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Mind and Matter

Challenges and Opportunities in Cognitive
Semiotics and Aesthetics

Edited by Asun López-Varela Azcárate



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- Challenges and
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Cognitive Semiotics and
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Edited by Asun López-Varela Azcárate

Contributors

Ann Hemingway, Filippo Silvestri, Cary Bazalgette, Fatma Nazlı Köksal, Nektarios Moumoutzis, Desislava Paneva-Marinova, Lilia Pavlova, Gisela Bruche-Schulz, Sonia Campaner Miguel Ferrari, Maria Asuncion L. Magsino, Constantin Thiopoulos, Janine Knight, Asun López-Varela Azcárate

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Meet the editor



Asun López-Varela Azcarate is an associate professor at Universidad Complutense de Madrid. Her research interests are cognitive and intermedial semiotics, inter-art studies, sustainability, and STEAM approaches. A proactive member of the profession, Dr. Azcarate established the research program “Studies on Intermediality and Intercultural Mediation” (SIIM) in 2007. She serves as an editor for various international journals. She was previously president of the European Society of Comparative Literature, deputy head of the Department of English Studies at her university, and an evaluator in various international research programs, including Vice-Chair at EU Unit REA.A2, Marie Skłodowska-Curie European Postdoctoral Fellowships, Social Sciences and Humanities (SOC).

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Preface

Do brains create material reality in thinking processes or is it the other way around, with things shaping the mind? Where is the location of meaning-making? How do neural networks become established by means of multimodal pattern replications, and how are they involved in conceptualization? How are resonance textures within cellular entities extended in the body and the mind by means of mirroring processes? In which ways do they correlate to consciousness and self-consciousness? Is it possible to explain out-of-awareness unconscious processes? What holds together the relationship between experiential reality, bodily processes like memory, reason, or imagination, and sign-systems and simulation structures like metaphor and metonymy visible in human language?

This book investigates mind-matter relationships from various perspectives because cognition entails very complex networks of biological processes and actions that encompass perception, attention, manipulation of objects, memory mechanisms, and the formation of knowledge by means of direct experience as well as by learning from others, for which forms of communication and comprehension are also necessary. Contextual aspects, such as the tools and technologies used in analytic praxis and the wider evolutionary continuum of biological, technological, and cultural change are involved at all levels. This complexity is reflected in different labels used to refer to cognitive studies since the 1980s; the so-called 4Es: embodied, embedded, enactive, and extended.

Many disciplines are involved in the study of the complex relations between mind and matter. To name but a few, we can mention neuroscience, anthropology, psychology, sociology, philosophy, semiotics, linguistics, and more recently, computational intelligence, information processing, and neural networks used in machine learning, all of which cross the boundaries between STEM and STEAM. In particular, this volume highlights the challenges and opportunities offered by cognitive semiotics in relation to other disciplines.

The book opens with an overview of cognitive semiotics provided by the editor, Asun López-Varela Azcárate. The author traces the interdisciplinary evolution of the 4Es including a discussion of Peircean semiotics that anticipates material engagement and wide cognition approaches. The final part of the chapter focuses on the modulation of human and nonhuman co-agency, a discussion that directs attention to contemporary technological and environmental concerns in the Anthropocene.

The chapter, “Where is Meaning? Mind, Matter and Meaning,” by Constantin Thiopoulou examines the location of meaning in the relationship between mind, matter, and consciousness. It considers rationalistic dualism, the embodied paradigm, dialogism, as well as the implications of place. The research helps unveil how human meanings are context dependent and explores phenomenological horizons. Inner aspects that focus attention are aligned with outer context considerations, leading to different related perceptions with similar intentional context; a process that allows human imagination to consider other possible scenarios and alternative

worlds. In meaning making, objects emerge as resonances of these inner and outer voices that encompass verbal situational and auto-noetic dimensions. Interestingly, the chapter explores the absence of linguistic expression in dialogue, such as the use of silence, and contemplates it as building up the horizon of expectations surrounding speech. Silence is related to soliloquy as a sort of inner dialogue that contributes to the development of self-consciousness as well as opening up other possible scenarios. In this view, consciousness and self-consciousness emerge as part of a personal inner narrative that also accompanies non-conscious experiential processes. Eventually, this inner narrative enables humans to communicate externally their internal content.

Gisela Bruche-Schulz is also interested in the relation between perception, the senses, and the human faculty of conceptualizing experiential values in her chapter, “Configuring a Concept - On Iteration and Infinity.” The author argues that although phenomenological experience is a fundamental reference system in the configuration of concepts, human conceptualization is not simply the product of accumulated experiences of the world. It emerges as a semiotic complexity built upon neural biochemical substrate, the transformation of energy into signs at the level of molecular organization. To prove her point, the author explores processes of iteration in an experiment with five groups of students who read an excerpt from Saint-Exupéry’s *Le Petit Prince* in their own languages. The groups are asked to jot down “what comes to mind.” Their non-conscious responses reveal similar conceptual figurings. Thus, the author finds evidence that, at its most basic level, textual grammar across world languages is embodied and grounded in affective-cognitional-proprioceptive/tactile-kinesthetic dimensions. The chapter goes on to explore why different languages share the grammatical concept of iteration as related to the experience of no-end and the notions of finitude vs. infinity. In the last part of her study, the author establishes a dialogue between findings in quantum cognition, wide cognition, and the mathematical notions of iteration and projection, which, she assures, provide evidence of an experienced ongoing processuality, “enciphered” in human bodies and expressed in the grammars of world languages.

Although Bruche-Schulz mentions Charles S. Peirce amid her sources, the chapter by Maria Asuncion L. Magsino, “A Biosemiotic Modeling of the Body-”Self” Synechism,” expands Peirce’s doctrine of synechism as a counterargument to the Cartesian split and situates Peirce’s biosemiotic continuum in relation to the physician’s clinical practice. Within the second section of the volume, which considers biosemiotics modelling, her chapter explores how patients create secondary modelling systems (SMS). Magsino connects quantum consciousness theories to Peirce’s synechism arguing that it is crucial for the creation of secondary models of reality that, in turn, determine the creation of tertiary models of what is called culture.

Ann Hemingway provides an example of the kind of modelling systems that Magsino presents theoretically in her chapter. In “The Embodied Nature of Horse Human Communication: A Feasibility Study of an Equine Assisted Intervention; Benefits for Horses and Humans,” Hemingway presents the findings from a feasibility study of an equine-assisted intervention (EAI) in patients with mental health problems and emotional issues during the Covid-19 pandemic. Animal-assisted therapy has already shown some positive effects in treating behavioural issues. The success of the intervention and the benefits of equine experiential therapies has been recognized by various groups involved in social care, mental health, domestic violence, and drug and alcohol services within the National Health Services in southern England.

The discussion of results emphasizes embodied forms of pedagogy in educational and intervention programs, thus highlighting the importance of a biocentric, biosemiotic continuum (and in this case, not merely anthropocentric) in cognitive processes.

Moving to the third section of the volume, which considers mind–machine scenarios, the chapter by Janine Knight, “Rethinking ‘Affordance,’ ‘Agency’ and ‘User’ from a Semiotic Technologies Perspective: The Emergence of a Typology of Signs-as-Agents” establishes a dialogue between distributed and social cognition theory, human-computer interaction, and digital literacy as applied to three examples taken from various educational scenarios. Connecting STEM and STEAM fields, the analysis involves the identification of screen-based signs-as-agents and provides a typology of signs-as-agents that shape active participation in educational social practices. Thus, the chapter explores how agency becomes distributed between humans and machines. As we move towards artificial intelligence (AI), the distribution of agency is a central concern.

The chapter by Nektarios Moumoutzis, Desislava Paneva-Marinova, and Lilia Pavlova, “Onlife Drama: Towards a Reference Framework for Hyper-Connected Activity,” relates information and communications technology (ICT), performativity, and dramatic interaction. The authors claim that the deep engagement promoted by digital technologies can be explored by adopting a conceptual framework traditionally used in theatrical performances. Although ICT can be considered an enhancement of human actions, the chapter reflects on the false realities it creates. Ethical and anthropological concerns are framed on the same philosophical ground as ancient Greek drama, a major pillar in the development of democracy, which served to educate citizens as responsible actors (and agents) in decision-making processes.

Cary Bazalgette researches the impact of TV on children younger than three years of age. Based on the author’s own ethnographically styled family research, and drawing on embodied cognition theories, the study describes three examples of viewing behaviour in toddlers watching movies. The three types are “focused attention,” “emotional responses,” and “self-directed viewing.” In the chapter, these forms of viewing behaviour are interpreted as potential evidence of learning in progress. The author argues that although toddlers’ responses might be mainly instinctive and below the level of consciousness, they communicate important aspects about how focused attention begins to be developed through directed point of view by means of visual and audio signs. In movies, narrative point-of-view directs and concentrates attention, helping see through the eyes of the characters, spatially re-positioning the watcher inside the character in order to access their feelings, thus triggering empathy. In this way, intersubjective behaviour arises in the most basic challenges of childhood experiences; particularly in those that involve simulation and strong emotions such as fear and disappointment. Feelings that generate curiosity, expectation, anticipation, and investigation, which the author terms “seeking,” are also essential to logical thought and reflection, and help create causal connections, develop memory, learning, and self-learning. The study argues that, while watching movies, toddlers’ mesmerized and apparently passive behaviour might offer signs of the intensity of the semiotic processes taking place. Bodily gestures such as bracing are committed to concentrating energy to maintain the level of focused attention. Thus, the chapter highlights the potential value of exploring mind–machine engagement in toddlers’ movie watching behaviour to understand situated pre-verbal semiotic communication and learning.

The last section in the collection focuses on the relations between semiotic systems and aesthetics. The chapter by Sônia Campaner Miguel Ferrari, “Images beyond Representation: Evidence and Depth of Meaning,” looks at images from a philosophical point of view, exploring the dialectic between the visible and the invisible and considering previous research by Roland Barthes, Georges Didi-Huberman, Marie-Jose Mondzain, and Walter Benjamin. While her chapter concentrates on challenging artistic images, the chapter by Fatma Nazh Köksal studies “Metaphoric Representation and Aesthetic in Advertising,” examining a television commercial inspired by Johannes Vermeer’s painting *Girl with a Pearl Earring*, which the author uses to highlight the layers of metaphorical expressions used in advertisements, where images with an aesthetic value are instrumentalized. While fulfilling a communicational function, art also has a layer of aesthetic value that needs to be carefully considered. The volume closes with a chapter by Filippo Silvestri, who examines Michel Foucault from a philosophical perspective. In particular, the Italian professor of psychology and communication examines Foucault’s ideas on madness and literature as discourses outside the norm and the order of things.

Asun López-Varela Azcárate
Faculty of Philology,
Complutense University Madrid,
Madrid, Spain

Section 1

Mind, Matter
and Consciousness

Cognitive Semiotics: An Overview

Asun López-Varela Azcárate

Abstract

This chapter revises evolving theories on cognition in relation to semiotics, the transdisciplinary study and doctrine of sign systems, and meaning-making. Cognition entails very complex networks of biological processes and actions that encompass perception, attention, manipulation of objects, memory mechanisms, and the formation of knowledge by means of direct experience as well as by learning from others, for which forms of communication and comprehension are also necessary. In view of this complexity, many different disciplines are involved in the study of cognition. These include neuroscience, anthropology, psychology, sociology, philosophy, semiotics, linguistics, and more recently, computational intelligence, information processing, and neural networks used in machine learning, to name but a few. The chapter opens with an introduction to the field of cognitive semiotics and continues with a brief presentation of the interdisciplinary evolution of the 4Es. It also includes an in-depth discussion of Peircean semiotics in relation to the approaches known as wide cognition.

Keywords: anthropocene, AI, 4Es, intermediality, mind-life continuum, semiotics, wide cognition

1. Introduction

Jordan Zlatev defined cognitive semiotics ‘CogSem’ as a transdisciplinary field that integrates “methods and theories developed in the disciplines of cognitive science with methods and theories developed in semiotics and the humanities, with the ultimate aim of providing new insights into the realm of human signification and its manifestation in cultural practices” [1]. Zlatev explains that as a transdisciplinary pursuit, the study of semiotics is concerned with “the overarching unity of knowledge” [2].

CogSem has been mainly associated with the Center for Semiotics (CfS) established in 1995 in Aarhus, Denmark by Per Åage Brandt, with researchers such as Frederik Stjernfelt, Peer Bundgaard, Svend Østergaard or Riccardo Fusaroli, among others. The Centre for Cognitive Semiotics (CCS) at Lund University (Sweden) was created in 2009, with members such as Göran Sonesson and Zlatev himself. An international journal, *Journal of Cognitive Semiotics* (JCS), is running since 2007. The International Association for Cognitive Semiotics (IACS) was established in 2011 in Lund. Research by the so-called Grupo μ at Liège, Belgium, is also worth noting.

Semiotics occupies a transdisciplinary area that can contribute to build bridges between various disciplines; in this case cognition and its material forms of instantiation. Defined as ‘the action of signs’ [3], semiotics has recognized the inter-actions and intra-actions of anything acting as a sign; present also within the

framework of the 4Es (embodied, embedded, enacted, extended). At a systemic scale, semiotic interactions include specific media channels, with the term 'medium' understood in its broadest sense, including bio-entities along with artefacts and technologies that can be material, and thus physically perceived by humans and animals, but also digital, which can lie beyond the scope of perception. The lines that follow attempt to advance towards a clearer formulation in this regard and point out some of the potentials of semiotic studies, focusing in particular on Charles S. Peirce's contribution.

2. Embodied cognition

Research on 'Embodied Cognition' was popularized in the 1980s [4, 5]. This approach is mostly human-centred and contemplates biological factors and bodily experience, notably body symmetry, perception, and motor interaction involving the physical manipulation of objects, as affecting the formation of abstract mental structures known as 'image schemas' [6]. There is still no consensus about the specific nature of image schemas (the term 'model' is preferred by cognitive anthropologists such as David Kronenfeld). For instance, from the perspective of cognitive linguistics, a noun instantiates a schema related to 'thing' whereas a verb instantiates the schema related to 'process' [7]. Propositions are then combined into larger-scale mental and discourse structures by way of metaphorical and metonymic conceptual mappings, explained by shifts from one conceptual domain (the target domain) to another conceptual domain (the source).

Schemas could be simplified pre-conceptual experiences turned into abstract mental structures. They define how humans make sense of the world within specific perceptual and cognitive domains. Since they have functional biological bases, some schemas are basic in the sense of being irreducible to anything more fundamental. For instance, the temporal duration and spatial perception are realms of potential experience within which conceptions emerge through analogic structures that are in relation to perceptual and motor-experience (dynamic inter-actions are subject to physical constraints such as the pull of gravity) and human bodily orientation.

Thus, embodied cognition considers that abstract and high-level cognition is explained in terms of physical experiences (body as a container, based on symmetry, balance, and centre-periphery experiences; action explained as source-path-goal schema, and so on). Schemas are imported from these pre-conceptual structures by way of metaphorical and metonymic conceptual mappings. Even the language of emotions (i.e. 'you broke my heart') largely reflects culturally mediated conceptualisations of feelings in terms of body parts, transferred across domains through conceptual metaphors and metonymies.

Ultimately, schemas might be based on the human ability to detect and recognize recurrent patterns and establish mappings or conceptual correspondences from the source, generally more abstract, to the target, more grounded on the physical world [8]. Neuroscientist Antonio Damasio has identified that fundamental mappings taking place in our brain are those that register the internal state and condition of the body, as well as those that map in relation to the external environment [9].

However, sociocultural aspects are also important because humans share an inborn basis for social interaction. This is manifested for instance in their capacity to follow someone's gaze, to read intentions, face recognition, and so on. Collectively, these factors provide a universal neuro-physical basis for cognitive development, also grounded on sociocultural interaction. Applying the framework

proposed by Merlin Donald, Jordan Zlatev explored the re-enactment or representation via imitation as a fundamental prerequisite of shared communication. Donald defined 'mimesis' as "the ability to produce conscious, self-initiated, representational acts that are intentional but not linguistic" [10] and found it to be rooted in movements, involving a range of aspects from facial expressions, eye movement, gestural signs, and tones of voice, including the communication of emotional states. He recognized the dependence of mimesis on joint attentional frames, that is, deictic markers such as child and mother gaze interactions. Donald observed that this ability operates based on the metaphorical principle of perceptual resemblance, enhanced by repetition [11]. While he emphasized metaphor as a cognitive tool, recent research also notes the importance of metonymy, because an enactment evokes the imagery of a background scene and the elements within it (in Peirce's terms, 'indexical proximity').

Paul Friedrich aligns image schemas to Peirce's notion of 'Firstness', explaining that they depend on qualities (Peirce's 'qualisign' refers to a quality, a feeling or a possibility of functioning as a sign) that are primary or irreducible, leaning towards physicality, and dependent on emotional content. Peirce wrote that a quality "cannot act as a sign until it is embodied; but the embodiment has nothing to do with its character as a sign" [12, 13]. Even habits, routines, and general laws (that Peirce integrates in 'Thirdness') are embodied in actual things or events (themselves manifesting a range of possible qualities). Thus, ultimately, the fact that something is interpreted as a sign depends on material phenomenological aspects. Peirce's well-known classification of signs as icons, indexes, and symbols is based on how signs are related to their objects. An icon signifies its object by virtue of shared qualities, an index by virtue of a causal relation, and a symbol by virtue of an action ruled by a norm or habit [14] (see the section below for more details).

'Secondness' initiates relations between domains and is essentially dyadic. According to Friedrich, the modal forms that accompany some verbal processes include expressions of mood that run from emphatic assertion to passivity and emotional content such as outrage, fury, joy and sadness, sarcasm, threat, and irony. These can interact and combine with each other introducing a 'sinsign', a sign usually consisting in a reaction/resistance, or an actual singular thing, occurrence, or fact. Peirce also held that an index can be a general thing (not only singular; the etymology of 'seme' points in this direction). For instance, a symptom of a disease, a label, a diagram (which can be both iconic and indexical), a proper name, a pronoun, etc. Indexes or pointers make connections through spatiotemporal proximity or contiguity, crucially bound up with the situation or context. If interpreted as linguistic signs in triadic symbolic relations, pointers become personal pronouns (I, you, we, they, etc.), deictic adverbs (here/there, now/then), demonstratives (this/that), and grammatical categories of tense and aspect, all of which that are situationally contingent.

Thus, starting at the lowest level, embodiment creates the potential for schemas to emerge, as conceptual blending theory has shown [8]. Schemas are associated with experientially based forms of behaviour, specific to certain situations. The cognitive operations originating in bodily experience pass through processes of metaphorical and metonymic projections based on recognition of patterns presented in experience. Once corresponding qualities between material and mental spaces have been mapped, their integrative projections yield symbolic signs. As structures become more symbolic, their connection with bodily experience turns more indirect, and cultural particularities emerge. Particularities are filled-in with salient 'situated' cultural content within specific population groups. Conceptual integration includes out-of-awareness forms of cognition, such as tacit knowledge of what is possible, permissible, and acceptable within a community [15].

3. Embedded cognition

The debate on embedded cognition (sometimes known as ‘sociocultural ‘situatedness’) began to take place within ethnographic anthropology (i.e. Franz Boas) early in the 20th century. It argued against previous ideas on the universal basis of human language and defined ways in which human cognitive processes are shaped by social interactions and cultural structures and practices. In terms of linguistic studies, it was found that different languages classify experiences differently and that linguistic categories are in close relation to thought patterns. For instance, greeting gestures and speech acts of salutation are very different across cultures. These studies also formed the basis of the hypothesis of linguistic relativism (Sapir-Whorf hypothesis), that is, the idea that the structure of a language affects its speakers’ cognition and worldview. It was also present in connectionism, in which mental phenomena are seen as interconnected neural networks of units [16–18] (for a recent overview of the semiotic of gestures [19]).

Another example of how contextual factors, alongside particular language uses, shape the way metaphors are employed and add nuances to the purely cognitive account of conceptual metaphor/metonymy as transferring inferences across domains is the research pursued by Lionel Wee. He notes the shifting of conceptual models from the correspondence model [4] to the class-inclusion model [20]. The first assumes consistent horizontal or lateral relationships between source and target so that particular relations between objects and their properties are preserved. The second model operates vertically including metonymic displacements; so that the source domain is merely treated as a prototypical instantiation of a newly created superordinate category, which is then seen to encompass both the source and target. In the correspondence model a metaphor like LIFE IS A JOURNEY understands goals in life as destinations, and difficulties as impediments in the motion of progress. The class-inclusion model tries to explain expressions like MY JOB IS A JAIL, where both job and jail are understood in terms of a superordinate category defined as including unpleasant situations, confining, etc. [20]. Wee points out that in post-capitalist late modernity experiences are commodified and contemplated as functional resources, determining how metaphors are constructed. According to him, it is important to pay attention to indexes that, in the case of EXPERIENCES ARE RESOURCES might point to particular skills that serve as indicators of value within experiences [21]. The metaphor EXPERIENCES ARE RESOURCES also highlights the increasing influence of ‘small stories’ and under-represented tellings in late modernity, evidencing in language the reframing of experiences from one context to another.

4. Enactivism

In the 20th century, the impact of cybernetics upon human theoretical models saw the growth of systemic forms of explanation. A system can be defined as a non-linear dynamic set of actors, relations, objects and things, and all their intra- and inter-connections. Systems can be biological, for instance, an ecosystem, but also cultural, situated in a particular environment, place, and time. Systems can be open or closed to their surroundings. Closed systems have boundaries or walls, often defined artificially, like territorial borders. Although finite to a certain extent and with degrees of closeness, different systems are interconnected. For instance, in the human body, the digestive system functions in relation to the respiratory system, circulatory, and all other bodily systems. Operating in a sort of network, the distribution of system components can vary, which means that a given system can

acquire different states in a short time-span while remaining the same in a longer time span. Thus, a state of a system is understood as a momentary position in space and time. This position depends on physical properties (space-context) as well as on the distribution of these properties in a particular time. To have a complete understanding of how a system works, we need to contemplate it from an integrated approach that looks at the full spectrum of scales, networks, states, and multiple spatiotemporal dimensions, considering the intra- and inter-actions of all system components.

