 181, 186, 210, 214, 217, 218, 239, 259, 260, 266, 277, 284
- Metaphorically, 74, 144, 212
- Metaphoricity, 207–218, 220
- Metaphysical, 36, 50, 58, 179–183, 187, 188, 191, 194, 195, 203, 270, 273
- Metaphysics, 5, 12, 13, 36, 37, 47, 48, 55–59, 186, 187, 191, 193–197, 202, 212
- Method, 5, 9, 12, 13, 35, 44, 51, 52, 59, 61, 70, 75, 82, 88, 95–97, 100, 111, 117, 120, 133, 169, 172, 177, 185, 187, 188, 195, 197, 198, 203, 221, 223, 225, 226, 232, 277, 281, 282, 284, 286, 287
- Methodology, 96–98, 108, 201
- Metonymy, 11, 69, 219
- Mimesis, 182, 252
- Mimetic, 182
- Mind, 2–6, 8, 13, 16, 21, 24, 40, 61, 66, 72, 76, 81, 86, 93, 96, 99, 100, 102, 105, 137–141, 143–146, 148, 149, 152, 159–161, 179, 180, 194, 196, 198, 202, 203, 205, 212, 215, 219, 221, 222, 224, 225, 228, 229, 232–234, 237, 240, 254, 256, 259, 267–270, 273, 277, 280, 283, 284, 287–290
- Mirror, 189, 190, 252, 255, 260
- Modality, 121, 132, 133
- Modal learning, 121, 132, 133
- Modeling system, 18, 19, 77
- Model(s), 5, 11, 41, 50, 52, 53, 55, 63–75, 106, 107, 109, 111, 115, 116, 120, 121, 127–133, 148, 156, 161, 167, 173, 181, 185, 187, 203, 216, 239, 265, 284, 288
- Modern, 5, 10, 12, 15, 16, 19–21, 24–26, 32, 56, 66, 97, 98, 100, 115, 116, 125, 126, 153, 155, 156, 160, 183, 184, 193, 194, 197, 198, 221, 228, 237
- Modernity, 5, 20, 21, 125, 135, 160, 193, 195, 282
- Momentum, 57, 65, 66, 209
- Monadic, 33
- Moral, 7–10, 13, 93, 94, 96, 98–102, 104, 106, 109, 113–115, 117–119, 137, 140, 147–150, 154, 160, 173, 176, 180, 181, 185, 219, 239, 240, 271, 278
- Moral education, 8, 9, 13, 96, 98, 99, 101, 105, 106, 137, 147, 148, 150, 160, 163
- Morality, 13, 20, 95, 96, 101, 104, 106, 147, 156, 157, 159, 171, 282, 290
- Morris, C., 16, 241
- Mother, 9, 23, 183, 215, 226, 238, 251, 277, 281
- Motion, 18, 131, 212, 254
- Movement, 1, 5, 23, 26, 50, 55, 56, 58, 59, 127–129, 131, 132, 186, 213, 225, 250, 251, 255–258, 260, 289
- Multiplicity, 143, 167, 181, 209, 218, 231, 283
- Music, 53, 86, 218, 240
- Mysterious, 80, 146, 147, 190, 250, 253
- Mystical, 147, 158, 193, 197, 199–201, 203, 269, 284
- Mysticism, 12, 198, 229
- Myth, 14, 98, 148, 162, 205, 219, 234, 248, 266
- Mythology, 188
- N**
- Narrative, 11, 30, 41, 111, 130, 155, 166, 168, 170, 173–177, 179–182, 185, 189, 191, 196, 203, 215, 243, 266
- Natural, 3–6, 9, 11, 13, 19, 20, 22, 26, 32, 48, 52, 53, 55, 60, 108, 111, 115, 127, 133, 138, 140, 143, 145, 191, 194, 195, 201–203, 205, 231, 266, 274, 280, 282
- Natural order, 26, 55
- Nature, 1, 3, 5, 11, 12, 16, 17, 19, 21, 22, 24–27, 35, 44, 52, 74–77, 82, 87, 89, 98, 108, 111, 126, 127, 130, 139, 140, 142, 145–150, 158, 160, 161, 168, 176, 179, 180, 183, 186, 188, 194, 195, 201–203, 207, 212, 218, 231–233, 245, 251, 252, 254, 256, 264, 265, 267–270, 273, 280, 283, 288–290
- Necessity, 6, 9, 12, 24, 117, 123, 130, 168, 181, 256, 261, 273
- Negation, 7, 129, 130, 132, 246, 251–253, 254–258, 266, 267
- Neoplatonic, 4
- Neoplatonism, 198, 203
- Network, 3, 5, 140, 146, 283, 285
- Neurobiology, 100, 106
- Neuroscience, 93, 100–105, 222

- Neuroscientific, 72, 95
 Neutral, 65, 118, 125
 Nexus, 82, 100, 155, 203, 237, 278
 Nicolescu, B., 26, 27
 Nietzsche, F., 153, 163, 171, 211, 219
 Noddings, N., 8, 9, 13, 147, 148, 150, 160, 163, 166, 177, 266, 275, 277, 279, 281–283, 288, 290
 Noema, 288
 Noetic, 273, 288
 Nominalist, 184, 186
 Non-computable, 147, 149
 Non-contradiction, 7, 140, 222, 254
 Nonhuman, 3, 5, 140, 145, 250
 Nonverbal, 11, 66, 228, 232, 241, 281
 Norm(s), 131–134, 170, 171, 239, 240, 246
 Nöth, W., 8, 13, 141, 150, 194, 195, 198, 201–204, 233, 278, 290
 Nous, 273, 288
 Novelty, 2, 11, 16, 143, 180, 210
 Number, 4, 30, 31, 33, 34, 36, 40, 69, 72, 103, 109, 111, 112, 115, 122, 160, 171, 172, 180, 190, 218, 223, 232, 285
 Núñez, R., 13, 61, 64, 66, 72, 76, 77, 203
- O**
- Object, 2, 4, 5, 17, 18, 20–22, 24–26, 32, 43, 51, 52, 54, 57, 71, 83–87, 90, 93, 126, 130, 137, 139–141, 144, 148, 157, 166, 170, 172, 184, 194, 199, 200, 213, 249–251, 253, 256–258, 269, 270, 283, 287
 Objective, 19, 21, 22, 33, 64, 66, 96, 104, 105, 108, 109, 160, 166, 168, 169, 184, 194, 257, 278, 286
 Objectivism, 21
 Objectivity, 22–24, 54, 134, 166, 168, 185, 257
 Observer, 22, 142, 144, 181
 Occult, 190, 229
 OECD, 103