A systemic approach in semiotics is evident, for instance, in Actor-Network Theory (ANT) which, in the 1980s, stressed that the social is constituted by systemic networks and relationships created among people through the use of artefacts. These relations are simultaneously material (physical exchanges) and semiotic (conceptual exchanges). ANT was mainly occupied with the relationality among ‘actants’, a term inspired by the *modèle actantiel* of semiotician Algirdas Greimas. ANT did not consider the individual act-ant as an agent. Rather, agency—that is, what makes things happen—was seen as distributed throughout the entire network of people, artefacts and instruments, all of which constitute a given assemblage.

A similar approach to ANT has been taken in enactivist approaches, where agency is the result of relationships among actors, not their property. However, in enactivism, the network is not a self-contained closed system. It is an open disorganized meshwork, rather than a network [22]. Action is not so much the result of an agency that is distributed around the network, but emerges from the interplay of relations in the meshwork, characterized in terms of patterns emerging from the relationships (material and semiotic) in the environment surrounding humans and nonhumans.

In the 21st century, systemic visions have moved even closer to eco-criticism and environmental concerns. The condition of openness in systemic relations has also expanded beyond artefacts and technologies. The ‘nonhuman’, a category first used for computer programs and robot-like devices with human-like characteristics, is being used for animals as well as other material forms. The concept of ‘vibrant matter’ [23] or that of ‘transcorporeality’ [24] suggests that even inanimate bio-entities, like rocks or the sands and dunes of deserts, are forms of materiality open to their environment and in constant systemic interaction [25], while being free of semantic notions of intentionality. Hutto & Myin’s concept of ‘teleosemiotics’ suggests that cognition is essentially extensive, not merely contingently extended [26]. Natural and geological forces, processes of decomposition, bio-deterioration, and disintegration [27], as well as episodes of climate change, glacial flows, and the evolution of the oceans, all exhibit various forms of nonhuman agency, influencing human life in various ways. In this scenario, nonhuman entities are understood as performing actions in the world, even if this agency is different from human agency. Thus, agency has come to be defined as the capacity to influence a given environment, and can be contemplated not as an individual trait but as an emergent state emanating from systemic inter- and intra-actions, as well as sensorimotor contingencies. Unfortunately, vulnerability to the agency of nonhuman entities has become evident during the Covid-19 pandemic.

The publication of Dan Dennett was a landmark on the discussion about agency, intentionality, and consciousness [28], with its ‘false belief test’ to find out if intelligent animals, chimpanzees in this case, were able to recognize the intentions of a human actor [29]. A long debate ensued exploring how humans develop a theory of mind, trying to understand how an observer can differentiate agentive capacities in others, and whether these capacities are species-specific and if they intentional or not, that is, if they imply a feeling of being in control. It was concluded that humans

do not develop an understanding about other people's minds from their actions until they acquire consciousness and self-awareness [9]. However, the growth of so-called intelligent agents in cybernetics complicated the understanding of agency since some forms of AI can learn from their actions, being designed as 'autonomous' entities capable of functioning in the absence of human intervention and able to direct their activity towards a given purpose or goal.

The concept of 'affordance' (in Peircean terms, set of stimuli that an object provides an interpretant so that it acquires the character of a sign representamen, that is, it stands for something in some respect or capacity) was initially developed by psychologist James J. Gibson (1977), who argued that humans can modify affordances in their environment to their benefit. Learning to perceive affordances emerges through direct object manipulation and sensorimotor processes as well as by learning from the experiences of others. In the 1980s, affordance became synonymous with 'action possibilities' and was applied to human-computer interaction and design [30, 31]. From this perspective, cognition arises through a dynamic interaction between acting organisms and their environment. Gradually, enactivism has become part of a cluster of related theories known as the 4Es, which include embodiment, embedding, enaction, and, more recently, the extended mind.

In the 1990s, an approach in cognitive science known as 'Distributed Cognition' or DCog began to gain ground. It originated in the work of Russian psychologist Lev Vygotsky through research by Edwin Hutchins who explained that cultural schemas emerge from changing patterns of interaction among members of cultural groups and which are constantly negotiated and renegotiated across time and space [32]. Hutchins explained that this perspective aspired to "rebuild cognitive science from the outside in, beginning with the social and material setting of cognitive activity, so that culture, context, and history can be linked with the core concepts of cognition" [33]. DCog explores the ways in which cognition involves coordinated 'enaction', including artefacts and technological means in specific environments. Like 'sociocultural situatedness', DCog came to be assimilated to 'embedding', as part of the 4Es.

As aforementioned, these changes were mainly influenced by the explosion of the waves of cybernetics [34]. The term 'enaction' appeared during the third wave in Humberto Maturana and Francisco Varela's ground-breaking work [35]. To these authors, 'enact' means 'bring forth', a notion connected to their theory of 'autopoiesis' [36]. Biological systems are 'autopoietic', meaning that they are complex, proactive, and adaptive (self-organizing and self-regulating) in particular spatiotemporal spans. Enactivism considers that bodies and minds interact and respond to things in the world, creating meaning from environmental cues, rather than representing reality. Living beings and their environments stand in relation to codetermination [37].

Similar ideas were contemplated in the then emerging field of bio-semiotics. Jesper Hoffmeyer termed 'emergence' the process through which all kinds of things come together in the world and their encounter and settling down, at least in short-term equilibrium before dynamically engaging again, they can creatively produce new kinds of organisations that are greater than the sum of their parts [38, 39].

Thus, enactivism relies on a model of cognition wherein new thoughts emerge through a dynamical engagement between the human mind and the material world. It foregrounds the differences between material things functioning as lower-order signs and higher-level cognitive activities. In this regard, Shaun Gallagher brings forth the distinction between body schema and body image. The first includes unconscious body awareness and automatic sensorimotor functions. Body images, however, are conscious self-aware representations of experiences encompassing some sensorimotor functions that serve intentional action, as well as other mental

states (i.e. desires, beliefs, etc.). Drawing on previous work [28, 40] and the European phenomenological tradition (i.e. Husserl, Dewey, Merleau-Ponty [41]), Gallagher considers the building of conscious mental narrative structures and their relation to the sense of self and intentional action. According to him, complex animals and some forms of autonomous AI experience self-consciousness as immediate, punctual, and not extended in time; in other words, as signs that may contain non-conceptual content, only events. He terms this the ‘minimal self’, which might have a sense of self-agency but not self-ownership for actions. On the other hand, the ‘narrative self’ involves personal identity and continuity in time; a more or less coherent self-image constituted including the present, past, and future orientations. This temporal continuity is achieved by means of human language acquisition and the ability to make the kind of cause-effect semiotic connections present in the human telling. The development of a self-image coexists with the ‘narrative self’, involving narrative competency and the capacity for self-narrative and explanation of one’s actions. This distinction amounts to modulation of agency, since the ‘minimal self’ might be aware of self-agency but not have the sense of self-ownership for actions, a continuity only achieved through the development of the ability to make the kind of cause-effect connections present in human language [42, 43].

Gallagher also moves beyond Vittorio Gallese’s notion of automatic resonance systems built into human motor experiences and their replications through mirror-neuron structures to a more complex understanding of the relationship between intersubjective experiences, the building of empathy, and the ‘narrative self’ [44, 45]. Along similar lines, the “Interactive Brain Hypothesis” [46, 47] has argued that narratives modulate intersubjective experiences through affordances and complementarity between a given environment and human social cooperation, trying to demonstrate that even less obvious interactive situations, like reading and writing, have interactive origins.

Additionally, Gallagher describes enactivity as ‘philosophy of nature’ [45], situating mind and behaviour in a holistic pragmatic perspective, a Life-Mind [47] already present in Peirce’s theories.

5. The semiotics of Charles S. Peirce ‘Synechism’ and the life-mind continuum

In the next section of this chapter, I will be speaking about the theories known as ‘wide cognition’. Before, a little introduction to Charles S. Peirce’s triadic model of semiosis becomes necessary. In it, an object determines a sign (‘representamen’) in a process called ‘Firstness’, which in turn determines another sign or ‘interpretant’ in ‘Secondness’. The ‘interpretant’, fulfilling its function as a sign of the object, determines a further ‘interpretant sign’ in ‘Thirdness’ [48]. The sign, or representamen, stands for something, its object, in some respect or capacity, not in all respects. Peirce calls this the *ground* of the representamen [49].

The distinction related to ‘ground’ in Peirce’s definition is crucial because it recognizes that the sign perceived is relevant to its semiotic object only in a particular respect or capacity. The concept is also important from the perspective of evolutionary anthropology, for instance, in that it emphasizes that what is cognised is a thematic aspect of what preceded it (whether a physical thing or a previous thought). In other words, while some signs are readily perceived, others require prior familiarity with their sign function, often established as habits/laws in social communities (see below).

Peirce’s classification of sign interactions moves from monadic relations, expressing quality, to dyadic, expressing reaction, and sometimes resistance,

to triadic (symbolic) relations involved in representation and mediation. Three fundamental relations occur between the representamen and its object: iconicity, indexicality, and symbolicity. These relations are based on fundamental cognitive operations.

Iconicity is related to varying grades of semblance/similarity with what is perceived. An icon is a sign that denotes its object by virtue of a quality that resembles or imitates its object. Iconic signs do not possess the properties of the object but reproduce some conditions of common perception. Depending on material aspects, Peirce established three types: (a) the image, which depends on a simple quality; (b) the diagram, whose internal relations, mainly dyadic or so taken, represent by analogy; and (c) the metaphor, which represents by drawing parallelism to something else; for instance, an abstraction represented by physical resemblance. In the early 1970s, a debate ensued trying to clarify the cultural aspects of icons, extending the notion of 'quality' beyond phenomenological analogous relationships, which, according to some scholars prevented from analysing the iconic sign as a social product, and therefore as an object of convention, including its possible ideological depths [50]. Endorsing perceptual aspects of contiguity (i.e. proximity) and factuality (i.e. metonymic part/whole relations, since experience can occur in terms of parts and totalities) indexicality compels attention without conveying information about its object [49]. Finally, symbolic signs are ruled by habits, as we shall see below.

It is important to emphasize that, in Peirce's view, the action of signs only 'enacts' some aspects in a particular space-time within the continuum of experience. For Peirce, cognitive semiotic functions are simultaneously materialized in the brain and the material artefacts used in meaning-making. Emphasizing 'the action of signs', which can both generated and generative, Peirce explained that potentially anything can acquire the function of sign, rooted in the continuities that come about between internal representation and external reality [51]. Thus, Peirce developed a form of phenomenology that he described as 'synechism', from the Greek *synechismos*, wherein 'all that exists is continuous' [52]. In Peirce's view, the action of signs only enacts some aspects in a particular space-time ('ground') within the continuum of experience, a continuum that problematizes the relationship between interiority and exteriority [49]. Peirce explains that language does not only reside in the brain [53], and sustains that "consciousness has a bodily and social dimension, the latter originating outside the individual self" [54].

Winfried Nöth has noted that, in giving the well-known example of the inkstand, in which Peirce claims that the faculty of language resides both in his brain and in his inkstand [55], Peirce's purpose is to illustrate the role of efficient causality in creative semiosis. However, Peirce's example also provides insights into how this efficient cause may evolve to become a factor acting as a final agency. Efficient causes, according to Peirce, are the causes by which machines function, insofar as they are determined by mechanical forces operating 'in a perfectly determinate way' [56, 57]. Peirce asserts that "Final causality cannot be imagined without efficient causality" [58]. Nöth notes that the inkstand is a metonymic sign, an index pointing to the medium of writing which ink makes possible. He explains that authorship also depends on the technical medium of writing so that there is a situation of co-agency [59].

In his previous 2009 work, Nöth points out an important consideration: "the agent in the process of semiosis in which the sign creates an interpretant, is the sign, not the addresser, and the agency of the sign is one of final causality: it is the purpose of the sign to create an interpretant" [60]. Signs are not mere instruments but semiotic agents acting with a semiotic autonomy of their own. They mediate relations between things in the world and "operate by final causality, even though they

cannot do without efficient causes to convey their messages. Final causality involves triadic interaction; it is the long-term causality of purposes, intentions, ideas, signs, and general laws, all of which belong to the Peircean category of thirdness” [60].

This argument serves Nöth to formulate his hypothesis that complex media machines, like AI, are “co-agents in the process of media semiosis to the degree that they determine the availability and choice of signs, partially restricting, partially increasing the creative potential of their users and thus transforming the impact of their messages” [61]. Thus, in the case of certain technologies that may be incorporated to the human body, the distinction of devices external to the human body must be reconsidered. Noting that the term ‘organ’, which refers to bodily parts, comes from the Greek form *órganon*, meaning ‘tool’, he insists that “the object and the interpretant of a machine *qua sign* are the ways in which the machine has been produced and used and in which it may be used in the culture to which it belongs” [62].

Thus, objects/tools have practical functions when used to transform directly the environment, but they also have semiotic functions in the subject’s indirect interaction with the environment by means of them, “serving a practical purpose thus does not preclude an object from serving semiotic purposes at the same time [...] since signs have a semiotic agency of their own” [63]. Therefore, semiotic activity is not only an agency of a sign creator; it is inherent in the sign itself. In Peirce’s conception, intentions are not the causes of all sign processes so “it is not altogether surprising if final causality presupposes efficient causality in all cases” [64].

Peirce contended that it is “a widespread error to think that a ‘final cause’ is necessarily a purpose. A purpose is merely that form of final cause which is most familiar to our experience” [65]. Thus, Peirce set out to clarify the distinction between cause and explanation, concluding that life is an ongoing process where concrete moments are not substances but only momentary states part of a continuum [66]: “We ought to suppose a continuity between the characters of mind and matter” [67]. The transitory nature of these states or events can only be expressed in the form of abstracted forms of explanation formulated by means of ‘narrative’ propositions (by means of symbols) also called ‘facts’. Menno Hulswit clarifies the distinction between causality (a relationship between facts), which might require a ‘narrative self’, and causation (purely a matter of events, that might be cognized as non-symbolic schemata, relying on Firstness and Secondness) [68].

Peirce is aware that his hypothesis might be called materialistic since it attributes to the mind one of the recognized properties of matter, extension. He also notes that it attributes to all matter a certain excessively low degree of feeling, together with a certain power of taking habits [67]. In other words, in Peirce’s view, signs become semiotic habits or cognitive routines. A perceptual embodied experience is associated with a schema of activity embodied non-discursively (icon) which connects to an action-reaction salient cue (index) and builds up a habit that, only in the case of the ‘narrative self’, comes to represent propositional content (symbols). As already mentioned, Firstness or monadic relations reflect possibilities (quality) [48], Secondness or dyadic relations stand for actualities (action-reaction) [69], and Thirdness or necessity/potentiality (law-habit), which allows Interpretants to transcend external reality through habits [70]. Peirce insists that this situation happens in all things. It is a generalizing tendency that constitutes a regularity, continually on the increase, and it is also capable of similar generalizations; and thus it is self-generative [71].

Peirce’s graduated continuum of semiotic functioning brings together the anticipated experiences of an agent organism which, influenced by activity in the present adjusts towards the future [72], thus providing the basis of Peircean Life-Mind continuity [73]. ‘Symbols’ (signs resulting of Thirdness) evince a more complex

degree of semiotic mediation because they are thoroughly bound up in conventional (law/habit) relationships. Nonetheless, they incorporate 'indices' (signs resulting of Secondness) to point to objects of signification. In turn, indices require 'icons' (signs in Firstness) to make evident the character of objects [74].

In spite of all these forms of triadic organization, Peirce also recognized the complexity of the natural world and explained that laws are not merely mechanical but probabilistic; springing from diversity and spontaneous occurrences, rather than following deterministic patterns [75]. Moving from the material world (Firstness) to the world of abstractions (Thirdness) reduces the number of dimensions within the 'ground' of each undefined 'First' (thing), which carries potential semiosis. The number of dimensions is reduced as the 'First' relates to a 'Second' becoming a named 'object', later interpreted as 'Third' carrier of 'significant' information. In the case of human Interpretants, the ideas and pre-conceptions to which one links a 'thing' over-determine, to some extent, its interpretation as an 'object' in the mind. In other words, prior knowledge may over-determine semiosis, as seen in the different ways of interacting with the world that children and adults exhibit. The reduction in dimensions from 'thing' to 'object' in human cognition is achieved by establishing neural patterns (symmetries, similarities, regularities, repetitions) between different observations. The following quotation from Peirce makes this evident:

Doctor X: I should think that so passionate a lover of doubt would make a clean sweep of his beliefs.

Pragmaticist: You naturally would, holding the infant's mind to be a tabula rasa and the adult's a school state on which doubts are written with a soapstone pencil to be cleaned off with the dab of a wet sponge. But if they are marked with talc on man's 'glassy essence,' they may disappear for a long time only to be revived by a breath [76].

In terms of agency modulation, we might distinguish between 'routines', which look for symmetries to define a problem; 'non-reflexive actions', which are sometimes experiences of an intuitive static moment in finding a solution; and 'intentional purposive actions' [77]. Peirce also spoke of "a modification of a person's tendencies toward action, resulting from previous experiences or from previous exertions of his will or acts, or from a complexus of both kinds of cause" [78] and "degrees of self-control" that lead humans to "outgrow the applicability of instinct" [79]. As experience and learning merge, embedded in particular institutional and cultural contexts, it becomes almost impossible to establish a vertical hierarchy of influences. The entire exchange occurs in a continuum that involves the materiality of things: "Time and space are continuous because they embody conditions of possibility, and the possible is general, and continuity and generality are two names for the same absence of distinction of individuals" [67, 80].

6. Wide cognition

Peirce's concept of 'synechism', "the tendency to regard everything as continuous" [81] has been discussed as anticipating 'wide cognition' approaches [77, 82]. Clark and Chalmers' 'Parity Principle' in their 'Extended Mind' hypothesis claims that if a part of the world functions as a process which, were it done in the head, we would easily recognize as part of a cognitive process, then that part of the world is part of a cognitive routine [83, 84]. Their hypothesis asserts that certain

forms of adaptive behaviour arise from perceptual dynamical ‘couplings’ between the nervous and the peripheral sensorimotor systems in a sort of multidirectional process. These couplings between an organism’s perceptions and the objects/artefacts in its environment play a functional role when filtered in sensorimotor activity and propagated across the cognitive system. However, it is not the mere presence of a coupling that matters, but its effect; that is, the way it poises (or fails to poise) information for a certain kind of use within a specific kind of problem-solving routine [85].

The consideration of ‘extended mind’ activity is, in Clark’s words, a modest insight into cognition, not a grandiose theory of everything, and presupposes a view of agency connected to semiotic activity. In Peirce’s definition of the sign relation to its Object and Interpretant, the latter is “that which the Sign produces in the Quasi-mind that is the Interpreter by determining the latter to a feeling, to an exertion, or to a Sign, which determination is the Interpretant” [86]. It is clear that the Interpretant is not a person but the result of sign semiosis. It does not presume human consciousness. The Interpretant approximates the object-sign relationship through a representation that is informed by the object and directly brought about by the sign [69, 78, 87, 88]. Thus, a signing action can be itself a sign for the next, since signs have their own agentive properties, becoming a “more developed sign” [49]. According to Peirce, a sign is not a sign unless it translates itself into another sign in which it is more fully developed [89].

A ‘quasi-mind’, in Peirce’s terms, can be any organism capable of cognition, whether human or nonhuman: “What we call matter is not completely dead, but is merely mind hidebound with habits” [90]. Thus, Peirce seems to imply a certain scaling of ‘agency attribution’ and a potential differentiation in the agentive qualities between humans and nonhumans, animate and inanimate. He explains that thought is not necessarily connected to a brain and that it appears in the work of bees, crystals, and throughout the physical world; it develops in the world through being embodied. Without embodiment, he writes, there would be no signs [91].

Peirce’s assertions are being discussed in the context of the problems that the cognitive sciences face today. (1) How to scale-up the ‘couplings’ between organisms, entities, and their environments; (2) whether mental models, schemata, and internal planning procedures are part of representational structures in the brain, or if they are temporally emergent and dynamic products of situated activity; and (3) how to measure agency attribution, particularly in nonhumans.

Material Engagement Theory (MET) emphasizes material agency from a non-anthropocentric approach, opening the way to posthuman conceptions: “For MET’s proponents then, the world is not an external realm that transmits information to an internal processor, but an emergent product of the organism’s coupling with the environment” [92]. A key figure in MET, Lambros Malafouris, views artefacts as integral parts of the thinking process and, like Peirce, speaks of a continuum “dynamic co-evolutionary process of deep enculturation and material engagement” [93].

MET draws also upon enactive sensorimotor contingency theory [41, 43] to support the idea that active engagement with material things/signs brings forth meaning-making, that is, semiotic activity. In the case of symbols, following Peirce’s categorization of signs, Malafouris indicates that engagement takes the form of a sort of visual code or language and thus invites reading. This suggestion seems to be aligned with Gallagher’s claims about the ‘narrative self’. Overall, MET agrees with the Extended Mind hypothesis but tries to go beyond, claiming that Chalmers and Clark’s theory is simply an expansion of the ontological boundaries of the *res cogitans* rather than the dissolution of those boundaries altogether. Malafouris claims that the functional anatomy of the human mind includes the whole organism, brain

and body, and adds that it is also socially embedded in everyday experiences which are often constituted by the use of material objects. Thus, he believes that all these aspects should be seen as continuous, integral, and active parts of the human cognitive architecture [94].

As to agency, rather than seeing it as the result of prior intention, Malafouris sees it as the emergent product of semiotic activity: “meaning is not the product of representation but the product of a process of conceptual integration between conceptual and material domains” [95]. In its attempt to decouple agency from human consciousness, MET affirms that “While agency and intentionality may not be properties of things, they are not properties of humans either; they are the properties of material engagement, that is, of the grey zone where brain, body and culture conflate” [96]. Furthermore, some materials, such as clay, afford a flow of noetic activity beyond skin and skull that enhances neural plasticity. Malafouris speaks of a symmetric relationship between potter and clay: “trying to separate cause from effect inside the loop of pottery making is like trying to construct a pot trying to keep your hands clean from the mud” [97]. He explains that although it is the potter who makes the decisions, external factors like the texture of the clay, its physical properties etc., may determine some parts of the actions performed by the potter. The potter’s wheel, for instance, “shapes the field of action and has a share and saying on our will and intentions” [98].

Accordingly, Malafouris argues that agency needs to be de-coupled from subject-object distinctions and dissociated from intentionality as unique human property. Appealing to Searle’s distinction between ‘prior intention’ in premeditated or deliberate action, and ‘intention in action’, where no intentional state is formed in advance of the action, Malafouris concludes that in ‘intention in action’ the internal intentional state and the external movement become indistinguishable, but still have a pragmatic effect in the world. This shows that agency is an emergent product of mediated activity in material engagement, not an innate and fixed attribute of the human condition: “The ultimate cause of action in this chain of micro and macro events is none of the supposed agents, humans or non-humans; it is the flow of activity itself” [99].

7. Posthuman agency

Until recently, agency was considered only in relation to human consciousness and in connection to intentional action. This view originated in Cartesian dualism, which posited self-awareness and purposefulness as essential components of the human mind. Peirce described dualism as “the philosophy which performs its analyses with an axe, leaving as the ultimate elements, unrelated chunks of being” [100]. The Cartesian view also highlighted anthropocentrism and justified the use of the natural world to satisfy the needs of humans as superior beings. During the 20th century, however, the increasing engagement with digital machines gave rise to an inquiry into non-anthropocentric considerations of agency and human relationships with nonhumans, from complex machines to bio-entities (animal, plants, and the environment in general) [101].

Several disciplines, including semiotics, are exploring new theories on agency to recognize the active role of nonhumans. Quantum physicist Karen Barad has explored ‘agential realism’, and the concept of ‘intra-action’, which modulates the concept of agency, not exclusively tied to human subjectivity. For Barad, the agency is “a matter of intra-acting; it is an enactment, not something that someone or something has” [102].

In the context of global warming, climate change, and the unexpected impact of environmental aspects upon human life, Jane Bennett speaks of ‘thing-power’ [23] and Stacy Alaimo of ‘transcorporeality’ [24]. Like proponents of enactivism, these scholars emphasize that agency and intentionality are not “properties of things, they are not properties of humans either; they are the properties of material engagement” [102]. Exploring nonhuman agency in trees, Owain Jones and Paul Cloke (2008) speak of several forms of agency: ‘Agency as routine action’, associated with the ongoing process of life existence. ‘Agency as transformative action’, involving natural fields of relations often bound up with geo-transformation. ‘Agency as purposive action’, beyond human intentionality, for nonhumans can influence courses of action through the encoded blueprint present in their DNA. Finally, ‘agency as non-reflexive action’, recognizing that nonhumans can engender affective and emotional responses from humans [103].

Like Peirce, these authors consider that only final causation, which involves complex semiosis, yields the ‘experience of agency’, which relies on self-consciousness, and is different from simple ‘agency’. In Gallagher’s enactive interaction theory, complex interpersonal understanding aligns with an elaborate understanding of others’ motives and goals, due to a shared familiarity with self-narratives, and understanding that resembles Peirce’s distinction between having a mind and having the experience of mind [55].

There are, however, detractors to these ideas. Mendoza-Collazos and Sonesson (2021), for instance, consider that relationships between human and nonhuman actors are nonsymmetrical. According to these authors, agency is the capability to act based on the agent’s intrinsic intentionality. This implies that agents must be living beings [104, 105]. Aligned with humanist and internalist approaches, the authors attribute the “capability to plan, imagine, and improve artefacts, by means of the intentional shaping and assembly of materials” as manifest expression of the uniqueness of human agency, distinct to that of other species, including primates [106]. For Andy Clark, the problem lies in that consciousness may be internalist, even if the mind is extended.

The discussion above is of interest not only to conceptions of the posthuman related to the environment but also in relation to AI. As indicated before, complex machines that convey information via digital artefacts connected to analogic instruments are strong candidates for extended cognition. For instance, an optical microscope extends human visibility range through lenses. However, an Atomic Force Microscope (AFM) can produce data, in the place of an optical visual process. Complex machines might not increase the power of human observation by delivering immediate sensory data. Instead, they offer access to nonobservable data, even if this process does not resemble human perception. Furthermore, digital information can now be stored in biological tissue and DNA (see work by Mark Bathe at the Broad Institute MIT & Harvard). Facial recognition technologies, and even wearable devices, are also activated from physiological parameters, which are then transformed into digital data. The concept of the DNA of Things (DoT) is already merging biological and digital information [107], an integration that creates additional concerns regarding agency, since there is often a long causal chain of mixed human and machine interactions.

There are not only many (human) hands; there are also what one could call ‘many things’: many different technologies. In AI process and history, various software is involved but also more literally various things, material technological artefacts: things that are relevant since they causally contribute to the technological action, and that may have some degree of agency [108].

8. Conclusions

This chapter highlighted the relationship between cognitive semiotics and other cognitive sciences. The chapter has focused on the increasing presence of wide cognition theories and on the need to explain material engagement and the modulation of human and nonhuman co-agency, a fundamental discussion that involves both environmental and technological concerns. The chapter has shown how Peircean semiotics anticipates some of these issues.

Article title footnote


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Author details

Asun López-Varela Azcárate
Complutense University of Madrid, Madrid, Spain

*Address all correspondence to: alopezva@ucm.es

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Where Is Meaning? Mind, Matter and Meaning

Constantin Thiopoulos

Abstract

The meaning-making phenomenon is highlighted from the points of view of rationalistic dualism, embodied paradigm and dialogism, and implications for the place of meaning in the context of mind and matter are drawn. Moreover, a research orientation for cognitive semiotics of meaning is presented.

Keywords: cognitive semiotics, philosophy of meaning, neuro-semiotics, semantics, philosophy of the voice

1. Introduction

In a communication situation, participants exchange signs and coordinate their overall behavior accordingly. It is, therefore, obvious that there is something that these signs confer, their meaning. But where exactly is this meaning to be found?

The rationalistic approach views meaning-making as a mental process that is based on the link between the individual minds of the participants and a sort of universal mind that contains eternal abstract meanings that correspond to the logical structure of linguistic expressions. This forms the basis of denotational semantics and finds its most developed form in possible world semantics.

On the contrary, embodied approaches regarding meaning are material sedimentation in the neural systems of the communication partners that results from accumulated interactions with a common environment. From this point of view, meanings emerge as orientation fixpoints in structurally coupled cognitive systems and are not pre-existing ideal entities. This offers a semiotic background for neuroscience research that aims to identify the neural signatures of cognitive processes.

Dialogism puts in the center of attention the mutual influence loop in communication acts. With this focus, meaning-making is neither the result of a mental link between individual and universal mind nor of individual activations of material neural sedimentations, but of an existential tension field between communication participants.

2. The dualistic approach

For the dualistic paradigm, communication is based on the exchange of meaning-entities between the minds of the speaker and the listener. To refer to an object the speaker verbalizes his/her actual perception of it with a linguistic expression that carries an invisible label, enabling the listener to refer to the same object.

But speaker and listener have different mental images of the same world fragment, the same object viewed from two perspectives generates different perceptions. How is it possible that the speaker transfers to the listener his/her mental image? Because there is an intermediary objective meaning-entity, the transfer of which enables the speaker and the listener to refer to the same object, although the individual perceptions of it might be different.

“Die Bedeutung eines Eigennamens ist der Gegenstand selbst, den wir damit bezeichnen; die Vorstellung, welche wir dabei haben, ist ganz subjektiv; dazwischen liegt der Sinn, der zwar nicht mehr subjektiv wie die Vorstellung, aber doch auch nicht der Gegenstand selbst ist. Folgendes Gleichnis ist vielleicht geeignet, diese Verhältnisse zu verdeutlichen. Jemand betrachtet den Mond durch ein Fernrohr. Ich vergleiche den Mond selbst mit der Bedeutung; er ist der Gegenstand der Beobachtung, die vermittelt wird durch das reelle Bild, welches vom Objektivglase im Innern des Fernrohrs entworfen wird, und durch das Netzhautbild des Betrachtenden. Jenes vergleiche ich mit dem Sinne, dieses mit der Vorstellung oder Anschauung. Das Bild im Fernrohre ist zwar nur einseitig; es ist abhängig vom Standorte; aber es ist doch objektiv, insofern es mehreren Beobachtern dienen kann.” ([1], p. 27)

“The reference of a proper name is the object itself which it denotes; the idea we have is entirely subjective; in between lies the meaning, which is no longer subjective like the idea, but is also not the object itself. The following parable is perhaps suitable to clarify these relationships. Someone is looking at the moon through a telescope. I compare the moon itself to meaning; it is the object of observation, which is mediated by the real image which is created by the objective glass inside the telescope, and by the retinal image of the observer. I compare the former with the senses, this with the idea or intuition. The image in the telescope is only one-sided; it depends on the location; but it is objective in so far as it can serve several observers.”

While Frege uses “Bedeutung” for reference and “Sinn” for meaning, Husserl in the Logical Investigations [2] uses “Bedeutung” (meaning) for the Fregean “Sinn” ([2], p. 58). The objective meaning-entity lies for Husserl in the logical content of a phenomenological act. Whereas the real content stands for the unrepeatable actual experience, the logical content captures—like a mental telescope—the abstract scheme that corresponds to the underlying propositional structure. The logical content of linguistic expressions is an instantiation of pre-existent, identical, eternal, shareable meaning-entities.

“Es gibt also unzählige Bedeutungen, die im gewöhnlichen relativen Sinne des Wortes bloß mögliche Bedeutungen sind, während sie niemals zum Ausdruck kommen und vermöge der Schranken menschlicher Erkenntniskräfte niemals zum Ausdruck kommen können.” ([2], p. 110)

“There are thus innumerable meanings which, in the ordinary relative sense of the word, are merely possible meanings, while they are never expressed and, by virtue of the limits of human cognitive faculties, can never be expressed.”

These meanings exist “before” they are instantiated in linguistic expressions in a third domain beyond *res cogitans* and *res extensa*, they cannot be grasped with the senses, but at the same time, they do not need to be carried by consciousness, as described by Frege for the thoughts associated with meanings.

“Die Gedanken sind weder Dinge der Außenwelt noch Vorstellungen. Ein drittes Reich muß anerkannt werden. Was zu diesem gehört, stimmt mit den Vorstellungen darin überein, daß es nicht mit den Sinnen wahrgenommen werden kann, mit den Dingen aber darin, daß es keines Trägers bedarf, zu dessen Bewußtseinsinhalte es gehört.” ([3], p. 43)

“Thoughts are neither things of the outside world nor ideas. A third empire must be recognized. What belongs to this has in common with ideas that it cannot be perceived with the senses, and with things that there is no need for a consciousness to which it belongs.”

These eternal meanings might not exist in God’s mind ([2], p. 106), but are, nevertheless, universal truths that wait to be discovered like undiscovered planets ([3], p. 44). Of course, the prototype of these meanings is the mathematical truths; they are evident for all minds and can be accessed through abstraction. These inhabitants of the meaning domain are “allgemeine Gegenstände” (universal objects) that are instantiated in actual expressions.

“Die Bedeutung verhält sich also zu den jeweiligen Akten des Bedeutens ... wie etwa die Röte in specie zu den hier liegenden Papierstreifen, die alle diese selbe Röte “haben”.” ([2], p. 106)

“The meaning is related to the respective acts of meaning-giving ... as the redness in specie to the paper strips lying here, which all have “this same redness””

Communication is, therefore, possible, because a meaning-entity, which actualizes an instantiation of an eternal, universal, in the third domain pre-existing ideal meaning, is exchanged between the participants, enabling them to refer to the same objects and facts in the world.

However, in contrast to mathematical truths, linguistic expressions are context-sensitive; the meaning of indexicals can only be determined according to an actual situation. Meaning is anchored in the horizon of the phenomenological act, leading to a possible world semantics point of view, where meaning becomes a function from a possible to world to the corresponding extension.

The phenomenological horizon (*inner* as a further specification of the object in the focus of attention and *outer* as a gradually enlarging consideration of the context) completed with potential logically compatible perceptions describes a possible world [4]; an object seen from various perspectives leads to many different related perceptions with the same intentional content. But it is also possible to create alternative worlds, where the object is characterized by other features and contexts. The meaning of this object is then not a unique ideal entity, but a function from possible worlds to this object [5]. Thus, a relativization of truth takes place, because facts can be true in some worlds and false in others, whereas context-free truths, such as the mathematical ones, are true in all worlds, l-truth in the language of Carnap.

The meaning of an expression is now an invisible operation that associates with each actual or potential situation a logical content that corresponds to the extracted propositional structure. Either in the form of ideal, eternal entities or as functions from a domain of possible worlds to a codomain of logical descriptions, the dualistic approach presupposes something like a universal mind, where all these contents float. Humans can communicate because, by having individual access to this universal mind, they can identify identical transferable meanings.

Within this framework, paralinguistic signs and soliloquy do not have a meaning (as also Husserl is pointing out in the Logical Investigations), because these signs do not contribute to the logical content and during soliloquy, there is no transfer.

3. The embodied approach

If the grasping of meaning presupposes propositional analysis, then infants would not be able to communicate. Humans are not born as isolated individuals that need to develop intelligent faculties before they can communicate. Instead, newborns are engaged in preverbal proto-conversations with the mother [6]. This dyadic interaction evolves through gaze following to secondary intersubjectivity that involves a mother-baby-object triadic relation [7]. Meaning exchange must be grounded, therefore, in preconceptual bodily anchored mechanisms. This has indeed been demonstrated with the discovery of mirror neurons.

“Mirror neurons are premotor neurons that fire both when an action is executed and when it is observed being performed by someone else.” ([8], p. 521)

For Merleau-Ponty, who first introduced the corporeal embedding in the world as the basis for meaning-making, the meaning of an object is not an ideal entity but the residuum of experiences from interacting with this object in situations; it is its style.

“C’est donc cette compréhension originaire du monde qu’il faut éclaircir... Elle est comparable à celle d’un individu que je reconnais dans une évidence irrécusable avant d’avoir réussi à donner la formule de son caractère, parce qu’il conserve le même style dans tous ses propos et dans toute sa conduite, même s’il change de milieu ou d’idées.” ([9], p. 395)

“So, it is this original understanding from the world that we need to clarify... It is comparable to that of an individual whom I recognize in irrefutable evidence before having succeeded in giving the formula of his character, because he retains the same style in all his words and in all his conduct, even if he changes his background or his ideas.”

This residuum of experiences is materialized as sedimentation of interactions in brain networks. A concept is a dynamically distributed system in the brain [10]. It is an assembly of neurons that contain a recording of schematic aspects (extracted by selective attention) of a brain state associated with a perception [11]. Meaning is created as a result of the whole organism interacting with the environment. For example, activations in brain structures and sensorimotor systems are inter-coupled [12]. It is also not localizable in a specific brain area, because the binding of multimodal semantic features relies on long-range connections; it is binding by synchrony [13].

Moreover, as the evolution of intersubjectivity in infants demonstrates [14], reference to objects emerges from intersubjectivity and it is not the result of the meaning exchange between isolated individuals. Humans are born into intersubjectivity.

“J’éprouve mon corps comme puissance de certaines conduites et d’un certain monde, je ne suis donné à moi-même que comme une certaine prise sur le monde; or, c’est justement mon corps qui perçoit le corps d’autrui et il y trouve comme un prolongement miraculeux de ses propres intentions, une manière familière de

traiter le monde; désormais, comme les parties de mon corps forment ensemble un système, le corps d'autrui et le mien sont un seul tout, l'envers et l'endroit d'un seul phénomène et l'existence anonyme dont mon corps est à chaque moment la trace habite désormais ces deux corps à la fois.” ([9], pp. 423–424)

“I experience my body as the power of certain behaviors and a certain world, I am only given to myself as a certain hold on the world; it is precisely my body which perceives the body of others and discovers a miraculous extension of its own intentions, a familiar way of dealing with the world; as the parts of my body together form a system, the body of others and mine are a single whole, two sides of a single phenomenon and the anonymous existence of which my body is at every moment the trace, inhabits both bodies at the same time.”

Meaning emerges from internalization [15] of social interactions and not—as in the dualistic scenario—social interaction emerges from the meaning exchange between individuals. The alter ego stands for another point of view of the ego. Embodied interactions from cognitive systems with similar capabilities with an environment with the same affordances result in comparable sedimentations. A universal Leib penetrates ego and alters ego.

“La chair n'est pas matière, n'est pas esprit, n'est pas substance. Il faudrait, pour la désigner, le vieux terme d'“élément”... c'est-à-dire une chose générale à mi-chemin de l'individu spatio-temporel et de l'idée ... La chair est en ce sens un élément de l'Être.” ([16], p. 181)

“The flesh is not matter, is not spirit, is not substance. To designate it, we would need the old term “element”... that is to say, a general thing halfway between the spatio-temporal individual and the idea... The flesh is in this sense an element of Being.”

The topology of a chair is not homogenous. Regions with high density, resulting from often interactions with joint attention, form intersubjective concepts that emerge as common orientation dimensions. Concepts are not eternal entities in an ideal third domain but emerge from intersubjective communication and are materializations of recurrent patterns. Such materializations stored in long-term memory create the categorial framework that enables social interaction. But it is also possible that intermediate forms, such as *ad hoc* categories [17], exist.

The sedimented experience from interacting with a certain sort of objects constitutes a simulator. When perceiving or imagining an object, a distributed pattern becomes activated across relevant brain areas, and it is this distributed neural network that simulates the relevant concept [18]. Understanding is based on simulation [19].

“Simulation semantics is based on a simple observation of Feldman's: if you cannot imagine someone picking up a glass, you can't understand the meaning of “Someone picked up a glass.”... meaning is mental simulation — that is, the activation of the neurons needed to imagine perceiving or performing an action. Thus, all mental simulation is embodied.” ([20], p. 19)

Neuroscience experiments demonstrated indeed a similarity between neural activations related to an experience and its recall. MRI-based analysis of neural activity during movie-viewing and spoken-recall identified pattern similarity in a large set of brain regions [21].

In contrast to the dualistic approach, paralinguistics signs form inseparable parts of meaning, since they are captured in combination with other multimodal elements that are sedimented in the concept simulators. Linguistic utterances can be seen as phonetic gestures that emerged in evolutionary steps from facial and manual gestures [22].

Construction linguistics views syntactic structures not as a result of *a priori* hardwired rules, as it is the case with generative grammar, but emerging from generalizations of similar usage patterns. There is also no hard division between syntax and semantics; surface structures are also carriers of meaning. Moreover, several regular patterns without correspondence to fixed syntactic categories can play a role in the construction of more complex syntactic structures [23]. The logical structure that can be extracted from linguistic expressions is not pre-existent; it emerges rather through the grouping of units that serve the same communicative function from recurrent usage in situations [24].

4. The dialogic approach

Communication is more than individual activation of the brain networks of the participants; it creates a dynamic seamless integration of speaker and listener. Any utterance in a dialog is completed, when it is “understood” by the listener; every comprehension entails a responsiveness attitude, and every utterance anticipates an answer [25].

A tension field penetrates communication partners. There is a continuous loop between the expectations as well as between the expectations about the expectations of the speaker and the listener that shapes communication and enables the prediction of classes of behavior [26]. The neural signature of this loop lies in the interaction between posterior and anterior brain networks [27].

Neural activations in speaker and listener are correlated. To capture this interdependency, the method of hyperscanning has been developed, whereby neural activations of communicating partners are recorded simultaneously. Hyperscanning experiments provide evidence that behavioral synchrony and turn-taking are accompanied by brain oscillatory couplings [28].

Meaning is, therefore, not only determined by the activation of the speaker’s and listener’s simulators, but also created and modified through the situative coupling in a communication act. Verbal exchange and the resulting synchronized activations in the brains of speaker and listener cannot be reconstructed by integrating the isolated individual activations [29]. There is something more: mutual tuning creates a field that co-determines meaning. This includes both the loop of expectations and extralinguistic dimensions of the experienced situation.

Volosinov [30] gives an example of two men, who are in a context of a lingering winter and the start of a new snowfall. One of them says “well” and the other does not answer. The meaning of “well” in this dialog, followed by the silence, is an “agreement” between the participants that they were tired from a long winter and disappointed that the spring did not start. Silence is not devoid of meaning; it is a dialogic move.

“Hence the movement from silence to speech is not a movement from nothing to something, from non-meaning to meaning. The silence that precedes and surrounds speech is not a void, but a silence with a promise of speech, a silence pregnant with meaning, like a pause in a conversation, or the gap between each ring of the telephone.” ([31], p. 51)

The carrier of meaning is the voice.

“A voice carries the speaking subject out of himself, decentering and orienting him toward the other(s) (both face to face, and general social others), supporting and leading the contact. What a voice carries and expresses at the same time is that the utterance is as well “mine” as “other’s.”” ([32], p. 45)

The voice is also bodily anchored and resonates in the listener, leading to activations in core mentalizing brain areas showing strong functional connectivity with mirror neurons [33].

In every dialog, there are not only the voices of the communicating partners but also the silent voices from others not present, such as

“... absent friends, deceased or departed parents, associates from work, sleeping children, and the ghosts and echoes of other conversations past and imagined. Even these voices are the product of yet others, the whole polyphony linking the past to the present to the future, and the culture to the individual in a kaleidoscope of what Bakhtin called “unfinalisable” dialogue.” ([34], p. 776)

These imagined interactions form an inner dialog with others, leading to a dialogic self [35]. In contrast to the rationalistic self, the dialogic self can change its stance among different and even antagonizing voices creating dialogical relations between them. Meaning always includes an intrinsic relation to auto-noesis [36], meaning is meaning for me. Soliloquy plays—in contrast to the dualistic approach—a significant role in the formation of meaning. Linguistic social exchanges are transformed into an internalized “conversation” with the self [37]. Both inner and overt speeches activate similar brain areas. Neuroscience experiments have shown that inner speech is a simulation of speech, including motor planning, but excluding motor execution [38]. The dialogic self creates an autobiographic narrative in dialog with significant others [39].

Meaning is constituted and reconstituted from the resonance of the outer and inner voices of the participants and includes a verbal, a situational and an auto-noetic dimension. In the example from Volosinov above, the meaning of “well” in the specific communication act emerges as a Gestalt that balances the mutually experienced situation with the auto-noetic voices of the two men; it exists, as such, in *two* brains and it is not a superposition of two individual meanings. Interbrain synchronization goes beyond entrainment to the audio envelope and involves direct mutual interaction between the brains of the speaker and listener [40]. This joint experience is then recorded individually as a neural sedimentation.

Recurrent dialogic encounters with significant others result to an entanglement of the voices of the participants, unfolding a dialogic space of open-ended dialogs that co-determine meaning and the autobiographic narrative. The participating voices complement each other, and this complementarity creates meaning from situated experiences for the dialogic self.

Auto-noetic exploration of the dialogic space determines and re-determines a *positioning*, an existential point of view that enables the interpretation of lived experiences and their coordination with an evolving autobiographic plot. Positioning creates a semiotic niche for autobiographic narratives and as such for Dasein: “a reader of its own existence” [41].