 Olteanu, A., 193, 194, 199, 204, 232, 234
 Ontogeny, 8
 Ontological, 24, 53, 123, 124, 126, 128, 175, 210, 212, 218, 250, 259, 272
 Ontology, 3, 4, 6, 13, 21, 27, 45, 54, 61, 77, 119, 135, 145, 147, 160, 161, 183, 187, 205, 255, 261, 280, 283
 Open-ended, 11, 233
 Openness, 167, 176, 212, 218
 Open text, 181, 182
 Opportunity, 35, 37, 132, 143, 147, 168, 189, 209
 Opposite(s), 5, 7, 8, 10, 56, 57, 99, 109, 123, 125, 128, 132, 201, 222, 227, 243, 253, 270
 Opposition, 16, 222, 237, 256
- Optimism, 101
 Ordinary language, 96, 158
 Organism, 143, 194, 196, 201, 203, 254
 Origin, 10, 22, 83, 168, 176, 237, 254, 255, 270, 271, 274
 Original, 16, 31, 128, 129, 132, 145, 155, 167, 169, 171, 172, 180, 219, 227, 239, 246, 254, 255, 272, 282, 285, 288, 289
- P**
- Paideia, 107–110, 112, 115–117, 119, 120, 125
 Painting, 30, 225, 228, 255–257
 Panofsky, E., 241
 Pansemiotic, 3, 203
 Paradox, 5, 44, 59, 91, 123, 140, 203, 251, 253, 258, 275
 Paradoxical, 5, 7, 8, 86, 123, 128, 138, 140, 142, 144, 149, 156, 169, 264, 270, 285, 286
 Paralinguistic signs, 140
 Parent(s), 81, 223, 267
 Parfit, D., 37, 39, 40
 Participation, 5, 115, 125
 Passion, 18, 190, 267, 268
 Past, 5, 18, 22, 37, 42, 71, 122, 125, 134, 135, 152, 169, 170, 183, 185, 189, 217, 239, 287
 Pathology, 152, 154–156, 158, 162
 Patriarchy, 281
 Patristic, 193, 197–201
 Pattern, 58, 63, 64, 74, 189, 278
 Pauli, W., 280
 Pedagogy, 9, 11, 13, 27, 30, 31, 34, 36, 42, 44, 48, 50, 51, 53, 55, 56, 59, 61, 70, 73, 74, 76, 77, 94–96, 98–101, 103, 105, 106, 122, 124–126, 134, 135, 142, 150, 156, 163, 205, 219, 220, 233, 234, 260, 261, 266, 270, 274, 282, 288
 Peirce, C. S., 3, 4, 6, 10–13, 15–19, 21, 25, 27, 29–37, 40–45, 48, 51, 52, 58, 60, 61, 66–68, 76, 77, 79–91, 122, 134, 137–141, 143, 145–148, 150, 161, 194–197, 200, 202–205, 212, 213, 219, 221, 222, 225, 228, 232, 234, 240, 252, 253, 255, 259, 263, 271–275, 283, 284, 288
 Penrose, R., 146, 147, 149, 150
 Perception, 7, 23, 24, 37, 65, 74, 117, 123, 139, 184–186, 191, 213, 237, 243, 259, 263, 264, 269, 271, 274, 287
 Percept(s), 271
 Perfectionist, 123, 148
 Performance, 85, 102–104, 154, 204, 222, 231
 Performative, 161, 162, 242
 Person, 6, 37, 81, 101, 103, 117, 125–127, 140, 153, 172, 173, 175, 208, 225, 228–230, 232, 264

- Personality, 114, 131, 156, 159, 280
 Pessimism, 101, 153
 Peters, M. A., 12, 13, 127, 135, 150–152, 155, 157, 162, 163, 281, 290, 234
 Petrilli, S., 217, 219, 229, 232, 234, 269, 275
 Phaneroscopy, 68
 Phenomena, 16, 21, 22, 30, 33, 53, 64, 68, 83, 140, 167, 174, 191, 195, 259, 266, 269, 272
 Phenomenology, 6, 27, 45, 48, 51, 54, 61, 77, 82, 156, 157, 159, 205, 256, 260, 274, 288, 290
 Phenomenon, 16, 83, 95, 161, 194, 196, 200, 202, 237, 265, 274, 275
 Philosophy, 2–6, 8, 11–14, 19–21, 24, 26, 27, 30, 31, 36, 37, 39, 44, 45, 48, 51, 54, 55, 58, 61, 64, 76, 77, 80, 82, 83, 90, 91, 95, 98, 105, 106, 120, 134, 135, 149, 150, 156, 162, 163, 177, 191, 203, 204, 205, 210, 219, 220, 228–230, 233, 234, 236, 239, 245, 247, 248, 254, 257, 260, 261, 266, 269, 272, 274, 275, 283, 284, 286, 289, 290
 Philosophy of education, 2–4, 6, 8, 12, 36, 64, 80, 95, 105, 122, 135, 145, 149, 163, 197, 204, 205, 233, 234, 240, 245
 Philosophy of Education Society of Australasia, 4, 12
 Philosophy of language, 5, 36, 191, 220, 236, 239, 284
 Physical, 5, 17–19, 21, 23, 24, 59, 60, 66, 83, 86, 98, 117, 134, 139, 146, 149, 180, 181, 185, 187, 228, 232, 252, 265, 267, 268, 280
 Physicist, 5, 65, 146, 253, 280
 Physics, 5, 12, 20, 25, 50, 57, 146, 253, 284
 Pictorial language, 277
 Picture, 32, 33, 40, 43, 65, 144, 158, 217, 253, 255, 278
 Pikkarainen, E., 121, 135, 195, 202, 204
 Pisa test, 102, 103
 Plan, 22, 188–190
 Plane, 57, 58, 191, 250, 255, 286
 Plato, 4, 41, 43, 50, 55, 60, 122, 135, 188, 225, 251, 266, 269, 274
 Play, 33, 52, 55, 64, 75, 96, 97, 117, 126, 134, 166–168, 180, 208, 215, 217, 219, 220, 223, 227, 268, 275
 Plot, 175, 181, 182, 186, 188–191
 Plotinus, 269
 Poetic language, 238, 239, 247, 261
 Poetry, 11, 226, 228–230, 233, 234, 240
 Poinsot, J., 16, 24, 27, 204
 Policy, 6, 7, 12, 13, 108, 163, 220, 245, 282
 Political, 12, 60, 102, 103, 108, 114, 117, 120, 161, 231, 236
 Politics, 13, 98, 120, 162, 163, 219, 275, 285, 289
 Polysemic, 2, 168, 279
 Popper, K., 66, 77