In every utterance several voices are floating, some are speaking for one positioning, some for another and some for two or more positioning. Voices are fluctuating along two dimensions: (1) overlapping or conflicting semiotic positions and

(2) intensity. The degree of conformity or conflict to a certain semiotic position creates a conformity horizon, while the intensity of a voice an intensity horizon. Dominant voices possess a high degree of conformity and intensity and suppress less audible voices but suppressed voices can come back and challenge dominant ones.

Meaning from a dialogic point of view emerges as a Gestalt that balances the positioning with the positioning of the other through interbrain synchronization, leading to an interpretation of the experienced situation and to an evolution of the dialogic space, which in turn leads to an evolution of positioning. Meaning is, therefore, both actively co-constituted during communication and always intrinsically coupled to existential positioning of the dialogic self. Starting from an analysis of communication acts as experienced, dialogism dives deeper into the meaning-making phenomenon.

5. Conclusion: the cognitive semiotics of meaning

For the dualistic paradigm, meaning exists in an eternal mental domain, to which communication participants have access through their individual minds. For the embodied approach, meaning is a dynamic system in the matter of an individual brain network. For the dialogic approach, meaning emerges from interbrain synchronization. The place of meaning is neither in mental domain nor solely in neural materialization, but rather in the mutual influence between two or more cognitive systems creating an existential space of ongoing dialogs between voices that carry a positioning perspective.

This space can be viewed as an assemblage of voices in the sense of Deleuze and Guattari [42]. Assemblages bind together parts in a way that the whole creates emergent properties, while the parts sustain their autonomy; they are not fused in a single structure and can participate in the formation of other assemblages. Assemblages are also “concrete”, their parts are not placeholders for others with the same structural value, they *are* the assemblage [43]. New voices can enter the dialogic space and remote ones can fall into oblivion.

The topology of assemblages is nomadic, and it is created dynamically in a self-organizing manner and captures the current positioning. Assemblages oscillate between territorialization and deterritorialization. Positioning-compatible experiences reinforce the intensity of the voice of the current positioning, while non-compatible ones question it and trigger a perturbation that can lead to a new positioning.

The challenge and the opportunity of cognitive semiotics is to describe the genealogy of meaning from the complexification of these semiotic processes.

Author details

Constantin Thiopoulos
Brainomix, Oxford, UK

*Address all correspondence to: constantinthiopoulos@gmail.com

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Configuring a Concept - On Iteration and Infinity

Gisela Bruche-Schulz

Abstract

The question asked in this paper concerns the relation between perception, the senses, and the human faculty of conceptualizing experiential values. I suggest that I came across data that exemplifies the *transition* from the sensing of an Umwelt to a conceptual grasp. The human faculty of conceptualizing experiential values obviously relies on experiential ontologies as a reference system. But the latter does not bring about the conceptualizing. The main question is then: How does conceptualizing work, and what is a concept? Do we know what conceptualizing is like? Do we know what thinking is? Of course, we experience the processual endpoints with words as convenient results. We seem to know how we learn words. Do we also know how we create their meanings? The meanings of *iteration* and *infinity* are in focus here. The passage from iteration to infinity is not defined by words. The distribution of response numbers seems to indicate that there is an underlying *feeling*, or *sensing* that enables, and accompanies, the understanding of a meaning.

Keywords: sensing and feeling, ensuing conceptualizations, the meaning of words

1. Introduction

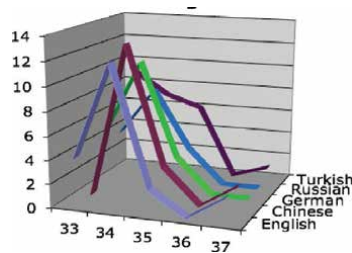
During a playful reading experiment, five different groups of readers (students) were presented with an excerpt from Saint-Exupéry's *Le Petit Prince* (in five different languages, on different occasions). I introduced the reading event as a playful game and a pastime, and discovered only later that the responses occurred in regular highs and lows.

I asked the students to jot down what came to mind, and I allowed 10 minutes for the task. Never did their responses match with the words written by their fellow students, nor with the drawings and sketches either. However, the response *numbers* matched. The numbers give evidence of perceiving conceptual entities by their distinctively different distribution. The numbers show alignments with different conceptual entities, that is, with different semantic constellations, reflecting, for example, lasting events and states, bounded and unbounded events, speech and thought introducers, also expressions signifying negation, completion of an action, evaluations, and other statements of the forms described in grammars. The grammars of all languages include such concepts and their respective meanings, even though in different formations, in different distributions, and to different degrees.

In the text, that was in focus, there were altogether 44 segments, each signaling one of these core conceptual features. Up to now, I have looked at the types of highs and lows of response numbers highs and lows of response numbers at segments that signal bounded versus unbounded events, and positive versus negative evaluations. As for the present project, I want to find out more about the nature of the *concept of iteration*.

In sum, the above-mentioned five different groups of readers—when reading the text in five different languages, at different times and places—produced *high* response numbers at a textual segment with an *iterative (unbounded) activity*. An example is attached below. The response numbers signal the perception of an iteration without the readers being aware of producing such *numbers*. The task, after handing over the sheets with their responses, was of course the topic of the ensuing conversation. The readers enjoyed telling each other about the kind of ‘funny’ responses they had given (as sketches or in writing), they also kept wondering about the intentions, the ‘wider’ meaning of the task (I had promised to tell them ‘later’). In the following, it is the segment 34 (of 44) which is in focus.

1.1 Segment 34, iteration: *shimmer in the trembling water*—not known when ending



34. and I could see the sunlight shimmer in the still trembling water.	34. 而陽光正在波動的水面上粼粼發光著。	34. (a) und im Wasser, das noch zitterte, 34. (b) sah ich die Sonne zittern.	34. (a) вода в ведре ещё дрожала, 34. (b) и в ней играли солнечные зайчики.	34. ve hâlâ titreşen suda güneşin de titreştiğini görüyordum.
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Sensing that my ‘mind’ is directed to a something, does not produce awareness of my consciousness, but rather of the specific something, here signaling an iteration (*shimmering*, and *trembling*). The question is: What is it that we call a ‘mind’, and how would a ‘mind’ conceive what we call ‘concepts’? My own immediate problem was and still is: How can the regular up and down of response numbers at segments with particular ‘grammatical’ concepts be explained? Or to rephrase the question with regard to the present example: What is it that evokes the high response numbers at segment 34—in all five languages!?

The usual assumption is that our concepts come about by an underlying consciousness that responds, through our ability to think, to our experience of the world. In everyday life, we even assume that concepts are given that we use for sorting out things that are relevant to us. But what do we know about this underlying consciousness that ‘presents’ us with the concepts which we use? How does *it* work? I take it that the response numbers in the above example are, or could be, part of an answer. In other words, if the phenomenon of *iteration* is perceived as a relevant example, would it be possible to find out more about being conscious of the phenomenon of iteration which could help to explain the numbers? So what is a concept?

Dictionary meanings focus on the ability to think in relation to one’s experiences, summarized as the faculty of consciousness and thought. When applied to the present problem, the ‘feel’ of iteration seems to shine through the high numbers—as an expressive means that reflects a sensing accompanied by an intensity that is *not* ‘felt’ at the preceding and the following segments.

In everyday life, one would probably refer to the effect of happy endings as a good example of elements that excite an emotional effect when reading a story until the end. But that would still not explain the regular numbers of the reader responses at places like, for example, negation (zero to few responses'), iterations, completion of an action, positive evaluations (high response numbers, as aforesaid see [1, 2]). The regular ups and downs of the response numbers tell us that there is *something* to the notion of consciousness, but it is not clear what this *something* really is.

Before I move on to address the latter question, I present statements from grammars of the five languages within which the text of *Le Petit Prince* was read by five different groups of readers. The five languages use different word formations for expressing the phenomenon of iteration. Their grammars show the different grammatical means that are used for making manifest the phenomenon of iteration.

1.2 Iteration: unbounded processes

English	Cantonese	German	Russian	Turkish
progressive	verbal particle <i>jyuh</i>	timeless present tense	aspectual layers	progr & habitual
Downing and Locke, 1992, p. 368ff.	Matthews and Yip, 1994, p. 202ff.	Eisenberg, 1989, p. 123 Hentschel and Weydt, 1991, p. 91ff	Isačenko, 1968, p. 416ff	Göksel and Kerslake, 1992, p. 368

In spite of the diversity of the language typologies, the notion of ongoing processes is a semantic key notion shared by all, albeit in different output formats and clusters of aspect formation. All languages describe 'infinity vs. finiteness' as variations of iteration. Iteration may be unending (progressive, habitual), interrupted, completely stopped, or negated as happening at all. The first question related to this phenomenon is: Why do the languages of our world share the grammatical concept of iteration? [3–7].

Up to now, I tried to figure out the possible reasons for the regularities of the ups-and-downs of the numbers in relation to the story structure [1, 2], also as visible from the types of pictorial responses that express/show affective reactions (see [8], on iconic diagrammatic effects). What is of particular interest in this context is the fact that iteration and the hierarchies of iteration are the very fabric of the processual texture of cellular entities. As such, human minds work obviously as offshoots of this texture, that is, as an extension of this procedural type of mirroring life processes, by mirroring them, even though confined to the perspectives of the human species. Below, I present my main questions again:

Sensing that my 'mind' is directed to something, does not produce awareness of my consciousness, but rather of the specific something, here signaling an iteration (*shimmering*, and *trembling*). The question is: What is it that we call a 'mind', and how would such a 'mind' conceive what we call 'concepts'? When trying to find an answer, my immediate problem was and still is: How can the regular up and down of response numbers at segments with particular 'grammatical' concepts be explained? Or to rephrase the question with regard to the present example: What is it that evokes the high response numbers at segment 34—in all five languages!? Below I summarize the main points of my project:

The present paper is my first try at a focus on a 'substance' that underlies the conceptual organization of the world's languages, specifically, the concept of iteration. What gives me a hint is the *non-conscious* responding of the five groups of students who read an excerpt from Saint-Exupéry's *Le Petit Prince* (in five different languages).

The five different groups were asked to jot down ‘what came to mind’ when reading this excerpt in their own (different) languages. Their jottings then revealed highs and lows of response numbers at the same conceptual figurations, thus correlating with the semantics of the grammar that underlies the narrative told by the text.

2. What is a concept: opinions and attempts at explanations

Concepts are categories or groupings of types of experience. In this paper, the concept of *iteration* is in view. This ‘concept’ is a descriptor for processes, for which both a *processual ending and also the unending* are not determined, is left open by the grammars. Both ways are supposed to exist. The experience of human bodies in temporal space attests to endings to happen. But as previous beliefs in Gods (and today’s life sciences) confirm, there are processes that are indeed unending. Apparently, for humans, regardless of which language they speak, there is also a potentially double experience of both bounded and unbounded iterations, generated on the basis of an “inherent kinetic dynamics [i.e.] the experientially grounded affective-cognitional-proprioceptive/tactile-kinesthetic foundations of those dynamics” ([9], p. 36). This inherent kinetic dynamic provides a wealth of experiential input. This experiential input creates variations of sensory qualities and their functions in relation to the needs of a body, for example, structured as right–left-hand functions, and/or as airborne and, incrementally, structure born sounds that develop from tone *signals* (alert, alarm, animosity, also trust, liking, affection, and other emotive underlays) to more and more developed sign systems.

The sign systems that have been developed in the languages of this world, all have the means to communicate—and to *form concepts*—on the basis of the experience of human bodies living in a world that is conceived according to the needs of human bodies. The concepts constructed by human consciousness reflect formative bodily awareness, bodily motivated perceptiveness, and requisite categorizing of experience. “A Martian scientist with no understanding of visual perception could understand the rainbow, or lightning, or clouds as physical phenomena, though he would never be able to understand the human concepts of rainbow, lightning or cloud, or the place these things occupy in our phenomenal world ([10], p. 443).”

2.1 Consciousness: the organization of energy in the brain

Obviously, the *concepts of rainbow, lightning, or cloud* are grown out of the ability to form them. And what is this ability about? A controversially discussed primary cause is human consciousness as a system that organizes the input of experience and the resulting system of mental processes by building on a neural substrate, in a process of “emergence of conscious mental processing from the neural activity carried by the underlying biochemical principles of brain organization” ([11], p. 1). Is human consciousness then a purely physical phenomenon? In the following, ‘energy’ is in focus. Is ‘energy’ a purely physical phenomenon?

Evidence from neurobiology indicates that the brain operates on the principle of energetic processing and that a certain organization of energy in the brain, ... can ... reliably predict the presence and level of consciousness. Since energy is causally efficacious in physical systems, it is reasonable to claim that consciousness is in principle caused by energetic activity ... ([12], p. 8)

The denoting of the conceptual entity of iteration by response numbers, that is, *not* by an awake state of awareness, does speak to a directedness of the organization

of energy in the brain. The verbal input of the text that is read is obviously a source from a feedback system that works on and with words, and *also with the syntactic structure* which organizes the word order.

Feedback systems are self-referential: one part of the system casually affects another, which in turn affects the first. Such systems are apt to generate behaviors that are an irreducible property of the system as a whole ([12], p. 7).

In total, it is obviously the case that the awareness and sensing of particular experiences are being noted at varying levels of consciousness. Feedback systems and energy in the brain should surely be involved. Do these driving factors then solely reflect the organization of energy in the brain? I would want to keep this question unanswered up to the point, at which other aspects have been brought to the fore.

2.2 Consciousness: internal broadcasting

Feedback systems and energy in the brain are surely driving factors of the processes which happen in the brain and the body. The question is whether personal awareness is just a weak offshoot, that is, the end-product of non-conscious processing. The commentary below seems to confirm this latter aspect.

The experience of consciousness is a passive accompaniment to the non-conscious processes of internal broadcasting and the creation of the personal narrative. In this sense, personal awareness is analogous to the rainbow which accompanies physical processes in the atmosphere but exerts no influence over them. Though it is an end-product created by non-conscious executive systems, the personal narrative serves the powerful evolutionary function of enabling individuals to communicate (externally broadcast) the contents of internal broadcasting ([13], p. 1).

Oakley and Halligan further suggest that the sense of agency and self has a role to play in human lives. “We argue, however, that central to the traditional domain of consciousness is a personal narrative created by and within inaccessible, non-conscious brain systems where personal awareness are end-products of widely distributed efficient, non-conscious processing ...” (p. 13). They further suggest that personal awareness “lacks adaptive significance like rainbows or eclipses” (ibidem)

Neither Oakley and Halligan, nor Peperell ascribe an agentive-reflective consciousness function to the brain. They rather stress the non-conscious processing as fundamental to the living with an identity of a self (“with a personal narrative”), the latter as the end-product of a non-conscious processing.

2.3 Conceptual organization, its experiential *substance*, and processual dynamics

In the following, I will refer to authors who attempt to find out about the question of how the self, that is, the end-product of ‘non-conscious’ processing, comes about. They stress the *qualities* of the first-person perspective, and the *levels of experience*, that allow for actively anchoring words in human communication and thought.

2.3.1 Jose Musacchio: the transparency of experience

Musacchio highlights the difficulty as follows: He suggests that “...the most misleading factor in the understanding the nature of the mind and conscious

processes is the *transparency*¹ of experiences and the imperceptibility of the neuro-biological processes that realize them” ([14], p. 425).

Transparency reflects the biological advantages provided to organisms by avoiding the proliferation of superfluous sensing and the regress implied in sensing the sensors and analyzers ad infinitum. The downside of simplicity and the price for biological efficiency is that through introspection, we cannot perceive the inner workings of the brain. Thus, the view from the first person perspective creates the pervasive illusion that the mind is nonphysical. Sensing the environment requires encoding information into neural surrogates, which I conceive as contingent processes that when incorporated into conscious processes become qualitative experiences (ibidem).

Such qualitative experiences (*qualia*) are also shared by the living beings that we call animals. “Experiences have high biological value, because ... they allow [all] organisms to make intelligent choices (ibidem)”

The phylogenetically conserved neural structure that allows for qualitative experiences relies on the information received by the senses, and then on being processed by pathways in the brain. “Colour, motion, depth, shape, contours, distance, etc. are processed in multiple cortical areas” of the brain ([15], p. 72).

We normally perceive bodily experience as very different from thought. When realizing the complexity of the interplay of a body and a functioning brain, the picture changes.

“[C]onsciousness and the self are neither a thing nor a substance, but a collection of processes, which include sensations, perceptions, and memories. ... [C]onsciousness and the self are a collection of dynamic processes, which incorporate not only the current experiences, but also all our current thoughts, memories, and emotional states” ([15], p. 78).

As is obvious, Musacchio’s reasoning concretely informs the view that the sign systems, notably the sign systems of the world’s languages, are all based on the experiential reality of human bodies. No concept would have been formed if there was not a ‘collection’ of bodily processes, including ‘sensations, perceptions, and memories’, firstly, as concrete momentary experiences, and also as chains of experience that are reflected from conceptualized pictorial, verbal, or other sign-system experiences.

The nested and interlaced cellular structures of our bodies, with the brain in the role of an aligner control unit, are the non-conscious resources, the underlay of our consciousness. When describing the cellular interplay with the view to learn more about ‘how’ we arrive at and ‘live’ with the experience of being conscious, various authors explore specific ways and stress somewhat different aspects. In the following, I give a summary account of the aspects highlighted by Fuchs [16].

2.3.2 Thomas Fuchs: the body as a point of conversion

Cells, and higher organic units, are the building blocks of organs whose interplay results in the wholeness of an experiencing body, and the brain configures elements of experience “into resonant patterns that form the basis of integral acts of life” ([16], p. 169). The wholeness of this experience is not found inside a body alone. Like bodily processes belong to one processual dynamics (sensations, perceptions,

¹ my italics

memories), elements of an Umwelt are equally focused on and are also functional for a wholeness of the conscious experience of being in a situation.

Let us take the example of an instrumental action such as writing a letter. In order to do so, I pick up a pen that was previously outside my perception, but had already been preconceived by my imagination. It is also suitably shaped for being held by my fingers and has an expected weight. In other words, my lived body already anticipated the pen through its habits and protentions (p. 138).

The gist of this observation declares an Umwelt as part of the ‘personal’ consciousness that relies on the input of a processual interplay of the nervous systems of a body. In a similar vein, Fuchs remarks: “There is no ‘pure’ pain, no ‘plain’ seeing or hearing. Conscious experience is not put together from components at all; it is, conversely, from components at all; it is conversely, a *primary unified process* or a *stream of consciousness*, which differentiates into specific activities and achievements according to the particular demands of the situation” (p. 48).

To sum up, Fuchs posits that consciousness is everywhere. It is nourished from all regions of the body, brain, and an Umwelt. What is called the ‘mind’ is thus not a solitary cellular entity. “[T]he brain as such does indeed not contain more consciousness than, for example, the hands or feet; only as a whole is the living creature conscious, does it perceive or act. (p. 136)” During perceiving and acting, *meaning* plays the role of explicating the directions and purposes of perceiving and acting. Fuchs compares the role played by consciousness to the ‘Necker’s cube’ for explicating the wholeness of the seemingly diverse spectrum of perspectives it can represent. The ‘subject’ is revealed as embodied, whereby the body is the ‘point of conversion’. Fuchs cites Merleau-Ponty, stating that consciousness is “neither mere *consciousness* of the body nor objective *physical body*. (p. 75)” He summarizes: “A person’s life acts therefore both exist in an inner and outer sense—they encompass lived experience *and* expressive behavior (p. 82)”.

2.3.3 Mark Johnson: continuous nestings of cellular connectivity

Johnson argues for a nondualistic, nonrepresentational view of mind as “a process of organism-environment interactions ([17], p. 117) that relies on neural maps. Higher up the neural-structure chain the organizing structure of experience combines, e.g., perceptual fields by creating image schemata (center-periphery, compulsion, attraction, blockage of movement, “to name but a few aspects of what Leonard Talmy calls ‘force dynamics’ ([17], p. 137).

The bodily logic of such force schemas will give rise to specific inferences that we draw, based on the internal structure of the schemas. For instance, objects move at varying speeds, they move along trajectories, there is a rhythmic flow to their movement, they start and stop, etc. (Johnson, ibidem)

The cellular processes of human bodies all occur in nested systems, which combine in hierarchies of further overarching nestings, experienced as ‘up-down, compulsion, attraction, blockage, scalarity’—thus, reflecting ever-ongoing connectivity of the cellular units of living bodies. With different contexts of everyday life, adapting the needs of the body to the momentarily available resources is an ongoing process. The needs of the body are experienced by variations of ‘feelings’ that require a response.

Because we must continuously monitor our own changing bodily states, we are exquisitely attuned to changes in degree, intensity, and quality of feelings. Such

experiences are the basis for our sense of the scalar intensity of quality ... In other words, because the qualities (e.g. redness, softness, coolness, agitation, sharpness) of our experience vary continuously in intensity, there is a scalar vector that applies to every aspect of our qualitative experience (Johnson, 138).

There are then various directions of continuous cellular connectivities, usually described as the effects of a 'mind'—in three dimensions: “[Y]ou need a human brain, operating in a living human body, continually interacting with a human environment that is at once physical, social, and cultural. ... no brain, no meaning; no body, no meaning, no environment, no meaning” (p. 155).

3. Scalar fields and the vectors of consciousness

The experience of a self is not possible without the conscious experience of: *I did it, I tried to, next time it might be better because I know now how to do it.* Based on our cellular oneness that derives from various physically nested *intentional* vector spaces, an *ego* comes about through the totality of sensor and control functions from each level of the cellular entities. The process generates an experience that is felt as a resonance system, that is, *feelings* (good feelings: positive resonance, bad feelings: negative resonance). Depending on the good or bad *feeling* (or a neutral one), we influence the directions and the intensity (the ‘force’) with which the processual docking-on proceeds.

3.1 The hard problem of consciousness: non-commutative structures

Chalmers, who put forward the notion of the ‘hard problem of consciousness’, remarks

The really hard problem of consciousness is the problem of experience. When we think and perceive, there is a whirl of information-processing, but there is also a subjective aspect. As Nagel [16] has put it, there is something it is like to be a conscious organism. This subjective aspect is experience. When we see, for example we experience visual sensations: the felt quality of redness, the experience of dark and light, the quality of depth in a visual field. ... Then there are bodily sensations... the felt quality of emotion, and the experience of a stream of conscious thought. What unites all of these states is that there is something it is like to be in them. All of them are states of experience (Chalmers, 2011, pp. 31-32)

In 2018, he asks, “[W]hy are physical pain processes accompanied by the feeling of pain?” (p. What we call ‘feeling’ is a human response to a causative root that is alien to the nature of the cause. In this way, the ‘hard’ problem of consciousness turns into a ‘meta-problem’, that is, into a question that does no longer aim at the particular quality of consciousness, but at the question of why there is this epistemic gap between phenomenal and physical factors.

3.2 Quantum concepts and experience

Today there is accumulating evidence in the study of consciousness that quantum concepts like complementarity, entanglement, dispersive states, and non-Boolean logic play significant roles in mental processes ... The term “quantum cognition” has been coined to refer to this new area of research. Perhaps a more appropriate characterization would be non-commutative structures in cognition ([18], p. 29).

What is in focus is, on the one hand, the brain. The brain is the physical place where nested neural structures are active. However, when dealing with consciousness, it is not the brain that is its creator. For consciousness (and a mind) to come to the fore, a totality of the responsiveness to an Umwelt is needed. We regard the 'mind' as the creator of—thought, perception, emotion, memory, also imagination, and reason. The neural structures of the brain are needed as the physical *underlay* that supports what the mind is doing (like a bike is needed for riding a bike). Let us look at quantum *concepts* as a further example of the structure of a concept.

The above-mentioned quantum *concepts* have a double-sided bearing. On the one hand, they elaborate the properties of the process that gets the research of the quantum matter going by particular conceptually different aspects. On the other hand, the word *quantum concept* is the instrument used by the speaker who points to the topic that is at play.

Human thinking is afforded the means to reflect on the particular organization of sensing, the ability to reflect on both *what is sensed* just now, and by the faculty of reflecting on the wholeness of the human experience—in short, on the wealth of conceptual experience. What is called thought is the 'space' within which the senses send effects on a body into a 'sunlight' stream of reflective elements. Like the sunlight is not a phenomenon as *we* see it, and the *taste* of sugar is not what the sugar consists of, other phenomena are not what our perceptions say about them either. These relational inadequacies between what we *know* about such phenomena and how we *feel* them are approached by human minds along with the feel of it, and by researching the underlying chemical properties.

..., the phenomenal is identical to certain neural processes, even if our perceptions from different perspectives indicate otherwise ([14], p. 423). ...The sweet taste of sugar is not identical to the chemical properties of sugar, even if some of the molecular properties of sugar are what stimulate the tongue receptors for 'sweetness' (p. 442).

What these chemical properties are and how they operate on the tongue receptors can be approximated through data that are retrieved from data sources which are helpful, but knowing about them does not change the way we feel them.

3.3 Apeiron and other forms of infinity

One form of dealing with the phenomenon of unending was, in the Western World, the belief in Gods, or in *one* (Christian) God. Eastern religions held different views, and the Greek tradition showed that the belief in Gods was not necessarily grounded in the assumption of an unending process. Sieroka (p) refers to Aristotle's remarks on Anaximander's views of the apeiron (ἄπειρον), the unlimited.

Obviously, so the argument goes, we are surrounded by countless instances of the natural processes of becoming and declining, animals are born, grow, and die, etc. Hence, there must be a source or 'reservoir' for all these processes and, for the sake of avoiding a vicious regress, this source must be infinite, or rather inexhaustible (pp. 3-4).

Sieroka continues to say that the ἄπειρον was not only viewed in terms of an inexhaustible source of the power for the generation of things in the world, but also as indeed spatially inexhaustible. The ἄπειρον was thus claimed to be an unlimited causal principle, not being identical with

“any of the four elements” fire, water, earth, and air), “but rather with something ‘between’ them in the sense of being a source from which the elements originate. ... ἄπειρον is discussed as denoting that which is qualitatively indeterminate. ... [T]his interpretation might be interpreted as based on the assumption that there is a combat of the four elements fire, earth, water, and air; no element is allowed to prevail over the others (for then, contrary to what one observes, those other elements would cease to exist in the world). Hence, the four elements themselves must originate from something that, following the Aristotelian framework, does not share the qualities of being hot or cold, wet or dry—that is, they must originate from something that is qualitatively indeterminate” (p. 4).

As an unlimited causal principle, the assumption is in line with what we know today about cellular processes. Cells, and higher organic units, are the building blocks of organs whose interplay results in the wholeness of an experiencing body, and the brain configures elements of experience “into resonant patterns that form the basis of integral acts of life” ([16], p. 169). As shown also by the grammars of the world’s languages, human environments allow for the experience of a no end. Other than that, how can it be that all languages possess the means to express the unending of processes, either by developing explicit words for it (‘no end’) or by aspectual systems that are generated through their grammars. *Infinity* is experienced as an unending going-on in the realm of space (infinity in the sky), of human activity (unending movements, unending new possibilities), of emotive force (kindness, benevolence), and the like.

4. Georg Cantor

Cantor created set theory, which has become a fundamental theory in mathematics. He established the importance of one-to-one correspondence between the members of two sets, defined infinite and well-ordered sets, and proved that the real numbers are more numerous than the natural numbers. In fact, Cantor’s method of proof of this theorem implies the existence of an infinity of infinities (infinities of transfinite, i.e., events that have a singular end but go on indefinitely as a process of reproductive sequences and structures).

Cantorian set theory is based on the principles of extension and abstraction. The set B is included in, or is a subset of, a set A (symbolized by $B \subseteq A$) if every element of B is an element of A . So defined, a subset may possibly include all of the elements of A , so that A can be a subset of itself. Furthermore, the empty set, because by definition it has no elements that are not included in other sets, is a subset of every set.

An example of a finite set is the number of cigarettes in a packet of cigarettes. However, an infinite set has no last element. It is not possible to count the elements of an infinite set. The union of two infinite sets is a superset, and the superset is also infinite. Different levels of infinity represent/constitute the transfinite numbers. “Cantor himself showed that there are indefinitely many transfinite numbers beyond C [the number of points on the continuum of a line], for he proved that the set of subsets of a set always is of higher power than the set itself ([19], pp. 634–5).”

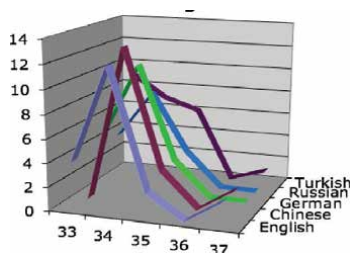
Besides making the infinite to a reality, Cantor [20] postulated that the *Endlichkeit des menschlichen Verstandes* (finiteness of the human mind), as well as of other entities which are experienced by humans as finite, continue to exist in a sequence of iterations by continuously generating the requisite process along an unlimited, stepladder with different modes („unbegrenzte Stufenleiter von bestimmten Modis“ 1883, in 1984: p.73), that is, a sort of a continuous transfer of entities to the next stages. In light of this, he introduced the ‘trans-finite’ numbers as evolving in an unending sequence of iterations.

The above is somewhat rephrased as follows: In human lives, finiteness is an end-of-life experience. Even though there is the felt and concretely observed finiteness in relation to the *felt* stopping of individual bodies, other than that, all life processes go on. (They are *never* stopping; they trans-gress any felt stopping with an *infinite* going-on, i.e., become transfinite.)

5. Scalar fields, processual dynamics, and apeiron (ἄπειρον)

From the outer view, it looks as if only words are the products of the construction of languages. But a comparison of the language structures betrays something else: The core concepts are all the same. Human bodies all connect in some ways, locally and over time. This processual continuum is reflected in the grammars of all languages. What is shown by the concept of iteration is a psycho-physical responsiveness that allows for the experience of living in a human body. That kind of responsiveness translates the experience of the world into conceptual visions, including the construction of the concepts of language.

5.1 Segment 34, iteration: *shimmer in the trembling water*—not known when ending



34. and I could see the sunlight shimmer in the still trembling water.	34. 而陽光正在波動的水面上粼粼發光著。	34. (a) und im Wasser, das noch zitterte, 34. (b) sah ich die Sonne zittern.	34. (a) вода в ведре ещё дрожала, 34. (b) и в ней играли солнечные зайчики.	34. ve hâlâ titreşen suda güneşin de titreştiğini görüyordum.
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Sensing that my ‘mind’ is directed to something, does not produce awareness of my consciousness, but rather of the specific something, here signaling an iteration (*shimmering*, and *trembling*). The question of this paper was, and still is: What is it that we call a ‘mind’? The response numbers seem to give evidence of some ‘background’. But how much does the sensing of background tell us about the ‘mind’!?

The usual assumption is that our concepts come about by an underlying consciousness that responds to our experience of the world. In everyday life, we even assume that concepts are given that we use for sorting out things that are relevant to us. But what do we know about this underlying consciousness that ‘presents’ us with the concepts which we use? I take it that the response numbers in the above example are, or could be, part of an answer. In other words, if the phenomenon of *iteration* is perceived as a relevant example, would it be possible to find out more about being conscious of the phenomenon of iteration which could help to explain the numbers? I take it that the response numbers are themselves a part of an answer to this question because they are manifestations of the body’s response as mediated through the nested semiotic systems of ‘phenomenal domains’ ([21], p. 132).

A projection between a phenomenal domain A and phenomenal domain B (mental or physical) is not the representation of domain A through B; it is the establishment of an ontological correspondence between A and B. More specifically, these correspondences primarily involve connections of identity, analogy, similarity, causality, change, time, intentionality, space, role, and part-whole, and in some cases also of representation (ibidem).

As for this ‘underlying level of this projection between domain A and phenomenal domain B’ we still need to know how, by which means, a human mind accomplishes this projection. To say that there is a causal context still needs to show a causal manifestation, to find a link. The key findings (theses) of the authors whose suggestions I summarized in sections 2 and 3 of this paper link the experience of iteration to bodily properties (cellular, cellular-plus-umwelt), and to phenomena concerning infinite experiences (processual infinity, quantum concepts, apeiron-ἄπειρον as an unlimited causal principle). In Section 4, I gave a glimpse of how Georg Cantor reflected on the concept of infinity—transfinite numbers (endings with a continuous/infinite reproduction), and infinity (the unlimited stepladder of the transfinites).

6. Concluding remarks

Phenomenal domains are one thing, but then we still want to know *how* we come to know about them.

... semiosis is the transformation of energy into signs, relatively stable spatio-temporal units occurring with particular orders of matter energy configurations. These orders are systems of knowledge and of molecular organization as well; they are organized codal actions (of codification of energy) that provide both continuity of knowledge and transformation of energy ([21], p. 92).

For Peirce, there was no doubt that a ‘gob of protoplasm’, say an amoeba or a slime mold, *feels*, and that feeling has a substantial spatial extension which is subjective ([22], p. 90). A Martian scientist, having probably a bodily constitution very different from that of humans, would place her/his experience of the world in a very different conceptual context.

“A Martian scientist with no understanding of visual perception could understand the rainbow, or lightning, or clouds as physical phenomena, though he would never be able to understand the human concepts of rainbow, lightning or cloud, or the place these things occupy in our phenomenal world ([10], p. 443).”

The body is “an integral component of the way we think” ([21], p. 80). As is shown in the example of the response numbers that came about when the five groups of readers were asked to ‘jot down what comes to mind’, we deal with numbers that highlight the phenomenon of *iteration* as expressed in the language forms of five different languages. The persons who produce the jottings are not aware of this background. There is no reasoned conceptualization of the phenomenon of iteration that achieves the telling *numbers*. It is the placing of the responses, and their numbers, that signal the phenomenon of *iteration*, that is, a nonconscious awareness of the conceptual perception. For the observer, there are just the telling numbers that select the phenomenon of iteration as a focus of attention.

The five languages—among many other types of the givenness of reality—give evidence of an experienced ongoing processuality as ‘encyphered’ in human bodies and expressed in languages as various conceptualizations of iterations in the grammars of languages.

Cantor’s “Punktmannigfaltigkeiten” (set(s) of points) correspond to and conceptualize the variations of the “ongoingness... and location in time” as described in the grammars of the world’s languages ([23], 155; in Filipovič and Jaszcolt, 2012). Cantor developed set theory, describing the various properties and intersections of finite and infinite sets. Such properties and intersections have become the accessible qualities of sets. As for the process of creating a concept, here the concept of iteration, a number of experiential pathways have been suggested—energy in the brain, cellular connectivity, quantum concepts, the experience of unlimited connectivity (fire, water, earth, and air; *ἄπειρον*). However, the question remains how the world of the senses is *channeled into the experience of a concept* when motivating the response numbers. “Material engagement is the synergistic process by which, out of brains, bodies, and things, mind emerges” ([21], p. 32). The approaches which play a role in this paper all provide aspects of this ‘synergistic process’. It is this synergy of factors and forces, which forms the background for creating a concept.

So far, what can be said is this: The experience of a concept is a restatement of a felt sensing that confirms something. “A *feeling* forced upon the mind ... [is] strongly suggestive of thought” ([24], p. 23).

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Author details

Gisela Bruche-Schulz
Independent Scholar, Berlin, Germany

*Address all correspondence to: gibrushu@gmail.com

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Section 2

Biosemiotical Modelling

A Biosemiotic Modeling of the Body-“Self” Synechism

Maria Asuncion L. Magsino

Abstract

As a counterargument to the Cartesian split that has impacted both speculative and practical fields of knowledge and culture, we propose Peirce's doctrine of synechism to show the continuity in the semiotic activity that moves from the body as an Interpretant to the emergence of another Interpretant called the “self.” Biosemiotics, a nascent field of interdisciplinary research that tackles inquiries about signs, communication, and information involving living organisms is used as the framework in the discussion. The main question of whether a non-material “self” can emerge from a material body is tackled in many stages. First, the biosemiotic continuum is established in the natural biological processes that takes place in the body. These processes can be taken as an autonomous semiotic system generating the “language” of the body or the Primary Modeling System (PMS). Second, synechism is also observed in the relationship between the mind and the body and this is evident in any physician's clinical practice. The patient creates a Secondary Modeling System (SMS) of how she perceives what the body communicates to her regarding its state or condition. Finally, the question about whether the emergence of “self” is synechistic as well is tackled. There is one organ from which emerges an Interpretant that is capable of generating a dialog between a Subject, that is the “self,” with its Object, and that is the brain. It is the primordial seat of specifically human activities like thought and language. The recent theory on quantum consciousness supports the doctrine synechism between the body as Interpretant to the “self” as Interpretant. This synechism is crucial for the creation of Secondary Models of “reality” that will, in turn, determine the creation of Tertiary Models more familiarly called culture.

Keywords: semiotics, biosemiotics, synechism, Charles Sanders Peirce, Peirce-Sebeok modeling systems

1. Introduction

After Renè Descartes (1596–1650) introduced the doctrine of the duality of substances, namely the mutually exclusive *res extensa* and the *res cogitans*, philosophy has for centuries been battling with how to regard the human body. The Cartesian split resulted in an obvious dilemma. Shall the body be considered as constituting merely a part of what defines a human being? Or does the body define what the human being is in its entirety? Countless studies on the mind–body problem have been trying to resolve the issue, “can a non-material ‘self’ emanate from a purely material body?” This seemingly speculative or theoretical question has spawned divisiveness and fragmentation that we find at the root of contemporary culture.

Societies worldwide are plagued with uncertainty, confusion, and ultimately anxiety that have a major impact on people's mental health [1]. Unknown to many that by the end of the 19th century, Charles Sanders Peirce (1839–1914) had already proposed a counter-argument to the chasm created by the Cartesian duality and that is through his doctrine of synechism ([2], p. 1–2).

“Synechism” is the name, from the Greek *synechismos* (συνεχισμός), from *syneches* (συνεχής) meaning continuous. This doctrine is fundamental in Peirce's metaphysics which holds “that all that exists is continuous” (CP 1.172) and as a corollary, “the view that consciousness has a bodily and social dimension, the latter originating outside the individual self” (CP 7.575) ([3], p. 1).

This chapter will usher the reader to the basic notions of Peirce's semiotics and then introduce them to the field of Biosemiotics. A biosemiotics framework will be used to demonstrate how synechism operates in biological processes, particularly in the human body as an independent semiotic system. After which the doctrine of Peircian Categories will be explained to be able to demonstrate the plausibility of synechism between body and consciousness. Establishing this continuity is fundamental to the proposition that the doctrine of synechism is crucial to reversing the cultural effects of the Cartesian split.

2. Charles Peirce and biosemiotics

Biologists generally agree on the fact that the human body consists of codes that carry information. The genetic information the cellular DNA carries is sought to be interpreted, that is to be unraveled and understood. The recourse to collaborative reproduction technology includes embryonic genetic screening as an option. This gives the prospective parent or parents an idea of whether the embryo will turn out to be a healthy or defective child. Hence in this chapter, we assume the human body to be, in Peircian terms, a semiotic system where communication takes place. But, in the spirit of Peirce himself, let us first elucidate the nature of the human body as a semiotic system.

The potential incorporation of philosophy in the dialog among different branches of the sciences has been foretold by Peirce at the beginning of the 20th century. The formulation of his theory of knowledge had its applicability to the sciences foremost in mind. He had even given this field a primordial position of importance because, in his words, “(T)he more a man is educated in other branches, but not trained in philosophy, the more certain it is that two-thirds of his stock of half-conscious philosophical opinions will be utterly wrong, and will completely blind him to the truth, which he will gradually become unable so much as to conceive” (CP1.134) [4]. This quasi-prophetic adage came to fulfillment within the same century when several men from various fields were unknowingly working simultaneously at “various independent lines of inquiry into the problems of information processing, intercellular communications, behavioral psychology, neurobiology, and animal ecology” ([5], p. 35).

Up until very recently, it had been implicitly assumed that the use of such terms as “message”, “signal”, “code” and “sign” in the context of biology was ultimately metaphoric. More often than not, biological processes have been reduced to understanding and subsequently explaining either the chemical or the physical phenomena taking place within an organism. However, such reductions have become increasingly untenable even in theoretical terms. Besides, there were other exigent issues in biology of whether signification is circumscribed in the unfolding of events, or whether they answer to some fundamental laws, or even meant to accomplish some grand design. Is biology just a description of things as they

happen in living systems or should it postulate that everything is determined by a deep plan ([6], p. 228–247)? These are concerns tackled by fields of investigation such as Philosophy of Biology and Biosemiotics. The latter is a fairly recent research area that began an attempt to revive the dialog across the life sciences – as well as between the life sciences and the humanities – regarding what precisely such terms as “meaning” and “significance” might be in the context of living, complex adaptive systems [7].

As an upcoming field, biosemiotics defines its domain as the study of signs, communication, and information in living organisms [8]. Biosemiotics is an interdisciplinary research agenda investigating the myriad forms of communication and signification found in and between living systems. It is the study of representation, meaning, sense, and the biological significance of codes and sign processes. The scope of inquiry in biosemiotics spans from genetic code sequences, to intercellular signaling processes, to animal display behavior, up to human semiotic artifacts such as language and abstract symbolic thought [7]. Biosemiotics aims to extend the notions and principles of general semiotics to apply to all life processes in the biosphere. Although this chapter would not enter into specialized biosemiotic themes, it would make use of some of its findings, especially as regards the semiotic analysis of the human body as a biological system.

To date, there are four different models of biological semiosis and at least four different schools of biosemiotics. The first was introduced in 1974 by Marcel Florkin (1900–1979). He proposed a biosemiotic model explaining biological “genotype and phenotype” according to the dualistic model of Saussure’s “signifier and signified.” The second is the model developed in the 1960s and 70s by Thomas A. Sebeok (1920–2001). He adopted the triadic scheme of Peirce first in zoosemiotics (semiotics applied to animal behavior) in 1963 and then in the more general field of biosemiotics. Sebeok insists on interpretation as an indispensable component of any semiotic process. The Peirce-Sebeok model of semiosis has a wide following and has been adopted by most biosemioticians, in particular by the Copenhagen-Tartu school (Claus Emmeche, Jesper Hoffmeyer and Kalevi Kull) and (in a hermeneutic version) by the Prague school (Anton Markoš). There exists a third model suggested by Marcello Barbieri (1940–) in the 1980s that considers the cell as a triad of genotype, phenotype, and ribotype, where the latter represents the cell’s “code-maker”, i.e. the seat of the genetic code. In this framework, the simplest semiotic system is the triad “sign, meaning and code” and the origin of semiosis (the semiotic threshold) does not coincide with the origin of interpretation (the hermeneutic threshold). The fourth proposed by Howard Pattee (1926–) includes epistemic matter, something that stands in relation to something else, as an emergent process that leads necessarily to a triadic Peircean relationship of “matter, interpreter and referent” ([9], p. ix-x).

Even among those who identify themselves as biosemioticians, no single well-defined paradigm of this field of study serves as the theoretical framework for ongoing investigations. However, there are shared theoretical assumptions that can serve as the conceptual basis and the basic principles of a semiotic study of life ([10], p. 167–173).

2.1 Life involves communication

The subject matter of semiotics is the exchange of any messages whatsoever – in a word, communication [11]. It considers how messages are successively generated, encoded, transmitted, decoded, and interpreted and how this entire semiotic process is worked upon the context ([12], p. 106). A message is a sign or a formalized string of signs also called a text that is transmitted from an initium sign producer

or semiotic source to a terminus sign receiver or destination. In biosemiotics, any source and any destination is a living entity or the product of a living entity.

Far from envisioning this process as a mechanical or computational exchange of information, biosemiotics assumes that this exchange takes place within the dynamics of natural systems. There are vast networks of sign processes in these systems involving a complex process of interpretation ([13], p. 588). Living systems are predictable when they “systematically recognize and exploit (interpret) important regularities (causal relations) in their surroundings.” But at the same time, they can also create previously uninitiated paths implying the presence of a kind of “semiotic freedom” in living systems ([13], p. 600–602). In any case, semiosis can only be identified as taking place or not depending on whether an end state is achieved or a function is satisfied ([10], p. 167).

2.2 Predictive power rooted semiotics

Many biologists, Jakob von Uexküll, Danish biologists Jesper Hoffmeyer and Claus Emmeche among others, consider semiosis to be of prime importance in their field, and even profusely co-extensive with life processes ([11], p. 5). Every living system functions to achieve self-organization, self-regulation for the end of self-preservation. This characteristic feature of living beings known as autopoiesis is defined as “the imperative set of continuing energetic biological processes... by which all living beings maintain themselves” ([11], p. 14). Self-preservation inevitably results in a phenomenon unique among them which is that living systems perpetuate themselves.