 Position, 3, 12, 23, 39, 57, 64, 88, 102, 145, 166, 168, 194–196, 201, 203, 208, 227, 236–239, 242, 243, 256, 259, 278
 Positionality, 162
 Positivism, 20, 95, 96, 158, 246
 Positivist, 97, 100
 Posner, R., 278, 290
 Possibility, 12, 34, 53, 59, 85, 88, 90, 128, 129, 132, 146, 153, 166, 176, 180, 186, 187, 190, 196, 197, 212, 215, 218, 250, 251, 255, 256, 258, 282, 285
 Possible, 16, 17, 21, 23, 34, 37, 39, 41, 48, 52, 56, 69, 80, 85, 86, 110, 123, 124, 126, 127, 132, 134, 143, 144, 161, 169, 175, 180, 181, 185, 191, 197, 202, 211, 242, 251, 253, 255, 259, 267, 270, 279, 282
 Possible world, 180–182, 190
 Posthuman, 6, 8
 Postmodern, 4, 5, 13, 26, 149, 163, 177, 187, 190, 194–196, 204, 233, 261, 274
 Potentiality, 58, 131
 Power, 33, 50, 54, 96, 156, 159, 160, 162, 167, 177, 188, 190, 229, 244, 247, 255, 261, 265, 269, 272, 273, 281, 285
 Pragmatic, 5, 31, 44, 54, 72, 76, 133, 134, 139, 212, 219, 233, 283, 290
 Pragmaticism, 90, 219
 Pragmatism, 4, 37, 42, 90, 204, 241
 Praxis, 99, 140
 Predicate, 34, 35, 87, 243
 Predicative, 124, 239, 243, 247
 Predict, 34, 71
 Pre-predicative, 124
 Presence, 8, 32, 65, 66, 85, 88, 123, 153, 173, 225, 228, 246, 251, 253, 258, 267, 268, 286
 Present, 4, 20, 22, 32, 36, 39, 48, 50, 55, 64, 75, 85, 112, 123, 125, 128, 139, 142, 143, 149, 156, 170, 174, 189, 195, 197, 199, 202, 216, 222, 230, 238, 243, 244, 251, 254, 256, 260
 Presentation, 37, 69, 88, 114, 189, 237, 286
 Presuppositions, 1, 165, 170
 Problem(s), 42, 44, 48, 54, 73, 76, 81, 154, 158, 162, 177, 219, 236, 241, 247, 287
 Process, 3, 8, 13, 35, 68, 120, 138, 152, 162, 168–170, 172–174, 180–183, 188, 194, 197, 200, 203, 212, 214, 221, 223, 232, 238, 244, 247, 252, 255, 259, 261, 274, 275
 Process of becoming, 162, 258–260, 285

- Productivity, 237, 287
 Proficiency, 74, 223
 Progress, 7, 39, 66, 73, 115, 126, 127, 152, 181, 256, 281
 Projection, 60, 76, 124, 175
 Pronoun, 85, 242
 Proof, 48, 72, 75
 Proposition(s), 32, 87, 95, 124, 141, 144, 147, 183, 205, 278
 Prospective, 10, 287
 Proust, M., 286, 289
 Psyche, 181, 230, 243, 246, 265, 268, 269, 286
 Psychical, 17, 83, 139, 280
 Psychoanalysis, 3, 156, 158–160, 171, 238, 278
 Psychological, 17, 23, 64, 72, 139, 141, 149, 152, 154, 159, 162, 169, 182, 189, 222, 258, 269, 278, 288, 290
 Psychology, 44, 70, 71, 80, 101, 106, 135, 138, 156–158, 222, 230, 242, 246, 265, 279, 283, 290
 Psychosemiotic, 235, 240, 243
 Psychosomatic, 116, 240, 246
 Pupil(s), 116, 123, 280
 Purpose, 3, 4, 12, 30, 36, 64, 86, 96, 117, 154, 187, 188, 196, 224, 228, 259, 260, 265, 268, 273, 278
- Q**
- Qualities, 22, 23, 30, 35, 51–53, 123, 257, 258, 282
 Quality, 18, 33, 51, 54, 86, 105, 106, 108, 109, 115, 120, 123, 141, 171, 213, 255, 260, 263, 266, 268, 273, 283, 287, 288
 Quantum, 65, 145, 146
 Quay, J., 79, 83, 91
 Quine, W.V.O., 36, 44, 93, 97, 106, 239
- R**
- Rational, 5, 34, 100, 123, 126, 160, 168, 176, 224, 225, 227–229, 232, 240, 244, 283, 286
 Rationality, 6, 10, 87, 101, 126, 144, 145, 160, 224, 228, 230, 285
 Reader, 2, 12, 79, 166, 167, 169–172, 174–176, 179–183, 189, 191, 198, 199, 247, 261, 278, 285
 Reading, 24, 25, 36, 40, 70, 100, 102, 103, 111, 122, 152, 154, 156, 171, 174–177, 179–181, 183, 185, 186, 189, 193, 199, 201, 202, 205, 218, 222, 224, 227, 228, 231, 236, 237, 245, 205, 252, 255, 261, 277, 278, 281, 282, 284–290
 Real, 10, 16, 27, 31, 51, 57, 66, 69, 72, 87, 89, 90, 95, 97, 103, 104, 125, 128, 133, 135, 139, 167, 172, 181, 188–191, 197, 212, 230, 242, 252, 255, 259, 260, 271, 284, 287
 Realism, 157, 183, 197, 261
 Reality, 4, 10, 20, 21, 34–36, 57, 60, 109, 122, 126, 147, 149, 150, 158, 168, 169, 175, 181, 182, 186, 188–191, 193, 196–200, 204, 225, 238, 246, 257, 258, 265, 268–270, 284, 288
 Reason, 1, 7, 8, 10, 14, 16, 21, 22, 32, 34, 35, 40, 41, 43, 45, 50, 51, 53, 56, 60, 80, 81, 84, 89, 97, 100, 104, 105, 111, 134, 135, 141–147, 149, 158, 186, 187, 189, 205, 219, 230–234, 248, 254–256, 264, 268, 273
 Reasoning, 9–11, 13, 47, 51, 63, 64, 66, 67, 69, 75, 76, 79–91, 100, 101, 105, 108, 117, 120, 140, 141, 148, 184, 185, 203, 225, 268
 Rebirth, 260, 266
 Receptacle, 249, 251, 254
 Reciprocal, 143, 146, 267, 270, 284
 Reciprocity, 8, 11, 59, 166, 263
 Recognition, 35, 36, 85, 89, 116, 143, 175, 217, 256, 272
 Reconcile, 101, 184