In applying semiotic analysis to biology, we are not only interested in iconic signs which allow us to distinguish life from non-life forms. We also seek to identify indexical signs that would be indicative of the state of life living beings possess. We look for the presence of concrete Interpretants or habits in living systems that will in turn serve as objective indicators for homeostasis or well-being within individual organisms and balance within entire ecosystems. The “ideal state” of a living organism serves as the general Icon of the Object or the universal idea of that particular organism. For instance, the mention of the words “human being,” evokes the Icon of one who is “normal and healthy.” This image emerges in the mind in an instantaneous manner. This phenomenon is characteristic of the Peircian Category of Firstness which will be explained in detail in a later section. Each individual strives in its own way to approach or attain this ideal state which serves as the purpose or the telos of their “living.” To what extent they approximate this ideal state becomes the Index, the “reference to a standard,” that indicates how “normal” their actual state is.

2.3 Iconic-indexical nature of life processes

Indexical signs are always best understood within their respective contexts because their function is to point out or indicate something. Hence, they carry out a crucial role or function in securing the continuum of a semiotic process. There are a variety of functions that indexical signs take on from being information-carriers, or regulating, to signaling the process flow. Thus, it becomes apparent that they are necessarily implicated in a wider semiotic system. No indexical sign stands for itself and is meaningful for its own sake. Situating the functional or ordinal role of indexical signs in a wider semiotic network clarifies their significance and enables the system to be, to a great extent, predictable. For instance, we know that an organism produces antibodies when a foreign body enters in its system. This is an indexical relation. Therefore, if antibodies are introduced in the system of

an organism in the form of vaccines, we can predict that the foreign body will be attacked by these antibodies. Granted this indexical behavior is iconic or replicated in all organisms of the same kind, possible outcomes are predictable. Yet it is known that actual outcomes are contingent upon the presence of some conditions or constraints that ensure a system to function as expected ([10], p. 169).

Hence, the human body can be taken as both an iconic and indexical sign. It serves as an Icon of the “human being” while its actual state is an Index of its proximity to the “ideal” or normal state. This state taken as the norm is ultimately achieved, not so much as a consequence of genetic fitness as it is of semiotic fitness. To maintain a state of normalcy, it is indispensable that an individual possesses two functionalities: first, the innate and acquired capacity of the human organism to interpret signs effectively and second, the capability of developing corresponding habits or Interpretants ([14], p. 355 onwards).

3. Thomas Sebeok’s modeling system theory

Adopting the triadic scheme of Charles Sanders Peirce’s semiotics, Thomas Sebeok formulated a theory on modeling systems that has been use in biosemiotics. He distinguishes three distinct modeling systems [15] that are generated as a consequence of a system’s capacity to organize semiotic relationships and formalize models to aid in recognizing patterns in things as well as transmitting messages. These can be broadly taken as communication models. Modeling in a broad sense is a product of semiosis. He designates the three as a Primary Modeling System (PMS), a Secondary Modeling System (SMS), and a Tertiary Modeling System (TMS).

The Primary Modeling System (PMS) allows communication through the modeling of iconic and indexical signs by a quasi-mind. This may be considered as an originary or primitive language. The Secondary Modeling System (SMS) is generated by the human mind that has the capacity for symbolic semiosis. The human modeling capacity takes shape in various forms of language systems. Tertiary Modeling Systems (TMS) are generated from the capacity of humans to create entire texts which hold significance not only for individuals but can define a collective mind, a worldview, and a culturescape.

Using the Peircian semiotic framework, the three modeling systems are related as PMS (Object) – SMS (Sign) – TMS (Interpretant). The sign-object-interpretant relationship involves complex semiotic systems. For the Tertiary Model to reflect the truth about its object which is the Primary model, the system has to reflect its primordial source iconically. This is the norm that the doctrine of the language of the body wishes to acknowledge and abide by. In whatever way the sign is used to signify, the ultimate indicator of a successful transmission of messages in any system would be the conformity to a norm or an ideal, in fine, its iconicity. Using Peircian terms, the test of truth ultimately lies in iconicity: truth is iconic.

4. The body as a language system

After this brief introduction to biosemiotics, we can now proceed to applying the fundamental concepts explained earlier to our understanding of the human body and its processes. The practice of medicine relies heavily on the belief that in the case of every patient, there is communication that takes place between the body and the person. What happens in the body is considered an autonomous unilateral semiotic process. This means that it is independent of the patient’s control. The fact that the patient comes to seek the help of the doctor implies that she or he is

engaging the body in a bilateral semiotic process as she or he feels there's something not quite right happening in her or his body. This simple communication between body and person is one concrete instance of synechism.

Physicians generally assume that the body is a self-contained semiotic system with physiological and biochemical processes taking place in it. These make up the elements of the "language" the body uses in its internal communications. The body as a "subjective space" [15] generates a semiotic or modeling system, which we shall designate as a Primary Model System (PMS) ([15], p. 10). The reality of PMS is the principle underlying the medical practice of clinical investigation, concretely when clinicians try to find out the source of a patient's malady ([12], p. 25). Doctors first ask their patients to relate the nature of their complaint. So, the patients begin by giving a verbal account of the state of their bodies, particularly its health or disease, as perceived by them. As the patients do this, they are actually codifying a non-verbal sign by using a verbal model ([12], p. 10). They associate whatever signal coming from a semiotic system that reaches their awareness, whether the source or origin of the signs, we can call the signifier, is the body in general or an affected organ system in particular. We usually call this kind of sign a symptom. Any symptom is an index of how much the body has deviated from a homeostatic state. When patients formulate and later put into words the malady they feel, they resort to using a Secondary Model System (SMS) ([15], p. 10).

What is characteristic of a symptom as a sign is that of being compulsive, automatic, and non-arbitrary. Moreover, a symptom connects the signifier and the signified through a natural link ([12], p. 24). The immediacy and force by which symptoms become manifest in a body are qualities belonging to the Peircian Category of firstness. The underlying disease becomes recognizable through a symptom because the signifier, which is the source of malady, is bound to its signified, which is the symptom, endosemiotically. Both symptom and disease are found within the body's morphology. Being a visible manifestation of the altered state of a physical or biochemical process, the symptom sends a warning signal that intends to trigger a behavior or habit as a response. The patient, as the receiver of the sign, is expected discern the meaning of the symptom and to react ([16], p. 21, 22).

Since symptoms are recognized as some event, situation, or condition that appear as independent of the human will ([12], p. 26), the patient stands as a passive receiver of the sign. This means that persons suffering from symptom are not privy to the semiotic process that has given rise to it and thus do not intend the message the symptom relays. They should acknowledge the symptom as the primary interpretant of the object being signified. They are dependent on this symptom as an interpretant, also an interpreted object, to subsequently formulate a secondary interpretant. Here we can appreciate two distinct, but not necessarily disjunct, semiotic processes simultaneously taking place. On one hand, there is the semiotic system of the body which generates a PMS. The body as a quasi-mind ([17], p. 12), or the principle generating an interpretant within a semiotic process, creates its own PMS as the primary language or the language of the body. On the other hand, there is the semiotic modeling system the patient will create from his perception of his symptoms or the SMS through some representations culled from his subjective experience. Later, a more technical language will be developed by physicians and scientists that belongs to the class of Tertiary Modeling Systems (TMS) ([15], p. 10). TMS are generally created from these experts' interpretation of the phenomenon derived from many SMS that are consistent and coherent with the collateral observations within a specific cultural scope ([18], p. 23).

As with symptoms, we have seen that the body as a living entity uses its capacity to create a "language" as a PMS to communicate unilaterally its condition to the human subject in a synechistic process. This time, let us describe here a kind

of signaling process that takes place in the body that leads to the consciousness of pain. When the body detects an internal affliction that jeopardizes its integrity, the affected cells give out a sign in the form of a hormone. In the case of pain, prostaglandin is released in the body. The nearby cells receive the signal and respond to it by either increasing local blood flow or restricting it with the objective of “saving” the damaged area. The entire body system responds to this “danger” by constantly supplying the needed requirements for the moment and simultaneously maintain homeostasis in the entire organism. At this moment, a chain of signaling processes is unleashed throughout the entire system so that other cells too would know how to respond to this anomaly ([19], p. 41). Among these, the increased pressure in the area impinges on the nearby nerves and transmits the signal to the brain that allows the person to be conscious of the damage the body has suffered. This translates through a PMS to the sensation of pain. This semiotic process taking place within the body is meant to elicit a behavioral response from the person. This time, the body engages the person suffering injury in a bilateral form of communication resulting in a subsequent generation of an SMS. In acknowledging the message of pain created semiotically through the language of the body, the patient assumes the disturbed state of her or his subjective world. The whole process consequently results to the creation of the phenomenon of a person in pain. Illustrated here again is the synechism between the body and consciousness, the continuity between the PMS, and the creation of the SMS resulting in the Icon of a person-in-pain.

5. Secondary modeling system

As the patient gives the doctor an account of his symptom which as a sign is an externalized natural form deriving from the body as PMS, he creates a model using other signs we can call externalized artificial forms ([15], p. 3–4), like verbal or non-verbal sounds or gestures to represent the symptom as he perceives it in his body. Unlike the symptom, the signs he uses ([20], p. 18) are not “naturally” linked with the signified which is the disturbed state of the body. Such sign, therefore, would bear a meaning distinct from that derived from the PMS since the meaning, in this case, is linked more to the sign that is used by the signifier, who in this case is the patient, than it is to the signified [21]. With this, the patient uses the body’s modeling system as the Object and he creates a system of signs representing sensory inputs. These representational signs are iconic in that they are related to their referents by way of likeness or analogy in a natural way ([12], p. 81).

The semiotic movement, from the source of pain to the body signals spontaneously generated within its subjective space (PMS) that lead to the consciousness of pain and the eventual externalization of the experience of pain (SMS), takes place in a continuum exemplifying synechism. At the heart of synechism is continuity, “the very idea the mathematicians and physicists had been chiefly engaged in following out for three centuries,” (CP 1.41) and “the leading conception of science.” (CP 1.62) Peirce uses descriptives like “unbrokenness” (CP 1.163), “fluidity, the merging of part into part,” (CP 1.164), where “all is fluid and every point directly partakes the being of every other” (CP 5.402n2) ([1], p. 3).

The conversion of the body’s PMS, which consists of the biosemiotic processes that naturally occur in the body, into concrete descriptions is made possible through the instrumentality of a language. The body can now dialog with a Subject who is the person who owns that body – the reverse order is appropriate to the dialog as well – leading to the generation of a secondary semiotic system. To understand how this system is created, we first have to elucidate how a subject is capable of formulating a Modeling System that is iconic of the Object of its experience.

5.1 World-mind synechism

The semiotic theory Peirce formulated in his later years seeks to uphold and defend the existence of an Object which stands for itself and is independent of the knowing or perceiving subject. This Object is found in the realm of reality. Now “the real” for Peirce, upholding the doctrine of Aristotle and the Latin scholastics, is characterized as being independent of any finite mind ([22], p. 20). He consistently points to the Object as the principle which determines the Sign. The capacity of one to determine another presupposes the ontological priority of the former over the latter. Hence the Object is ontologically prior to the Sign. And this is justified by the fact that the Object gives form to the Sign. He likewise consistently claims that the Interpretant is an effect of the Object on the subject. This is so because it is the Object, through the Sign, which elicits in the subject the Interpretant. It is the Interpretant that makes the Object present and meaningful to the subject. Once again, this description of the relationship between Object-Sign-Interpretant emphasizes the ontological priority of the Object ([23], p. 479).

Peirce describes human experience or “phaneron” as encompassing everything which “life has forced upon us.” With these words, he makes reference to the semiotic Object, as well as the multifarious modes by which the content of consciousness takes its form corresponding to the semiotic Interpretant [24]. The notion of phaneron does not highlight the distinction between the subject and object because this phenomenon is suprasubjective while both subject and object are merely elements situated within a universe of relations. He calls this universe of relations Categories which he invariably classified into three. As he was developing the doctrine, these three Categories took on several names. Peirce eventually settled with simple terms and named his Categories as Firstness, Secondness, and Thirdness [25].

The Category of Firstness refers to a quality of feeling that necessitates the presence of a mind-independent reality and a subject that is “struck” by its brute presence by way of abduction ([26], p. 205). Firstness is described as a single undifferentiated experience and it rightfully belongs to both what is being felt and the one who is feeling. This takes place in a continuum between both elements. Our experience of the things that are present around us and the affirmation that there are things around us, no questions asked, belong to the Category of Firstness.

The experience of the Category of Secondness is immediately created as one wrestles with the presence of the object of Firstness. A relation is generated between the two elements involved in the experience. The relation may be one of a hierarchical or an ordinal nature, as in the case of cause and effect for instance. From the awareness of the “separateness” of oneself and another by way of resistance or opposition, the concept of the “non-self” emerges. Hence, the acknowledgment of the Object in its proper sense, which is derived from the Latin *obiectum* (*ob-* meaning “against” and *iactum* meaning “thrown”), is formulated. In the experience of Secondness, we can say that a unity of opposition occurs. Two entities mutually opposed to one another end up united in that thing over which they are opposed [1]. Such opposition is congruent to the tenets of synechism.

A third element becomes imperative in uniting the two previous ones into a singular experience. Occasioned by the resistance and opposition from Firstness to Secondness, the third is needed for one not fall into a reductionist perception of phaneron. This is the Category of Thirdness. Thirdness is the relation that fixes, governs, and regulates how the two other categories are related, concretely through the habitual use of signs. It is thus in the Category of Thirdness that laws, norms, rules, and regulations take on the vigor of imperatives. Since the Category of Thirdness eventually characterizes and regulates the interaction among signs, whose signification can only be elucidated by understanding the meaning of a

particular sign within a designated context, it may be said to be responsible for creating culture. The Category of Thirdness applies to conventions governing the use of language and the ethics of behavior, to name some examples.

Through Peirce's doctrine of the Categories of Firstness, Secondness and Thirdness, he overcame the deep wedge between the subject and object created by the Cartesian split. In effect, he provided this doctrine as a way of demonstrating the plausibility of having a true knowledge of a mind-independent reality. For Peirce, true knowledge is ultimately characterized by iconicity. This is how Peirce justifies the possibility for the mind to know the world, and that the mind and the world are related synechistically.

5.2 Body-mind synechism

We have seen how the Peircian Categories underlie the doctrine of synechism. We have also explained how the Cartesian split is overcome by this doctrine. We now proceed to apply the doctrine of synechism to the experiences derived from one's own body. As mentioned earlier, the body is a quasi-mind capable of interpreting the biological signs or bioforms contained in the genetic information as well as those generated in the course of interpreting these sets of information. And as a mind, it directs the semiotic activity towards auto-conservation when the interpretant generated sustains the organism's integrity as an individual, and auto-replication this time maintaining the integrity of the species. This is made possible through the continuous flux of signs within the body through which the various organ systems communicate. The body truly is a remarkable web of semiosis. However, there is one organ of the body from which emerges an interpretant that is capable of generating a dialog between a subject with its object. This is the brain.

The brain is the organ of the body responsible for the organization, regulation, coordination of all systemic activities of the body. It is also the primordial seat of all specifically human activities, like thought and language. The semiotic scope of the brain encompasses those belonging to the vegetative domain, as well as those belonging to the sentient and rational domains. The rational domain is characterized by the emergence of a higher-order semiotic interpretant called "self". For this interpretative capacity to be actualized, the interpreter must be organically equipped by some functional power that gives the brain the capability for this emergent phenomenon to take place.

Researchers in the field of neurobiology have identified a class of neurons lodged deep within the brain, specifically proximate to the Broca's area, which have long been associated with both motor control and language use. It is believed to biosemiotically effect the emergence of hypostatically abstracted pre-linguistic representations of "self" and "other". They have called these the "mirror neurons" ([27], p. 59). These mirror neurons allow individuals to exhibit iconic motor-neural patterns as one executes and the other observes and replicates through execution actions or behavior like in mimicry. This somehow substantiates a common belief that all individuals are equipped with some automatic observation/execution mirroring mechanisms in the brain that gives rise to a mimetic i.e. iconic interpretation done in observation and execution ([27], p. 79) of something belonging to an external realm. What happens in mimicry is the formation of a habit (Thirdness) that assumes the distinction between the "self" and the "other" (Secondness) as the subject replicates iconically something it observes (Firstness). Closer scrutiny of this mimetic capacity discloses a highly significant negative variance in the activation of mirror neurons when presented with indexical or symbolic behavior patterns. From this difference, it can be conjectured that semiotic objects do not set off neuronal sign exchanges in the same manner since they are perceived differently. So, what about the indexical signs that the body sends the brain, as in the case of pain?

5.3 Body-“Self” synechism

For Peirce, what the senses perceive or the “percept,” represents an “unconscious synthesis of sensory or qualitative elements” which the senses may have gathered ([28], p. 103). Percepts are purely psychical thoughts and involve three equally psychical elements: the qualities of feelings, of being undeliberate reactions, of being associated or triggered by something ([29], p. 62). The involvement of the senses makes the percept dependent on some external or physical object which is the immediate object of perception. One can distinguish then the immediate object as that which triggers neural firing in the brain from the dynamical object “which is the Reality which by some means contrives to determine the Sign to its Representation” [30] which in turn causes the emergence of an interpreted object or the actual percept. The formulation of that interpreted object has, not the object per se as its actual source but, the abstracted object as that which it represents. Abstraction, as the retired Professor Emeritus of Law Denis Brion writes, “entails selection. Selection entails choice. Choice requires criteria of selection. Criteria of selection necessarily rest on values. That is, the relationship of the sign to the object is value-determined” ([27], p. 82).

On what value shall the choice of abstraction and consequently interpretation rest? Biosemiotically, these “values” are derived from the telic orientation of the semiotic process towards the achievement of the ultimate interpretant of the respective system’s domain, namely the vegetative, sentient, and rational domains. But for all living systems in general the ultimate interpretant would be survival and perpetuation. Living organisms capable of a higher-order semiotic process on the other hand could derive semiotic objects that are more and more distant and distinct from their immediate object. For all these to take place, we must assume that the biosemiotic quasi-mind, which is the body, must be the source of the immediate object, but the human mind generates a dynamic object which in turn serves as a secondary semiotic source providing “that specific item within its context to which all interpretants (or significate effects) of that sign are collaterally related” ([27], p. 83). Behind the dynamism that characterizes the human mind is the involvement of the agency of a subject. Thus, we understand the subject to be one possessing a human mind that allows the generation of the “self.” This subject is what we call a person.

Are these semiotic descriptions that draw for us the picture of the “self” and consciousness backed up by science? Earlier descriptions of the brain’s neural networks liken it to computer activity, hence characterized as highly functional, physical, reductionist, materialist, and computational. This led to concepts of the mind as mechanical and deterministic [31]. This signals a mind that is ruled by the Category of Firstness and maybe to some degree by Secondness but not of Thirdness. In the mid-1990s, the eminent mathematical physicist Sir Roger Penrose, a Nobel Laureate in Physics, and prominent anesthesiologist Stuart Hameroff suggested the presence of quantum vibrational computations in the structural skeleton of brain cells called microtubules that are detected by EEG rhythms. This proposition includes the possibility that “consciousness derives from quantum vibrations in microtubules, protein polymers inside brain neurons, which both govern neuronal and synaptic function, and connect brain processes to self-organizing processes in the fine-scale, ‘proto-conscious’ quantum structure of reality” [32].

The quantum theory in physics can be basically illustrated in the cloud atomic model where electrons are hypothesized to occupy a volume to space, hence exhibiting a behavior characterized by degrees of probability. From such behavior, discrete energy or quanta emanate in wavelike movement or in packets. This stands in contrast to an older model that proposed that electrons follow a discrete path that

orbits around a dense nucleus which makes their behavior, and the energy they produce, continuous, certain and predictable. Applied to brain functions, quantum vibrational computations “implies a non-algorithmic process which is neither deterministic nor random, a property which Penrose also attributes to conscious thought and understanding. This clue suggests that quantum computation with objective reduction may be somehow involved in consciousness” [31]. Furthermore, in the Penrose-Hameroff theory of quantum consciousness, it is the way the microtubules are structured, that is following a fractal pattern, that enables quantum processes to occur. In mathematics, fractals emerge as beautiful recurring patterns that extend infinitely, creating a structure with a finite area and an infinite perimeter. There is fitting parallelism between the complexity of human consciousness the patterns created by fractals. Both are infinitely intricate and support the emergence of complexities from the recurrence of simple patterns. Indeed, fractals “could be the structures that support the mysterious depths of our minds” [33]. Although this theory of quantum consciousness has yet to account for the actual relation between the brain and consciousness across the three domains namely vegetative, sentient and rational, after some two decades one can safely assert that “the approach has fruitfully inspired important innovative research on quantum effects on consciousness, both theoretical and empirical” [34]. In fact, this model of the mind supports the experience of Thirdness and approximates Peirce’s description of the emergence of the “self” as Interpretant.

All these data from neuroscience suggest that the mirror neuron activity on one hand and the quantum consciousness on the other, support the pre-reflexive biosemiotically emergent process of the “self” as a naturally synechistic phenomenon. Semiotically, the “self” is an interpretant, as it is the case of iconic mimicry. The “self” is characterized as being non-deterministic, complex, and dynamic, as painted by the theory of quantum consciousness. As an interpretant, it reflects the object and at the same time is distinct and separate from it. But the “self” is also an interpreter as it generates the percept. As “self” it is capable of establishing its identity ([35], p. 44), that is its indexical relation to objects affecting it and generate a pool of symbols in response to an intrinsic movement to communicate. The relation of identity is an example of degenerate secondness, one that is derived from indexicality.

Peirce considers the drive to communicate as the second most important social instinct next to the instinctive drive to reproduce ([36], p. 85). This is the manner the Secondary Modeling System (SMS) is generated. It is the merging then of three semiotic domains: the vegetative domain covering the vital processes of the body, the sentient domain covering the coordination of the *innenwelt* and *umwelt* semiotic processes towards the defense of the individual’s integrity, and the rational domain covering the generation of and participation in a culture which is the product of strictly anthroposemiotic systems.

The subject’s state of consciousness derives from the emergence of “self” and is the condition and a fundamental property of the sentient mind. The sentient mind is capable of generating ultimate interpretant in response to perceptions formulated of one’s conscious world for auto-defense thus favoring responses that guarantee survival. Thus, the sentient mind’s secondary modeling is focused on subjective values directed towards the ultimate interpretant marked by the capabilities and constraints of subjects within its domain. The rational mind however operates in a higher-order domain and is capable of generating three kinds of interpretants: sensations, identities, meanings. These interpretants are hierarchically oriented such that the most primitive interpretant, sensations, acquire its full significance as it forms part of the symbolic domain where it will ultimately acquire its full meaning.