 Reconciliation, 144, 222
 Recursive, 7, 133, 146, 147
 Referent, 4, 97, 222
 Reflection, 109, 138, 143, 201, 219, 236, 256, 260, 270
 Relational, 3, 6, 7, 11, 32, 35, 43, 51, 137, 141, 143, 144, 146, 160, 166, 169, 193, 195, 200, 211, 212, 221, 224, 245, 252, 269, 281, 282, 283, 289
 Relational excess, 32, 35, 43
 Relation(s), 4, 5, 7–11, 18, 20, 21, 23, 24, 32, 33, 35, 43, 48, 49, 51–55, 58, 59, 66, 68, 69, 73, 75, 80, 81, 83–88, 90, 97, 101, 104, 107, 111, 117, 119, 124, 125, 129, 132–134, 137, 138, 140, 141, 144–148, 150, 155–162, 166, 169, 176, 181, 188, 189, 194–196, 198, 200, 203, 211, 213, 218, 221, 222, 224, 228–230, 232, 235, 241–243, 249–252, 254, 256–259, 263–265, 267, 269–271, 273, 277, 278, 280–285, 287
 Relationship, 5, 32, 34, 37, 41, 59, 107, 108, 111, 112, 116–119, 122, 129, 145, 156, 159, 169, 171, 172, 203, 207, 209–212, 228–230, 251, 258, 264–266, 268, 270, 279, 281, 287

- Relative, 17, 18, 59, 96, 138, 187, 225–227, 251, 253, 256
- Relativism, 124
- Relativity, 18
- Religion, 27, 48, 95–98, 135, 158, 204, 274, 282
- Religious, 20, 94, 100, 101, 106, 113–115, 117–119, 127, 158, 160, 183, 198
- Representation, 5, 6, 18, 19, 21, 29, 33, 51, 53, 54, 59, 68, 69, 75, 76, 83, 86, 87, 139, 152, 182, 186, 198, 251, 259, 275, 277, 286, 288
- Representational, 55, 63, 72, 180
- Rescher, N., 4, 13
- Research, 2–6, 10–12, 25, 31, 36, 48, 56, 64, 65, 67, 72–76, 80, 87, 88, 93–95, 100–109, 115, 119, 120–122, 134, 139, 145, 150, 153, 156, 160, 163, 168, 193–195, 197, 201–203, 207, 214, 215, 219–223, 230, 235, 236, 239, 240, 245–247, 273, 284, 290
- Research Center for Language and Semiotic Studies, 25
- Resemblance, 32, 33, 131, 212
- Resonance, 209, 284
- Responsibility, 26, 94, 95, 114, 115, 154, 157, 170, 184, 189, 268, 269, 274
- Revelation, 144, 187, 246, 268
- Revolt, 235, 240, 246, 260, 261
- Revolution, 20, 177, 225, 238, 239, 247, 261
- Rhetoric, 30, 44, 191, 218
- Rhetorical, 29, 210, 225
- Rhizome, 187, 283, 284
- Ricoeur, P., 165, 166, 168, 169, 172–177
- Right, 5–7, 9, 18, 19, 21, 25, 39, 50, 57, 60, 81, 115, 124, 145, 148, 157, 184, 186, 187, 215, 225, 252
- Risk, 185, 285
- Rorty, R., 168, 177
- Rotman, B., 47, 48, 50, 61
- Rowe, K.J., 101, 102, 106
- Rule, 45, 51, 54, 71, 149, 180
- Rumi, 229
- Rutherford, E., 65, 67
- S**
- Sacred, 169, 195, 199, 267
- Sakharov, N. V., 269, 275
- Sartre, J.-P., 122, 128, 129, 153, 157
- Saussure, F. de, 3, 15, 16, 19, 30, 36, 109, 110, 127, 168, 195, 219, 236, 237, 240, 243, 248
- Scaffold, 41, 181
- Schema, 59, 66–68, 74, 75
- Schemata, 63, 66, 69, 72–75, 180, 181
- Scholastic, 18, 24, 203
- Scholasticism, 24, 241
- Scholastic realism, 197
- School, 2, 10, 12, 36, 49, 73, 80, 90, 93, 94, 100–106, 113, 114, 118, 147, 150, 157, 161, 162, 176, 177, 196, 223, 228, 236, 238, 259, 290
- Schooling, 6, 82, 100, 104, 159, 270, 281
- Science, 2, 4, 6, 7, 9, 11, 12, 15, 16, 19–22, 24–27, 40, 44, 48, 54, 61, 65, 67, 69, 76, 77, 82, 83, 89, 93, 95–100, 102–105, 120, 135, 137, 145, 146, 156, 158, 161, 164, 166, 168, 169, 171, 174, 177, 194–196, 205, 210, 219, 222, 229, 233, 234, 244–247, 251, 252, 254, 259, 261, 271, 275, 284, 285, 288, 290
- Science fiction, 40
- Science of coordination dynamics, 137, 145–147
- Science of signs, 3, 6, 9, 16, 137, 145, 147, 148, 194, 244
- Scientific, 5, 10, 13, 20, 21, 24, 44, 50, 63, 65, 72, 76, 77, 83, 88, 97, 100, 109, 117, 145–147, 158, 168, 177, 184, 194, 196, 209, 216, 244, 245, 252, 284
- Scripture, 20, 169, 198–200
- Sebeok, T. A., 12, 16, 17, 19, 25–27, 65, 77, 179, 180, 182–188, 191, 196, 203, 204, 239, 247, 278, 290
- Second language, 69, 72, 74, 76, 77, 222
- Secondness, 83, 84, 138
- Seduction, 263–267, 270, 274
- Seif, F. Y., 263, 264, 268, 271, 272, 275
- Self, 6, 13, 150, 154, 156, 162, 163, 165, 171, 219, 234, 261, 271, 273, 275, 280, 285, 289, 290
- Self-cultivation, 122
- Self-doubt, 155
- Self-education, 280
- Self-expression, 154, 155
- Self-formation, 6, 9, 126, 151, 157
- Selfhood, 154, 172–174, 176, 255
- Self-knowledge, 8, 155, 159, 162, 165, 166, 170, 250, 270, 280, 285
- Self-organization, 254
- Self-reference, 8, 146, 254
- Self-referential, 140, 142, 147, 149, 254, 284, 285
- Self-reflection, 8, 10, 139, 288
- Self-reflectivity, 99
- Self-writing, 154
- Seligman, M., 101, 106