The body is a web of semiosis and at the same time, it is a sign. Being a singular sign implies a singular ultimate interpreter of the body. Secondary Modeling is done by a cognizant subject initially through iconic and indexical activities. One of the first objects of an infant's sensibility is its own body though he may not be fully aware of his indexical relation to it. In Peirce's thoughts, "A very young child may always be observed to watch its own body with great attention. There is every reason why this should be so, for from the child's point of view this body is the most important thing in the universe." ([6], p. 5.229) The body is not only the object but infants learn to use them as tools to connect them with the world. For the child the body is not merely a tool, it provides him the authoritative picture of what the world is all about. "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" ([6], p. 5.229).

The initial SMS is iconic-indexical and the child's concept of truth and reality is solely based on what corresponds to his sensory experiences. "No one questions that, when a sound is heard by a child, he thinks, not of himself as hearing, but of the bell or other object as sounding" ([37], p. 5.230). The subject generally pools up a source of interpretants or habits iconically through imitation or repetition. Moreover, the subject discovers another way of pooling up interpretants and that is by associating indexically a kind of behavior that would elicit a desired or at least a favorable response from another. For that response to be elicited, the subject makes use of his body to establish some sort of contact with that other body. He discovers that to communicate he must use his body thus "makes this body still more important and central since it establishes a connection between the fitness of a thing to be changed and a tendency in this body to touch it before it is changed" ([37], p. 5.231).

In both cases, subjective awareness has the external world as the source of objective signs and the self as the terminus of the semiotic process. The dialog the subject engages in would revolve around the categories of firstness and secondness. But it is "through refined capacities for acting and [sic] for communicating" ([36], p. 85) that the stage of self-consciousness in a subject is actualized and gradually develops. This is the moment self-consciousness makes its initial appearance. Since the generation of thought and its endurance in memory depends on one's developing capacity for managing some linguistic tool, we see why consciousness is generally linked to thought, communication, and language. Thought is fixed in the mind through the use of a Tertiary Model, the most common of which is human language. As the subject's semiotic world becomes richer, one's symbolic capacity becomes more pronounced. The Secondary Model a subject created is then used for more meaningful communication, not only within oneself for whatever purpose that would suit one's self. Rather it would serve as a springboard to communicate with other subjects towards the generation, creation, and enrichment of other-selves through the Tertiary world of Culture.

6. Conclusions

Interest in doing studies and research on Peircian semiotics has been spreading in crescendo in the past 50 years or so. This chapter is a minor contribution to this collection. The topic of "self" has more commonly taken the phenomenological or the existential slant. However, here we attempt at a study of the "self" using the semiotic doctrine and principles Charles Sanders Peirce. We have seen how the body formulates its own semiotic modeling system we called PMS that constitutes its own "language." The person who owns the body also formulates its own semiotic modeling system we called SMS. It is called secondary because its generation is dependent


on a primary semiotic system known as the Object and this can be the reality of Objects whether they be situated outside the body or within the body. The generation of SMS is possible because of the synechistic relationship the mind has with both the world and the body. Peirce uses the doctrine of the relationship of universes or Categories of Firstness, Secondness, and Thirdness to justify the ubiquitous metaphysical principle of synechism as underlying the whole of reality. Scientific brain studies uphold the possibility of the continuity of PMS and SMS. The more recent discovery of quantum consciousness support Peirce's theories in relation to the capacity of the brain to create semiotic relationships of Thirdness that is characterized by synechism as well. Far from being a finished project, this chapter hopes to usher studies that can delve into the topic with greater depth.

Author details

Maria Asuncion L. Magsino
University of Asia and the Pacific, Pasig City, Philippines

*Address all correspondence to: asuncion.magsino@uap.asia

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The Embodied Nature of Horse Human Communication: A Feasibility Study of an Equine Assisted Intervention; Benefits for Horses and Humans

Ann Hemingway

Abstract

This chapter presents the findings from a feasibility study of an equine assisted intervention (EAI) which is currently referred over 160 people with mental health and behavioural problems each year. Performing a feasibility study may be indicated when, there are few previously published studies or existing data using a specific intervention technique. The framework used for this feasibility study has been designed to underpin public health feasibility studies and outlines eight areas of focus which will be addressed here: Acceptability, demand, implementation, practicality, adaptation, integration, expansion and limited efficacy testing. The efficacy testing includes results from before and after measures completed by referrers of individuals to the course with n=336 participants (normally social workers or teachers). Overall scores for the eight outcomes measured showed statistically significant improvement for 293 of the participants two months after completing the course. The eight outcomes measured were calmness, assertiveness, empathy, communication, confidence as a learner, analysis and planning, taking responsibility and focus and perseverance.

Keywords: equine assisted, mental health, behaviour change

1. Introduction

This chapter presents the findings from a feasibility study of an equine assisted intervention (EAI) which is currently referred over 160 people with mental health and behavioural problems each year. Performing a feasibility study may be indicated when, “there are few previously published studies or existing data using a specific intervention technique” [1].

The framework used for this feasibility study has been designed to underpin public health feasibility studies and outlines eight areas of focus which will be addressed here [1]: Acceptability, demand, implementation, practicality, adaptation, integration, expansion and limited efficacy testing.

2. Background to equine assisted interventions (EAI's)

In the broader equine intervention related literature there have been studies showing positive impacts on wellbeing through equine assisted therapy with individuals suffering with disabilities, [2–10] chronic illness physical or mental [11–14], or individuals with eating disorders [15–17]. The potential benefits of equine assisted psychotherapy or experiential therapy have also been studied although outcomes have been mixed in terms of the efficacy of interventions with some studies showing positive results and some no effect [18–25].

Research by Dell's [26] (equine assisted education) captured the improved communication skills and pride the young participants gained while interacting with horses. Hemingway et al., [27] also described the positive impact of an EAI with young prisoners in a young offender's institution who said they felt calmer, and importantly more positive about learning with the prison guards reporting some improvements in behaviour whilst incarcerated. A qualitative study on an intervention in Guatemala which teaches natural horsemanship to reduce violence produced positive changes particularly in relation to increased calmness [28].

Pendry and Roeter [29] published a randomised controlled trial evaluating the effectiveness of an EAI which uses natural horsemanship to improve child social competence. The findings showed improvements with a moderate effect size for 5th to 8th grade children. In 2014 Hauge et al. [30], reported on a waiting list cross over design research study undertaken with young people aged 12–15. Those in the intervention group reported an increase in perceived social support compared with the control group which was statistically significant. In 2015 Boshoff et al., [31] shared the results from an experimental study, which measured subjective well-being, problem focused coping, and emotion focused coping. The findings from the study showed some positive changes for young men living in a custodial school.

Nimer & Lundahl [32] published a meta-analysis of animal assisted therapy for young people which showed a moderate positive affect for young people with autism, medical, behaviour and emotional issues. Two recent systematic reviews suggest a need for future studies to include when publishing detailed insights into the intervention and in addition to consider using both validated measures and a qualitative exploration [33, 34].

Two systematic reviews have been published [35, 36] considering the impact of equine assisted therapy on physical issues for adults living with disabilities and schizophrenia respectively. These reviews both found that studies lacked any randomisation within the sample and an adequate sample size. The reviews did show however that studies that have been published so far do report some positive outcomes in relation to a range of physical, behavioural and social issues.

A small study has considered equine assisted therapies impact on depression, anxiety, mindfulness and sleep quality. All areas showed statistically significant improvement, but the sample was small, and the intervention used within the study not well described [37].

EAI's have also been studied by occupational therapists. A pilot study [38] aimed to test an occupational therapy intervention offered in an equine environment and assess preliminary effects on occupational performance goals, behaviour, and social functioning of youth with autism. The findings showed there may be improvements in occupational, behavioural, and social outcomes for this group. Next steps in research terms included refining feasibility measures and implementing a randomised controlled efficacy study.

As the world is currently suffering in the grip of the COVID-19 pandemic it is important to note that the intervention under study here plus other equine assisted

interventions internationally have reported increased demand to support young people particularly during the pandemic. As alternative learning or therapy providers equine assisted interventions offer non-pharmacological support for those for whom talk based therapies are not working. Particularly during lockdown and prolonged periods of isolation equine assisted support has been particularly in demand for supporting young people; albeit with strict safety measures in place and some changes made to how sessions are delivered [39].

It is also vital to consider the welfare of equines involved in this activity. Horses are highly susceptible to work stressors related to physical constraints and/or to the need to control emotions while interacting with humans. A narrative review of research [40] found that to date few studies have investigated horses' stress responses during EAIs, and further studies are recommended, with the final aim to derive a reliable multidimensional method for assessing a horse's reaction during therapeutic programs, ultimately helping professionals to better develop interventions by taking into consideration the animal's perspective. However, it is clear that the use of interventions which enable humans to consider the world from the horse's perspective as a prey animal are likely to improve the world for horses as they increase understanding of and empathy for these wonderful animals.

3. The EAI under study

This intervention is offered by a charity which operates in the South of England and is referred over 160 people every year by a variety of referrers such as Schools & Pupil Referral Units, Children's Social Services, NHS Mental Health Services, Troubled Families Local Authority Services, Offender Services and other specialist agencies such as charities working with Domestic Violence or Drug and Alcohol Services. The people referred are currently living with 2–4 issues from the list below and they are referred because they are disengaged from talk-based support.

- Attention Deficit Hyper-Activity Disorder
- Autism Spectrum Disorder
- Anxiety/depression
- Not attending school (training, work)
- Relationship difficulties
- Mood swings/impulsivity
- Self-harm
- Bullying, aggression, anger management issues
- Drug & alcohol misuse/child or parents
- Eating disorder
- Offending
- Domestic violence

- Neglect / abuse
- Parents with mental health problems
- Living in care or leaving care
- Conduct disorder

The intervention uses the principles of the Parelli Natural Horsemanship program as its philosophical underpinning and structure [41]. This approach is based on developing calmness, and partnership skills through learning natural horsemanship skills. At this introductory level this involves 'playing' with specially trained horses inviting them to respond to requests with the young person on the ground and the horse on a loose rope or at liberty. The learning is facilitated by a specialist facilitator and the students are taught how to play the seven 'games' with the horse. The course takes place in an indoor arena over 10 hours in five, two hour sessions.

The games taught are:

1. *The friendly game* (creating relaxation through touch, grooming, hanging out).
2. *The Porcupine game* (moving the horse's feet through using steady pressure, touching the horse).
3. *The Driving game* (moving the horse's feet through rhythmic pressure, not touching the horse).
4. *The Yo-yo game* (moving the horse backwards and forwards).
5. *The Circling game* (asking the horse to travel around you on the circle).
6. *The Sideways game* (asking the horse to move sideways).
7. *The Squeeze game* (asking the horse to go through, under or over something [41]).

In order to be effective, the human needs to use clear, phased assertive communication and control their body language and energy in an assertive, non-aggressive way.

4. Equine husbandry, selection, training and handling

All the horses who engage in these courses are kept outside in a natural environment (hedges, trees other horses) in friendship groups with access to shelter if they want it. The workload for each horse is logged and kept light in line with the charities welfare policy. All horse training, handling and husbandry uses natural horsemanship methods and underpinning philosophies and is informed by the charities welfare policy. The horses taking part in this intervention are trained to Parelli level 3 or above by the course facilitators (who are Parelli trained, and trained by the charity to provide this intervention specifically). In addition, rescue horses are retrained using natural horsemanship methods and then take part in the intervention and are then rehomed as appropriate through the registered rescue charity in partnership with the charity providing this intervention.

5. Methods

The methods used to answer the questions posed by the elements of the feasibility study included:

- Analysis of referral data from the charity
- Interview with the charity CEO (who set up the intervention)
- Analysis of before and after scores for participants completed by referrers

6. Results

6.1 Acceptability

The charity beneficiaries are now 600 individuals every year, out of those around 160 undertake the Restart intervention which is evaluated here, the rest benefit from lighter touch support over a longer period, volunteer activities to support the course and/or accredited training through a local college. Over the period of data collection for this study (2016–2018/19) 326 had completed the intervention with an evaluation tool (before they start the program and then two months after they finished the program) completed by their referrer. Completion rates for those who start the Restart intervention are 95%. Referrals are increasing year on year with referrers from multiple agencies as outlined sending those people for whom talk based interventions are not working. Referrers report that between 10 and 15% of their clients do not respond well to talk based interventions. During the COVID – 19 pandemic numbers did drop however the charity stayed open to support individuals with acute mental health and behavioural issues. The charity has been running for ten years and has consistently grown throughout this period.

6.2 Demand

Since the establishment of this intervention different agencies are becoming aware of it and now the demand is outstripping supply with overall more than 1000 people having completed the course and over 160 per year now being referred just for the Restart intervention.

6.3 Implementation

The intervention which we are focusing on in this paper forms the majority of the activity undertaken by this charity. The lighter touch work with a wider group has now also picked up momentum and is benefitting more individuals, with less acute needs. This variety of offer from the charity has been developed in response to need with many individuals experiencing poor mental health and cuts in mental health services on the NHS in the UK causing wide spread need and little support in many areas.

6.4 Practicality

The main resource issues are the highly trained instructors in natural horsemanship (individuals with typically 10+ years of training). In addition, these individuals

need further development to facilitate this intervention from the charity. A physical site for the intervention is needed, and having a yard and an indoor school with a special soft surface is required in order for the charity to function all year round plus ancillary buildings for administration rest rooms etc. In addition, the site for the charity needs to be both accessible to local people in the areas from which the referrals mainly originate which is primarily areas of deprivation and able to house horses in a natural environment which needs safely fenced outdoor space for grazing and social interaction for them.

6.5 Adaptation

According to the charity CEO the intervention has not substantially changed since the first month, however the relationships within the family of those who are referred and the resilience skills within the family as a whole (where appropriate) have been identified as very important by the participants, course facilitators and the referrers. Therefore, the charity is now undertaking work with troubled families, foster families and the teams around the family to try to positively impact on these processes. This is being done both through the Restart intervention and as part of the 'lighter touch' support offered which includes longer term support for those who need it after completing the intervention and educational opportunities with local colleges to develop social skills as well as volunteering opportunities. All these have been developed through local networking and identification of local need.

6.6 Integration

This intervention is now recognised as a professional partner by Social Care, Community Mental Health Teams, Child and Adolescent Mental Health Services, Domestic Violence and Drug & Alcohol Services. It is now part of the landscape of care for schools, General Practitioners and social prescribing 'navigators'. Working across so many sectors however is demanding on the time of the charity staff and requires excellent networking and communication skills. It is interesting that all these agencies are seeing some individuals and families many times however as their 'offer' is primarily talk based there is a consistent group for whom their services are not working. Indeed, it would appear that individuals tend to get referred to this charity when they are stuck in 'treatment' being 'bounced' between services over and over again. They then do this intervention which is intended to positively influence their engagement with services, family, relationships and education.

6.7 Expansion

This charity has now replicated its programmes across eight sites in the UK. With two international sites also launched. Additional facilitators have been trained by the charity to aid replication, recruited primarily from those who already hold instructor status with Parelli Natural Horsemanship.

6.8 Limited-efficacy testing

In this study before and after measures were completed by the person's referrer to the course 326 completed scales were included in the analysis (see **Figure 1**).

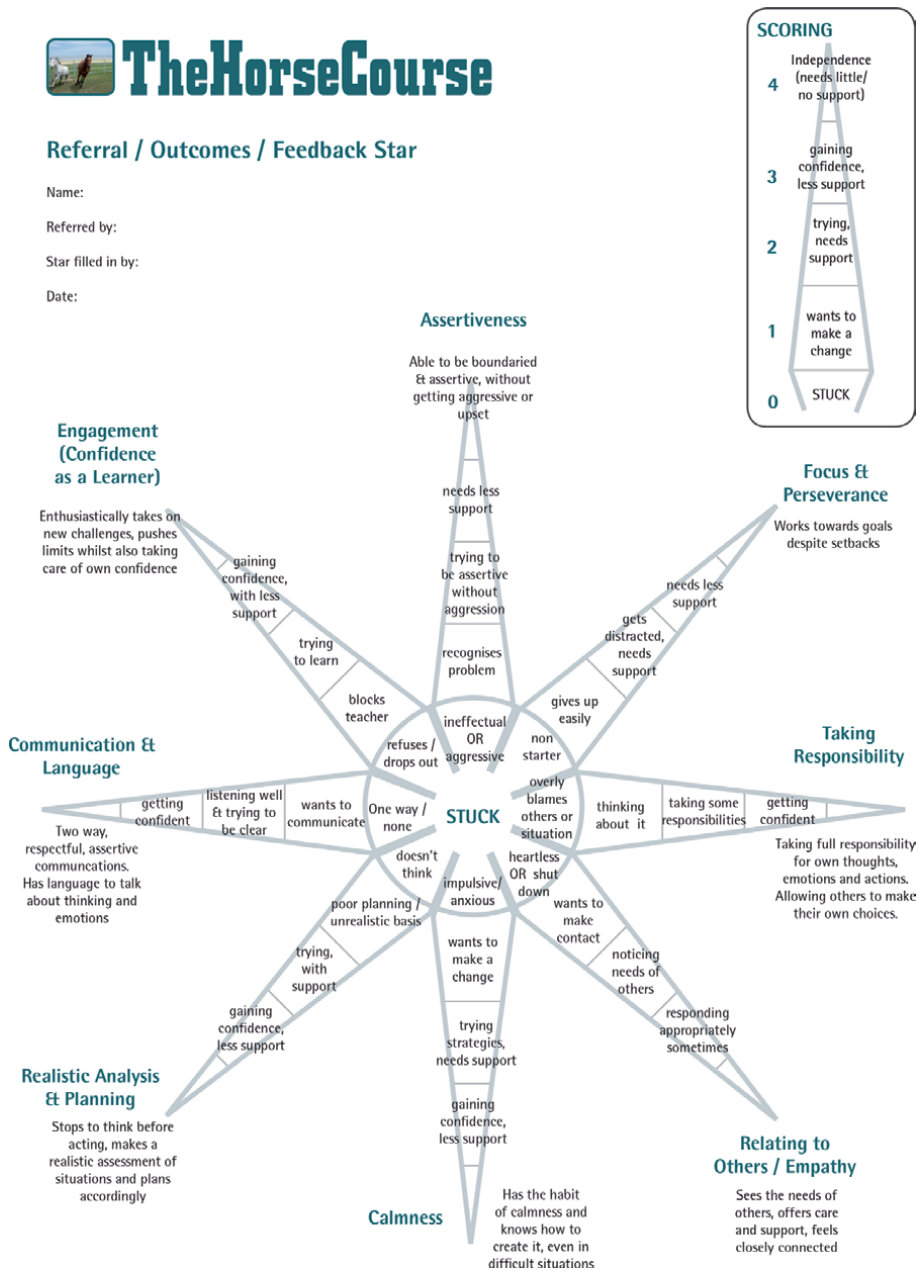


Figure 1. Star chart.

7. Ethical considerations

The star chart tool and further assessment tool was completed electronically by the referrer. The scores were then stored on an excel spread sheet by charity staff with each participant being allocated a code number so the researcher could not identify the person or the referrer, ethical permission was gained from the researchers employing universities ethics panel. This registered charity undertakes risk assessments for all participants who are never left unsupervised with the horses.

Main reason for referral	Anxiety/ depression	Mental health diagnosis	ADHD/ ASD	Bullying/ angry/ aggressive/ violent	Lacks confidence/ bullied/ lonely/ low self esteem	Witness to domestic violence/ abuse/ neglect	Not attending school/ excluded from school	Self-harm/ suicidal	Relationship issues/ attachment disorder
N = 326	45	13	16	68	41	30	43	22	20

Table 1.
Reasons for referral.

The horses are all observed for possible stress/distress continuously throughout the course activities informed by the ethogram of horse behaviour [40] activities would cease immediately if any observations of this were made.

The sample constitutes a convenience sample of 7–68 year olds (mean age 20) accessing the course over a three year period for whom full data were obtained female = 193 male = 133. The reasons for referral are shown below in **Table 1**.

8. The star chart

The star chart (**Figure 1**) used has been developed for this EAI program. The referrer rates the young person from 0 (stuck) to 4 (independently using the skills being assessed).

Pre-test scores were analysed using cronbach’s alpha in order to assess the tools internal reliability the score was 0.9 indicating the tool has high internal reliability.

Data was analysed using SPSS and a non-parametric related sample sign test which showed statistically significant improvements between the pre and post-test scores for all eight outcomes with a significance level of p.000. Included here in **Table 2** are the numbers of positive, negative and no change scores for the sample.

Overall scores for all eight outcomes on the star chart improved for 293 of the participants with 33 experiencing a worsening of their overall score two months after completing the course. On examination of each of these individuals there was no consistent area which worsened across this group. All of the 33 did have some dimensions where they had improved their score or remained at the same score pre and post the intervention.

Star chart skills development pre and post assessment by referrer n = 326	Number of participants with a positive score change	Number of participants with a negative score change	Number of participants with no score change	Total number of scores in analysis for each Skill
Realistic Planning	228	30	68	326
Assertiveness	238	23	65	326
Communication	212	43	71	326
Calmness	241	24	61	326
Engagement (as a learner)	220	28	78	326
Focus and Perseverance	222	24	80	326
Empathy	213	37	76	326

Table 2.
p.000. Numbers of positive negative and no change scores.

9. Discussion

This intervention does not use cognitive (talking or classroom based) approaches, a key element of this intervention would appear to be that the facilitator and the student are guided by the same principles used for teaching horses, which focus on reading body language and responding appropriately in the moment. The course teaches through practical simulation rather than verbal explanation and uses primarily non-verbal methods (through rehearsal) to potentially positively impact on the emotions and behaviour of the students. The students are coached to success throughout the intervention which enables them to rehearse and achieve successful embodied communication with the horses throughout the course.

Embodied pedagogy is defined as an educational program which brings together body and mind in a physical and mental act of knowledge, skill and behaviour creation [42]. Embodied communication transcends linguistic capabilities, proclivities and differences and seems to offer a universal language that humans share with other mammals. This mode of communication is available to us as human mammals for learning as a pre-language ability [43]. Through this intervention as participants rehearse the embodied skills through 'playing' with the horse they become proficient at communicating calmly. The 'learning' appears to be rehearsed and reinforced through repetition thus enabling them to feel calm and assertive.