- Semanalysis, 235–238, 240, 241, 244–247, 278
- Semantic(s), 51, 60, 75, 107–109, 111–113, 117–120, 180, 240, 241, 258
- Semetsky, I., 1, 2, 4, 5, 8, 11–14, 17, 26, 27, 30, 36, 44, 48, 53, 60, 61, 64, 75, 77, 80, 86, 90, 91, 98, 99, 101, 103, 106–108, 111, 120–123, 128, 135, 137, 140, 141, 144, 147–150, 152, 153, 159, 160, 163, 164, 166, 177, 185, 191, 194–197, 198, 201, 202, 204, 205, 208, 211, 212, 214, 219–222, 228–230, 232–234, 245–248, 253–257, 259–261, 265, 266, 268, 269, 271, 272, 275, 277, 280–283, 290
- Semioethical, 268, 274
- Semioethics, 269, 275
- Semiology, 3, 15–17, 36, 127, 168, 240, 244, 245, 247
- Semiosis, 3, 4, 6–8, 11–14, 15–20, 22–27, 72, 79, 82–90, 135, 137, 138, 145–149, 174, 180, 183, 186, 187, 195–197, 200–202, 204, 205, 219, 234, 248, 266, 273, 279, 281, 282, 289
- Semiotic animal, 23, 26
- Semiotic bridge, 12, 142, 143, 147, 149, 213, 257, 282, 284
- Semiotic competence, 19, 194, 200–202
- Semiotic consciousness, 15, 22, 193, 199
- Semiotic engagement, 13, 205, 207, 219, 234
- Semiotic relation, 194, 196, 232, 251, 267, 269, 280, 287
- Semiotic Society of America, 3
- Semiotic square, 129, 131, 132
- Semiotic system(s), 19, 99, 111, 169, 194, 241, 277, 278
- Semiotic triangle, 137, 140, 142, 146, 149
- Sensation, 21, 23–25, 140, 264
- Sense, 6, 12–15, 16, 19–24, 26, 27, 39, 44, 47, 55, 57, 59–61, 72, 77, 80–83, 86, 88, 90, 94, 95, 98, 106, 116, 123, 124, 126–128, 135, 138–140, 142, 143, 146, 147, 150, 153–155, 158, 163–165, 175, 177, 180, 183, 184, 188–190, 202, 204, 205, 211–213, 215–220, 229, 233, 234, 240, 242, 243, 245, 247, 248, 257, 258, 260, 261, 263, 265, 267–269, 271, 272, 274, 275, 277, 280, 284, 286–290
- Sense-data, 97, 148, 228
- Sense-perception, 23, 65, 237
- Sensible, 23, 50, 53, 60, 132, 148, 257, 268, 273, 274, 285, 288
- Sentiment, 152, 239
- Set theory, 48, 56
- Sex, 156, 161, 265
- Sexuality, 156, 264, 268
- Share, 24, 51, 72, 81, 87, 146, 160, 168, 195, 197, 200, 210, 211, 214, 239, 242, 246, 271, 272
- Shared, 6, 11, 13, 21, 33, 49, 50, 52, 57, 58, 81, 132, 134, 150, 158, 163, 193, 202, 207, 208, 210, 212, 214, 216, 218, 235, 236, 239, 244, 245, 279
- Sha, X. W., 53, 54, 59, 61
- Sherlock Holmes, 184, 185, 191
- Shimony, A., 147, 150
- Shlain, L., 281, 282, 290
- Shock, 40, 143
- Signal, 36, 79, 155
- Significance, 235, 238, 240, 241
- Significance, 1, 7, 10, 22, 29, 37, 52, 60, 66, 96, 108, 143, 153, 159, 161, 173, 185, 187, 208, 221, 233, 234, 235, 236, 238, 240, 268, 278, 279
- Signification, 3, 8, 17, 32, 33, 35, 36, 86, 168, 180, 181, 186, 194, 199, 203, 224, 236, 258, 279
- Signified, 18, 85, 86, 186, 266, 279, 282
- Signifier, 186, 238, 242, 279, 283
- Signifying practice, 236, 238–240, 245, 246, 260
- Sign-object-interpretant, 84, 86, 87, 90
- Sign-process, 166, 197, 200, 259, 282, 283
- Sign-relation(s), 4, 23, 59, 148, 277
- Sign-system, 169, 191, 278
- Silence, 153, 161
- Silent discourse, 285
- Similarity, 52, 66, 86, 199, 200, 203, 212
- Situation, 9, 35, 49, 54, 64, 69, 74, 80–82, 88, 126, 127, 129, 130, 134, 139, 141–143, 148, 152, 159, 170, 172, 174, 185, 189, 231, 242, 245, 277–280
- Skill, 9, 49, 50, 53, 70, 73, 94, 97, 100, 116, 122, 123, 130, 133, 148, 154, 199, 201, 222
- Snow, C. P., 25, 186
- Social, 4, 6, 13, 15, 19, 48, 60, 63, 93, 94, 98–105, 108, 109, 111–117, 120, 121, 130–134, 158, 160, 163, 166, 170, 176, 186, 191, 196, 203, 208–215, 217–219, 232, 239, 240, 242, 263, 265, 269, 270, 278, 281, 284, 287, 290
- Social practice, 239, 240, 246, 260, 284
- Social psychology, 16
- Society, 3, 4, 12, 43, 109, 114, 115, 119, 120, 131, 132, 134, 154–156, 160, 195, 208, 217, 228, 236, 247, 254, 281, 282
- Socio-cultural, 5, 10, 109, 126, 235
- Socrates, 9, 159, 162, 254, 268
- Solipsism, 189
- Solovyov, V., 267

- Sonesson, G., 277, 290
 Song of Songs, 198, 266
 Soul, 125, 160, 234, 254, 268, 273, 274
 Space, 10, 48, 50, 52–54, 56, 58, 59, 65, 66, 119, 120, 143, 204, 208, 209, 211, 214, 215, 218, 233, 251–254, 258, 266, 271, 287
 Speaking subject, 162, 235, 236, 239, 241, 243–245, 247
 Specialization, 10, 24–26, 55, 60
 Spectator, 5, 145, 181
 Speculative rhetoric, 30, 44
 Speech, 16, 66, 69, 161, 162, 201, 209, 226, 233, 242–244, 266
 Speech act, 213, 242, 244
 Spiral, 16, 129, 130, 132, 133, 170, 171
 Spirit, 11, 31, 95, 123, 139, 160, 198, 200, 203, 211, 229, 231, 256, 257, 260, 267–269, 273
 Spiritual, 5, 93, 104, 150, 155, 158, 162, 189, 256, 264, 265, 271, 275, 282
 Spirituality, 150, 198, 265, 267, 275, 282
 Squiggle, 145, 222
 Stables, A., 12–14, 17, 27, 36, 44, 48, 61, 64, 77, 90, 91, 98, 103, 106, 107, 111, 120, 121, 123, 135, 166, 177, 194–197, 202, 204, 205, 208, 211, 212, 214, 219, 220, 225, 232–234, 245, 248, 255, 259–261, 266, 275
 Static, 97, 132, 200, 210, 213, 221, 232, 236, 283
 St. Augustine, 22, 27, 169, 193, 195, 197–201, 205, 231
 STEM, 15, 25
 Stipulation, 19, 52
 Stjernfelt, F., 21, 27, 33, 36, 45, 51, 52, 61, 67, 77, 194, 199–201, 205, 233
 Stoics, 9, 155
 Stories, 27, 40, 174, 180, 184, 188, 189, 223, 279
 Story, 39, 40, 72, 73, 96, 165, 174, 179, 180, 183, 185, 188–191, 232, 243, 251, 256, 266, 274
 Strand, T., 30, 45, 202, 205
 Strategy, 73, 112, 183, 188, 225
 Structural, 33, 51, 54, 107, 110–112, 120, 172, 179, 190, 213, 240, 241, 284, 286
 Structuralism, 27, 157, 177, 182, 201, 237
 Structuralist, 3, 16, 160, 208, 241
 Structural semantics, 107, 111, 120
 Structure(s), 5–8, 11, 16, 17, 19, 21, 29, 30, 34–37, 39–44, 48–52, 54–60, 64–66, 68, 72, 74, 87, 89, 99, 109–111, 119, 130, 132–134, 138–140, 142, 146, 149, 156, 167, 168, 175, 177, 179–181, 183, 186, 187, 189–191, 194, 200, 212, 213, 221, 222, 231, 233, 237, 238, 240, 246, 251, 255, 256, 259, 270, 277, 285, 286, 288
 Student(s), 1, 4, 7, 11, 15, 20, 24, 25, 29–31, 35–37, 39–42, 47, 49, 50, 54–59, 70, 71, 73, 74, 80–82, 93–95, 98, 100–102, 104–106, 115, 120, 140, 141, 145, 147–150, 153, 154, 161, 163, 169, 187, 222–233, 247, 267, 270, 290
 Style, 128, 157, 189, 212, 244
 Subject in process, 235, 238, 247, 260, 261
 Subjective, 19, 22, 32, 117, 134, 156, 174, 175, 237, 257, 286
 Subjective interaction, 17
 Subjectivism, 21
 Subjectivity, 1, 4, 13, 22, 152, 156, 160, 162, 163, 166, 169, 171, 174, 175, 242, 249, 251, 255–257, 283, 285, 289
 Substance, 4, 5, 49, 137, 139, 145, 221, 222, 283
 Success, 7, 22, 24, 58, 60, 73, 82, 93
 Sufi, 200, 229
 Suprasubjective, 4, 18, 197
 Surface, 23, 51, 53, 84, 90, 155, 237, 252, 253, 255, 258, 284
 Surprise, 67, 88–90, 95, 101–104, 133, 141, 149, 153, 273
 Surprise effect, 89, 93, 95, 96, 98, 100, 101, 103
 Symbol, 19, 29, 30, 32–37, 40, 43, 51, 68, 85, 86, 95, 98, 112, 116, 139, 145, 169, 174, 199, 200, 213, 225, 226, 233, 254, 257, 278, 279, 290
 Symbolic, 2, 32, 33, 36, 85, 145, 183, 190, 203, 209, 211, 219, 230, 233, 237, 246, 252, 260, 278–280, 282
 Sympathetic system, 279
 Sympathy, 226, 239, 273, 282
 Symptom, 1, 3, 139, 148, 202, 236, 246, 284
 Synchronic, 22
 Synchronicity, 280
 Synchrony, 22
 Syntactical, 51, 225
 Syntax, 44, 194, 199, 200, 203, 244
 Synthesis, 5, 168, 169, 256, 260, 273
 Synthetic, 8, 36, 47, 95, 140, 142, 144, 169, 282
 System, 5, 18, 19, 22, 30, 36, 48, 51–53, 55, 57–59, 63, 65, 66, 72, 77, 96, 97, 99–102, 107–111, 115, 116, 119, 150, 161, 169, 180, 184, 194, 196, 204, 213, 216, 221,

- 223, 224, 232, 233, 237, 240–247, 250,
254, 275, 277–279, 283, 285
- System science, 74
- T**
- Tabula rasa, 231, 283
- Taoism, 4, 146
- Taoist, 148
- Tarasti, E., 121, 122, 124, 125, 127–132, 135
- Target language, 70
- Tarot, 44, 61, 150, 163, 164, 177, 205, 234,
247, 261, 275, 277–282, 284–288, 290
- Teacher(s), 1, 4, 7–12, 24, 31, 41, 42, 44, 47,
50, 52, 55, 57, 70, 73, 74, 76, 81–83, 94,
98, 102, 106, 120, 141, 145, 147–149, 161,
163, 202, 205, 207–209, 214–216, 218,
220–233, 238, 267, 289, 290
- Teaching, 3, 8, 11, 13, 20, 26, 29–31, 34–37,
42, 47–51, 56, 59, 63, 64, 70, 71, 75, 76,
79–82, 90, 100–103, 105, 127, 134, 139,
141, 150, 156, 179, 180, 184, 191,
194–196, 198, 202, 218, 222–224, 231,
234, 246, 263, 264, 271, 273, 274, 282, 289
- Technology, 15, 25, 54
- Telos, 196, 197
- Tendency, 42, 90, 138, 143, 172, 194, 196,
203, 263
- Tertium, 5, 7
- Test, 7, 20, 21, 66, 73, 82, 94, 102, 103, 106,
175
- Testable, 66, 97
- Text, 2, 7, 16, 19, 40, 64, 107–119, 151, 154,
165–172, 174–177, 179–183, 186,
189–191, 193, 195, 198–199, 201–203,
227, 231, 235–238, 240, 242, 243, 246,
278, 289
- Textuality, 165, 176, 181
- Theologian, 20, 97, 186, 203
- Theology, 169, 183, 186, 188, 193, 195, 197,
190, 200, 201, 204
- Theory, 1–5, 13, 17, 20, 26, 30, 36, 39, 44, 47,
48, 54, 56, 58–61, 64–74, 76, 77, 79, 80,
82, 88–91, 97–99, 101, 105, 107, 117, 119,
120–124, 126–128, 135, 141, 145, 148,
150, 156, 157, 159, 160, 163, 165, 174,
175, 177, 179, 184, 187, 188, 191,
193–195, 197, 199, 201–205, 222, 229,
234, 235, 237, 238, 241–243, 245–249,
251–253, 260, 261, 270, 275, 287, 288, 290
- Theory-practice, 82, 155, 203, 277, 278
- Therapy, 151, 152, 158, 160
- Think, 6, 15, 32–34, 37, 39–41, 48, 68, 72, 74,
76, 80, 96, 103, 117, 143, 150, 185, 252,
254, 255, 257–259, 269, 271
- Thinking, 6, 10, 16, 21, 22, 26, 30, 39, 40, 51,
52, 67, 69, 74, 85, 86, 89, 96, 97, 99, 101,
103, 116, 122, 134, 139–143, 145, 149,
151–155, 157, 158, 161, 162, 167, 185,
186, 204, 214, 217, 233, 236, 237, 245,
253, 255–257, 260, 266, 270, 271, 275,
278, 281, 282, 287, 290
- Thirdness, 83, 84, 138, 141, 145
- Thomas Aquinas, 184, 203
- Thomson, I., 122, 123, 135
- Thought, 6, 7, 10, 21, 22, 36, 66, 76, 82, 86,
87, 89, 97, 137, 152, 169, 202, 219, 225,
229–231, 233, 245, 252, 256, 259–261,
274, 286, 287, 289
- Threshold, 285, 287
- Tilde, 8, 145, 146, 221–223
- Timaeus, 249, 251, 254
- Time, 1, 4, 9, 10, 13, 16, 21, 22, 26, 30, 33, 37,
39–42, 53, 54, 57, 59, 73, 81, 90, 97, 102,
109, 113, 114, 118, 123, 131, 135, 138,
143, 147–149, 153, 154, 155, 159–162,
166, 168, 171–175, 177, 185, 189, 195,
198, 203, 204, 209, 210, 213, 217, 218,
223, 226, 233, 236, 237, 244, 246, 247,
249, 251, 253–255, 258, 263, 266, 268,
271, 272, 274, 278, 279, 287
- Tool, 2, 43, 47–49, 51, 59, 69, 167, 175, 198,
199
- Topological, 47, 48, 53, 56, 58–61
- Topology, 47, 48, 53, 55–61
- Torah, 187
- Trace, 1, 15, 18, 53, 55, 56, 72, 93, 182, 183,
186, 197, 235, 236, 242, 243, 245, 255, 285
- Tradition, 4, 5, 16, 19, 24, 35, 36, 50, 97, 120,
122, 125, 126, 132, 133, 153, 156, 157,
160, 161, 167, 169, 170, 183, 193, 198,
200, 224, 225, 228, 229, 232, 239, 241,
244, 271, 279, 283
- Traditional, 6, 9, 10, 20, 40, 58, 82, 93, 101,
125, 154, 168, 169, 180, 188, 191, 211,
216, 218, 232, 242, 278, 279, 282
- Training, 9, 12, 21, 49, 54, 55, 58, 63, 70, 74,
104, 115, 159, 223, 281
- Transaction, 143, 144, 146, 219, 284
- Transcend, 4, 25, 144, 149, 160, 264, 269, 271,
272, 274, 283, 287
- Transcendence, 4, 55, 123, 124, 128, 130, 272,
288, 290
- Transcendental, 50, 121, 127–130, 132, 134,
169, 186, 266, 277, 284, 287, 289
- Transcendental empiricism, 277, 287
- Transcendental journey, 121, 127–129, 132
- Transdisciplinarity, 27, 135
- Transdisciplinary, 15, 26, 271

- Transdisciplinary knowledge, 15, 26, 271
 Transfer, 70, 71, 74, 166, 167
 Transfer theory, 70–72, 74
 Transformation, 3, 5–7, 11, 12, 20, 67, 75, 107, 113, 117–119, 122, 125, 127, 129, 137, 139, 141–144, 156, 167, 173, 179, 182, 183, 187, 190, 191, 194, 202, 214, 221, 222, 224, 233, 236, 246, 249, 252, 254, 260, 266, 269, 283
 Transgress, 209, 239, 240, 245
 Translate, 68, 73
 Translation, 5, 6, 8, 74, 124, 167, 176, 177, 209, 225, 229, 239, 275
 Translinguistic, 238, 240–242
 Transmission, 11, 22, 49, 125, 166, 167, 174, 201, 217, 281
 Transparency, 272
 Transpersonal, 283
 Transversal, 284, 286, 287
 Transversal communication, 283–285
 Transversality, 287
 Triad, 84, 87, 89, 138, 142, 144, 273
 Triadic, 7, 8, 18, 30, 33, 83, 86, 137–142, 146, 148, 149, 186, 199, 200, 213, 221, 228, 256, 284, 287, 288
 Triadic semiotics, 284
 Triadicty, 18
 Triangle, 50, 137, 140, 142, 146, 149
 Trifonas, P. P., 179, 275
 Tri-relative, 4, 11, 83, 87, 138, 146, 222
 Trope, 11, 182, 207, 213
 True, 6, 7, 11, 21, 25, 29, 36, 43, 50, 80, 83, 90, 96, 99, 123, 125, 127, 145, 147, 149, 158, 160, 181, 184, 194, 211, 225, 267, 268, 287
 Trust, 94, 104
 Truth, 6, 7, 20, 30, 31, 36, 41, 43, 44, 48–50, 55, 85, 95, 97, 99, 104, 122–127, 134, 135, 152, 157, 159, 162, 163, 168, 169, 177, 182–183, 186, 187, 190, 199, 211, 213, 214, 217, 232, 263, 264, 273, 283
 Tutorial, 39, 40
- U**
 Ubiquitous, 50
 Uexküll, J. von, 69, 77, 194, 196, 205
 Umwelt, 69, 77, 194, 196, 267
 Uncertainty, 152, 166, 168, 214, 250, 251, 253
 Unconcealment, 121–127, 133, 135
 Unconscious, 3, 7, 8, 63, 64, 66, 81, 137–144, 146–149, 155, 157, 162, 230–233, 236, 242, 243, 246, 253, 255, 259, 277–281, 283–289
 Understand, 3, 9, 20, 25, 31, 39, 72, 80, 98, 102, 116, 122, 124, 126, 128, 142, 147, 149, 161, 162, 169, 173–176, 182, 183, 189, 194, 198, 199, 202, 208, 222, 224, 235, 240, 270, 277, 279
 Understanding, 1, 6, 7, 9, 13, 16–20, 23–26, 30, 37, 39, 43, 47, 49, 51, 52, 55–57, 58, 60, 64, 79, 80, 82, 84, 86, 98, 99, 101–103, 108, 109, 117, 121, 124–127, 140, 141, 144, 149, 155–158, 165–170, 172–177, 182, 196, 203, 204, 208, 209, 212, 214–218, 223, 233, 237, 238, 245, 253, 263, 265, 266, 271–274, 280–282
 UNESCO, 9, 107–109, 112, 120
 Unfold, 42, 121, 131, 170, 194, 265, 287
 Universal, 21, 26, 50, 54, 60, 83, 152, 160, 171, 176, 184, 186, 200, 213, 217, 249, 251, 254, 256, 259, 279
 Universe, 5, 16, 20, 21, 26, 54, 58, 61, 97, 128, 140, 146, 150, 162, 176, 181, 187, 194, 202, 251–254, 266, 271–273, 285, 286
 University, 3, 4, 13, 15, 24–27, 31, 37, 44, 60, 61, 73, 75–77, 91, 94, 104, 106, 120, 128, 134, 135, 149–151, 154, 156, 162, 163, 176, 177, 191, 204, 205, 219, 220, 233, 234, 247, 260, 261, 270, 273–275, 289, 290
 Unpredictable, 12, 22, 143
 Unseen, 228, 252
 Unthinkable, 191, 255
 Unthought, 230, 233, 234, 249, 252, 253, 255, 257, 260, 283, 285
 Usage, 48, 51, 74, 188, 209
 Use, 2, 19, 26, 30–32, 34–36, 39, 40, 43, 47, 48, 52, 58–60, 65, 68–70, 72, 73, 75, 76, 83, 85, 90, 102, 108, 131, 144, 153, 155, 158, 159, 165, 168, 171, 172, 180, 181, 183, 184, 187, 190, 191, 195, 207–212, 215, 217, 223, 225, 227, 228, 242, 243, 269
 Utopia, 281
 Utterance, 3, 74, 76, 97, 153, 169, 184, 208, 213, 216, 217, 228, 242, 243, 277
- V**
 Vague, 109, 118, 139, 142
 Vague concept(s), 109, 118
 Value, 6–11, 13, 30, 34, 36, 71, 80, 88, 93–96, 98–106, 107–120, 122, 130–132, 134, 135, 142, 144, 145, 147, 148, 150, 154, 158, 163, 165, 168, 170, 205, 213, 217, 227, 230, 232, 234, 235, 240, 244, 246, 247, 259, 271, 275, 277, 278, 281, 282, 288, 290
 Values pedagogy, 95, 96, 98–101, 103–106
 Varela, F., 222, 234, 268, 274

- Verbal, 3, 7, 11, 18, 66, 85, 89, 116, 139, 141, 144, 145, 184, 213, 228, 232, 237, 241, 253, 277, 282, 286
- Verification, 95, 97, 175, 185
- Video, 2, 37
- Violence, 187, 273
- Violent, 246
- Virtual, 27, 76, 135, 146, 148, 150, 182, 230, 252, 257, 284, 286–288
- Visual, 2, 11, 43, 44, 52, 53, 66, 68, 72, 73, 76, 157, 232, 240, 252, 253, 258, 285, 290
- Visual language, 253, 258
- Voice, 39, 101, 104, 161, 183, 207–209, 214–219, 227, 281, 282, 285, 289, 290
- Voloshinov, V., 208, 211–213, 218, 220
- Von Eckardt, B., 288, 290
- Vygotsky, L. S., 3, 214, 220
- W**
- Ways of knowing, 99, 215, 280, 281
- Wellbeing, 93–95, 101, 104, 105, 108, 113–115, 118, 120, 150, 163, 247, 275, 290
- West, 13, 150, 229, 245
- Western, 5, 37, 50, 76, 93, 95, 159, 160, 171, 212, 219
- White, E. J., 207–210, 214–220
- Whitehead, A. N., 4, 11, 269, 275, 290
- Whodunnit, 184, 191
- Whole, 11, 12, 16, 17, 19, 20, 22, 25, 26, 32, 52, 69, 70, 99, 101, 111, 114, 119, 123, 126, 134, 140–142, 146, 154, 157, 169, 180, 194, 196, 200, 225, 231, 246, 249, 254, 263, 264, 268, 269, 271–273, 282, 285
- Wholeness, 10, 148, 203, 217, 263–265, 269–274
- Wholophilia, 271
- Williams, J., 286, 288, 290
- Wisdom, 5, 103, 106, 153, 171, 199, 228, 229, 234, 265, 266, 268, 269, 275, 289
- Wittgenstein, L., 96, 106, 151, 157, 158, 162–164, 175
- Woman, 22, 23, 269, 282
- Women, 76, 151, 161, 162, 229, 275, 281, 282, 289, 290
- Word(s), 1–3, 5, 11, 17, 30–32, 36, 42, 51, 54, 65, 66, 68, 70, 71, 73, 74, 79, 83–86, 89, 90, 95, 109–111, 113, 123, 124, 139, 144, 145, 151–153, 158, 159, 172, 173, 181, 183, 184, 187, 201, 204, 210, 213–215, 217, 218, 223–227, 231–233, 237, 242, 251, 253, 254, 258, 264, 266–271, 278, 281–284, 286, 290
- World, 2–6, 8, 9, 16, 19, 21, 25, 33–37, 41, 47, 50, 53, 54, 66, 69, 87–90, 95, 97, 98, 102, 107, 116–119, 122–126, 134, 137–143, 145–149, 154, 157, 158, 165, 168–170, 174–176, 179–184, 186–191, 193, 194, 196–203, 207–211, 213, 214, 218–220, 228–230, 232, 236, 245, 249, 251–254, 256–260, 265, 267, 269, 271, 273–275, 279–281, 283–286, 288–290
- Wrathall, M., 124, 135
- Write, 31, 100, 119, 151–154, 155, 157, 161, 167, 171, 172, 193, 203, 223, 224, 236, 239
- Writing, 16, 43, 44, 47, 61, 70, 80, 135, 139, 151, 152, 154–157, 161–163, 171, 172, 176, 177, 179, 180, 189, 201–203, 219, 222–224, 233, 239, 240, 275, 281
- Z**
- Zahavi, D., 288, 290
- Z-model, 121, 130–132