Arguably this embodied or pre-speech capability to communicate with other species as with young children using 'inter-natural' embodied mechanisms may offer an opportunity to disrupt maladaptive behaviours previously established by participants to deal with communication and emotions [43]. This learning process may indeed therefore, offer safe opportunities to rehearse effective calm communication.

It is particularly important when evaluating an intervention to consider the qualities that render it effective. Participants on this intervention have to try to understand the point of view of another being, the horse a prey animal, in order to develop effectiveness when communicating through their bodies. As a result of this course participants learnt to 'listen' to another 'being' through their body language and rehearse this skill throughout the course [44].

The people who are generally referred to this intervention have a wide variety of different behavioural and mental health issues as outlined here many of which are associated with experiencing Adverse Childhood Experiences (ACE's) such as abuse, neglect or witnessing violence in the home. Through evaluation of this intervention it is interesting to note that many leave the course with similar benefits the most consistent and strong of which is calmness thus enabling participants to re-engage with services, education and relationships. With referrers to the intervention (primarily social workers and mental health services) reporting rapid and effective changes in behaviour. As one participant said following completion of the course 'I feel reborn'. Does using embodied inter-species interventions offer opportunities for those for whom 'talk' based interventions and traditional service models are not working to gain beneficial outcomes?

The intervention considered here would lend itself to a more robust study on effectiveness using a randomised controlled trial particularly in relation to ensuring statistical reliability. Access to school/work attendance and achievement records could also be explored pre and post intervention. Further study of this intervention would also benefit from detailed economic analysis of the potential future costs of not treating people for whom violent behaviour and lack of success in talk-based treatment are primary problems.

10. Conclusion


Starting to think about how to help people develop or learn the path to wellbeing through learning embodied skills is a new way of thinking about this area. The long-term success and expansion of this intervention which has grown from local need would suggest that using alternative embodied approaches for mental health and behavioural issues particularly for those not currently engaging with 'treatment as usual' could be a way forward. Indeed, do we need to consider that the increases in mental ill health and distress need us to re-configure services to the point that embodied nature-based approaches are part of, or at the forefront of what is offered routinely. It is important to recognise that in these interventions there is no need for long term costly consultations, diagnostics and pharmacological approaches along with the stigma and labelling which accompanies them. Nature based embodied approaches are very acceptable to both participants and practitioners with little associated stigma, low drop-out rates and high completion rates and may be the most appropriate initial approach for those with non-psychotic issues.

Author details

Ann Hemingway
Department of Medical Science and Public Health, Bournemouth
University, England

*Address all correspondence to: ahemingway@bournemouth.ac.uk

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Section 3

Mind-Machine Scenarios



Rethinking ‘Affordance’, ‘Agency’ and ‘User’ from a Semiotic Technologies Perspective: The Emergence of a Typology of Signs-as-Agents

Janine Knight

Abstract

This chapter shows how educationalists might (re)conceptualise digital tool use within teaching and learning scenarios as a social practice. This is achieved by focusing on the development of a theoretical and analytical framework for identifying signs-as-agents that was shown to be applicable to other educational tools and scenarios. The chapter illustrates how a Semiotic Technologies approach, that forms the main pillar of the framework, can unite a number of well-established perspectives, from research in Human-Computer Interaction, Social Cognition Theory, Critical digital literacy, Distributed Cognition Theory and be applied to different educational scenarios. This is in order to support a more holistic and critical understanding of agency and agents – both ‘human’ and ‘digital’ – which is relevant for education researchers and practitioners working with STEAM and STEM. Three examples, from various educational, digital scenarios are used to illustrate how the theoretical and analytical framework can be applied. The analysis involves the identification of screen-based signs-as-agents through a focus on initiation and response turns, primarily with the screen. Analysis of the artefacts related to the screen are initially analysed separately from how they are being used in the social practice, following a Semiotic Technologies analytical model. The central contribution of this chapter is a typology of signs-as-agents that has been conceived in order to expand the Critical Digital Literacies teaching and research agenda, specific to pedagogy. The study is aimed at supporting critiques of how digital tools can shape how teachers and learners *act*, not only how they can *think*.

Keywords: agents, agency, signs, critical digital literacy, pedagogy, teaching and learning, semiotic technologies

1. Introduction

In this chapter I want to show how educationalists might (re)conceptualise digital tools and also reconceptualise teaching and learning as a social practice with digital tools. I do this by focusing on the development of a theoretical and analytical framework for identifying signs-as-agents that was shown to be applicable to other

educational tools and scenarios. In themselves, the proposals may not be very novel, since they include or build on well-established traditions in various fields, though perhaps less so in the field of Education. However, I wish to suggest that a Semiotic Technologies approach, focused on signs-as-agents, applied to educational scenarios, can unite a number of well-established perspectives on digital tool use. Such an approach can also be very relevant for researchers and practitioners working with STEAM and STEM.

Through the presentation of three examples, from various educational, digital scenarios, I will show how the theoretical and analytical framework, involving the identification of initiation and response turns, understood as a multimodal exchange structure, can be used to identify screen-based signs-as-agents. In addition, I show how through the establishment of such multimodal exchange structures, signs can be understood as being agentalised. Throughout this process, I highlight how theoretical and contributions from research in Human-Computer Interaction [1]; [2–4], Social Cognition Theory [5], Critical digital literacy [6–8], Distributed Cognition Theory [9] as well as theoretical and methodological contributions from a Semiotic Technologies perspective [10, 11], can support a more holistic and critical understanding of agency and agents – both ‘human’ and ‘digital’ – in educational scenarios. The central contribution of this chapter is a typology of signs-as-agents that has been conceived in order to expand the Critical Digital Literacies teaching and research agenda specific to pedagogy. It is aimed at supporting critiques of how digital tools can shape how teachers and learners *act*, rather than how we *think*. The latter has been the traditional domain of critical digital literacies.

The term Semiotic Technologies refers to “the whole array of technologies people use in order to make meaning as part of specific social practices, such as writing and drawing on a blackboard with chalk in mathematic lessons in schools, photographing beaches and mountains for image bank stock photos, or taking a selfie and uploading it on Instagram for sharing with friends and acquaintances” (p. 596) [12]. A Social Semiotic Technologies perspective is a growing subfield of social semiotics [12]. An analytic model for analysing semiotic technologies has been developed within this perspective [10, 11], that according to Djonov and Van Leeuwen [13] involves an analysis of the semiotic practices and artefacts (e.g., a written text or illustration) that warrant critical attention, as well as an analysis of the technologies that support them. Such a critical multimodal study of software, that includes the evaluation of software design, its use, and its relationship to broader semiotic and cultural practices would conceivably offer a holistic analytical approach [13] to digital technologies and their use in educational scenarios.

While a small number of studies have focused on digital tools in education from a social semiotic perspective (e.g., [14–17]) the model for analytic separation of artefact and practices developed by (Zhao et al. [10] and Zhao and Van Leeuwen [11], has only more recently been applied to other digital tools in education (e.g., [10, 11, 18])). This approach to the study of the relationship between semiotic technology and social practices is highly relevant and applicable for the study of technologies in digital-based teaching and learning practices because teachers may not be the only actors (or agents) participating in what appears on the interface pages that students face [18].

I will argue that this approach is fruitful for understanding agency in digital scenarios because, following the emphasis on analytical separation, it conceivably allows us to look at how agency and agents may present themselves in relation to the digital tool itself, as well as in the social practices by teachers and/or learners with the tool. Another relevant contribution to the study of agents from a Semiotic Technologies perspective is the notion of “exchange structures” that can be realised

multimodally through “user-user interactions” and “system-user interactions” and must at least contain an initiating move and a response [19]. Such an analytical focus conceivably would give insight into the intentions of human or digital agents as exchanges take place between the teacher or learner and system as well and may also give insight into how these exchanges can shape their semiotic work.

My arguments for a Social Semiotic Technologies approach are based on a critique of three premises that often underly much discourse in studies surrounding digital tool use in educational scenarios. The first premise is that digital tools should be evaluated and researched for their ‘affordances’ [20] as potential uses for supporting human intentions. While countless studies within the field of Education attest to this premise, it is important to highlight that a digital tool with a screen does not typically have a singular design intention, unlike a chair (which the notion of ‘affordance’ was initially applied to). But rather, digital tools are increasingly more complex, and are increasingly seen as having unlimited potentials, including new roles like instructing or advising humans (e.g., service bots with Artificial Intelligence) [18]. An interface that learners may face, for example, may have been designed by multiple people including interface designers and teachers and may have also passed through the hands of translation or legal teams for final touches with logos or orthographic corrections. Furthermore, a screen might present the user with many digital tools at once, so that grammar checkers, for example, can be installed ‘within’ other tools so that the affordances across multiple tools can be customised to each user. Designers may be multiple and the final product or digital tool(s), often incorporating a screen, may be the result of many months or years of design input by each one: each with their own intentions imbued in the presence of their signs.

The second premise is that digital tool use is favourable in supporting individual learner empowerment. Many studies in the field of Education also attest to this. Within a university environment, for example, e-Learning tools can create ‘learner-centric’ and ‘collaborative-learning environments’ where learners are empowered to self-control their learning processes [21]. However, this perspective, which can be understood as part of the ‘empowerment paradigm’ [22] is often typically focused on learners and their agency rather than the potential agency that digital resources on the screen may ‘enact’ through learners’ use of them. This enactment of ‘digital’ agency, or agency enacted through digital means, can be traced back to studies in Human-Computer Interaction from the 1980’s with the creation and the identification of pedagogical agents as ‘passive’ or ‘active’ [1, 4]. A passive agent waits until it receives a request to act, while an active agent takes action on its own when it sees an opportunity to do so. These studies have highlighted the technological intentions to communicate and/or shape human action, that originate in the design of human others. More recent studies in Social Semiotics (e.g., [10, 11]) and linguistics (e.g., [23]) highlight the ability of digital technologies to shape and influence human semiotic work. This shaping potential does not refer to the shaping potential of ideas or ideology communicated typically through text and image, but rather its shaping potential is carried out through ‘exchange structures’. ‘Exchange structures’ is a notion that was originally drawn from conversational analysis and functional linguistics. Following this understanding of exchange structures, exchanges must at least contain an initiating move and a response, which can be realised multimodally. Jovanovic and Van Leeuwen [19] also mapped out the ways that digitally-mediated interactions occur across various forms of social media, including “user-user interactions” and “system-user interactions”, in what the authors describe as “a multimodal realisation of an exchange structure”. This notion has also been reflected in educational research as ‘semiotic initiations or responses’

[24] that can be understood as part of ‘multimodal turn-taking’ [25]. An example of this is a pop-up that ‘requests’ a user to accept cookies and then the user clicks the screen-based icon as the ‘acceptance’. These exchange structures have attributes of design, intention and enactment that can be assigned to constructs of agency. Therefore, the learner as a user may be only one social agent that is being empowered when digital tool use is being enacted: the social interests of each screen-based resource and how they may be empowered through turn-taking with them, should conceivably also be considered when learners carry out their semiotic work. This is especially the case in educational scenarios because, as Djonov and Van Leeuwen [26] propose, there are social interests that permeate the design and use of software.

The third premise is that a screen is solely for learners as ‘end’ users. However, unlike a page, whatever is communicated by the user through the screen, is connected to a network. The information that is passed through a screen, either entered by humans through typed text or through navigation and touch, is at least a two-way information flow. Therefore, resources on a screen can conceivably be considered more than just signs on an interface in which meaning is communicated to the user. Indeed, it could be argued that there is a relationship between humans and the screen, not only in terms of content (e.g., ideas communicated through text that is read or watched by users) but also in terms of a relationship made up of a human-digital system that is carried out through “exchange structures” [19]. With this altered conceptualisation, the screen is not just for the human users at the ‘end’ but also for digital and human ‘users’ at the other ‘end’ of the exchange which teachers and/or learners do not see. The screen is the point at which, however, potentially part of the exchange structures between the human and digital ‘system’ can be made visible to teachers and/or learners.

The three premises that I have briefly described above can be critiqued within a Social Semiotic Technologies perspective. I propose that it is therefore a potentially valuable perspective in advancing the development of Critical Digital Literacies [6–8] within educational scenarios which Pangrazio [27] has proposed is in need of expanding. Such an expansion could involve a focus on identifying signs-as-agents. While many definitions of Critical Digital Literacies exist, Luke [28] refers to it as processes of “naming and renaming the world, seeing its patterns, designs and complexities, and developing the capacity to redesign and reshape it” [28] (p. 29).

Such a critique, broadly focusing on ‘patterns’, ‘designs’ and ‘shaping’ [28] signals a number of shifts in how educationalists might (re)conceptualise digital tools and their use through a critical lens.

Firstly, this reconceptualisation is a shift in emphasis from the notion of a digital tool with a singular design intention, to a tool with multiple design intentions and designers and designs with various signs that may change meaning, patterns of use and use for different purposes over time. Secondly, while many studies in the field of Education attest to digital tool-use as being linked with learners’ individual and/or social empowerment, if learners’ creations can be shaped in the process of tool use, students’ digital semiotic work might be conceivably re-conceptualised more accurately as a *meaning negotiation* process rather than (solely) as an empowering, creative one. That is to say, ‘negotiating’ what semiotic work from pre-built designs in digital tools by other designers is accepted/rejected, included/excluded and/or suggested/left out by teachers and/or learners. This conceptualisation highlights that digital tool use in (social educational) practices may be a site of struggle between all potential agents in the creation, negotiation, use or re-use of a semiotic piece of work. This in turn, signals the need for a more critical stance towards power relations with digital tools while in use.

Thirdly, because a Social Semiotic Technologies methodological approach involves analysis of digital tool use and the tool itself, including design intentions of the tool, this approach conceivably also supports an analytical as well as a theoretical shift. This shift may be from tool-use and its affordances towards tool-use for different social practices. I propose that this approach can facilitate a space for identifying and analysing the various 'voices' of the designers and/or creators that may be 'at play' at any point in its use/re-use.

In the next section (Section 2), I will focus on the theoretical and analytical framework for identifying signs-as-agents, how this can be applied to other educational tools and scenarios and finish with some conclusions.

Section 2 focuses on the theoretical framework for identifying signs-as-agents. It highlights the framework's compatibility with theoretical contributions from Human Computer Interaction [1–4], Social Semiotics [29–31], Social Cognition Theory [5], Critical digital literacy [6–8] and Distributed Cognition Theory (see Hutchins [9]).

Section 3, illustrates how signs (or screen-based resources) can be identified and agentialised through use, thus becoming agents. For this, an exploratory study of 'hidden' digital agents in an online language scenario with a digital App called Tandem [18] is summarised in order to highlight key findings and demonstrates how an analytical tool for identifying signs-as-agents emerged.

Sections 4 and 5 focus on how the theoretical and analytical insights from the exploratory study, outlined in Section 3, can be applied to other digital tools and social practices that are commonly used in educational contexts: namely two webpages for Webquests and two 'Google for Education' tools for communication purposes between teachers and students.

Finally, I will conclude with some arguments as to why it is necessary for educationalists involved in educational, digital scenarios such as STEM and STEAM to critically rethink the three premises of 'affordance', 'agency' and 'user' and how this might be carried out.

2. Signs-as-agents

Sign is a key concept in traditional semiotics. "Signs are elements in which the signified ('meaning') and signifier ('form') have been brought together. Social semiotics holds that the process of sign-making is subject to the interest of sign-makers, their availability of semiotic resources and the aptness of those resources to the meanings which they wish to realise" (p.3) [31]. That is to say, the relation between 'form' and 'meaning' is not arbitrary but motivated [29]. While the notion of 'sign' emphasised available resources as part of a system, the notion of 'semiotic resource' that also evolved from social semiotics, focused on how the context of communication and the sign maker shaped signs and meaning. It was focused on people's situated choice of resources rather than a system (p. 3) [31]. This is relevant to our understanding of digital tools and their use because whereas the screen may offer learners signs, that in the designers' intentions have a 'logic' which connects the signs through layout and colour for example, learners can also bring other resources from their own environment. Such resources can include the choice of language that they use while using the tool or their decision about what to include in the background if they are making a video call. Van Leeuwen [30] describes semiotic resource as follows:

Semiotic resources are the actions, materials and artefacts we use for communicative purposes, whether produced physiologically – for example, with our vocal apparatus, the muscles we use to make facial expressions and gestures – or technologically – for example, with pen and ink, or computer hardware and software –

together with the ways in which these resources can be organised [30]. Van Leeuwen [30] also noted that the notion of 'resource' began to replace the notion of 'sign'.

The distinction between 'sign' and 'resource' is important in understanding a digital tool in use because it allows teachers and researchers to choose whose perspective we are looking at a screen-based resource from, at any given time. That is to say, the intentions of the pre-embedded signs on the screen by an interface designer for example, or alternatively, the intentions of the learner while using the signs on the screen, or indeed, the incorporation of their own semiotic resources made available through the screen. A Semiotic Technologies approach allows for both perspectives and analysis of intentions because it attends to a) the materiality of the digital tool and also b) how that tool is used in a social practice. Intentions are an important aspect of the construct of agency because human goals, whether related to expression of identity or carrying out and completing a task, are not achieved without intentionality.

To understand 'signs' as potential agents that can take part in exchanges with humans, we can draw from studies in Human Computer Interaction (henceforth HCI). Knight, Dooly and Barberà [18] highlighted how the screen-based signs, were considered as pedagogical agents in HCI studies in the following way:

Pedagogical (non-human agents have been classified into two different categories: animated pedagogical agents [3] and reactive pedagogical agents [2]. Animated agents simulate human behaviour, such as facial expression, body movement and gesture whereas "reactive agents" respond to events in the environment, for instance displaying messages when certain threshold values have been reached. According to Jondahl and Mørch [4], reactive agents can be further classified as passive or active: a passive agent waits until it receives a request to act; an active agent takes action on its own when it sees an opportunity for doing so.

From the field of psychology, Social Cognition Theory, developed from Social Learning Theory (SLT) by Albert Bandura in the 1960s, also contributed significantly to theory on human agency. There are two notions that are relevant to researching signs-as-agents from Social Cognition Theory. The first is Bandura's notion of "proxy agent" [5] and the second is a systems-based understanding of agency, all be it human systems.

The role of a "proxy-agent" [5] is where a (human) agent can be enacted or represented by others (e.g., a parent completing a task on behalf of a child). To extend this notion, signs on a screen can be understood as proxy agents that act on behalf of their designers in that they are designed to communicate an idea or act on the designer's/designers' behalf.

Bandura's [5] human, systems-based understanding of human agency highlights the motor, sensory and cognitive systems in carrying out of intentional actions. This notion connects with important notions from the field of Social Semiotics, namely 'signs', that can be made up of 'modes', such as image, text and speech. The motor and sensory systems of humans are conceivably co-reliant on such modes in order to be put to use by humans to carry out their intentional actions. If humans initiate or respond to signs on the screen through their sensory or motor systems, the interaction conceivably becomes a shared human-computer one. This interaction can be characterised as "user-user interactions" and "system-user interactions" [19]: the screen facilitates oral/visual interaction between humans and users are faced by a number of signs on the screen to which they can respond to in various ways in what Jovanovic and Van Leeuwen describe as "a multimodal realisation of an exchange structure" [19]. In addition to this, a "user-system" initiated exchange [18] can also be considered a structure, given that users can initiate 'turns' with the digital system, through touch for navigation or voice activation for example. This

human computer exchange foregrounds the notion of a systems-based notion of agency: a recognition of human systems to carry out intentional actions and also of digital systems to establish or carry out intentional actions. This understanding of agency recognises digital tools and established human experience as forming “unified ecologies, with agency distributed throughout the system [as] artefacts, context, and humans together create particular morphologies of action” (p. 9) [32]. This notion stems from Distributed Cognition Theory, a theoretical framework that was originally introduced by Edwin Hutchins and his colleagues in the mid-1980s (see Hutchins [9] for the principles of Distributed Cognition).

Following on from the theoretical framework, Section 3 illustrates how signs (or screen-based resources) were identified and agentalised through use, which led to the key concept presented in this section (Section 2) of ‘signs-as-agents’. Section 3 revisits the data from an exploratory study, spanning over 5 years, that focused initially on learner agency in an online language learning scenario to develop speaking skills [23, 25, 33] and evolved into a focus on ‘hidden’ digital agents from a more critical perspective [18].

3. Signs-as-agents in the Tandem tool: The exploratory study

In order to illustrate how educationalists and researchers might research and identify signs-as-agents, rather than just affordances of digital tools, it is pertinent to revisit the first data set from an exploratory study and its relevant findings. The signs-as-agents in the Tandem tool were initially identified in a study by Knight, Dooly and Barbera [18] but the term ‘signs-as-agents’ has not been used in relation to the exploratory study until this section.

The following screenshots and analysis relate to a language learning App called Tandem which is an audioconferencing tool that facilitates oral interaction between students in a synchronous mode. Students cannot see each other. Instead, they are faced with various textual instructions, navigation buttons and texts in order to support the student interaction.

As in keeping with a Semiotic Technology approach, the materiality of the tool, in this case the screen-based resources or signs, were analysed separately from their use. However, also in keeping within a Semiotic Technology approach, the tool in-use by students was also analysed in the form of the audio recordings of what students were saying during the process of interacting with the screen as well as each other. This gave insight into intentions and actions taking place during the learning process from the student perspective.

Pop-ups (**Figures 1** and **2**) appeared on the screen at different moments, “inviting” students to “respond” by clicking on the screen ‘button’ provided, namely ‘Start’ (**Figure 1**) and ‘Close’ (**Figure 2**). These were identified and later labelled as ‘active agents’ according to the classification of Pedagogical agents from studies in HCI, shown in **Figure 3**.

Navigation resources such as ‘Next Task’ (**Figure 4**) and ‘See solution’ (**Figure 5**), were identified and later labelled as ‘passive agents’. Passive agents were available on the screen and when students wanted to use them to move forward (or back) through the task sequence, they clicked on them.

This identification highlighted the ‘semiotic initiation and responses’ [24] or ‘multimodal turn-taking’ [25] that was carried out between student and the screen, also while students were interacting orally. Consequently, these screen-based resources or signs were considered to be “direct discourse agents” [18] because they could carry out turns with humans as ‘agentive turn takers’ [23]. When initiations, either human or digital, met with a response (e.g., from the screen ‘moving on’ to

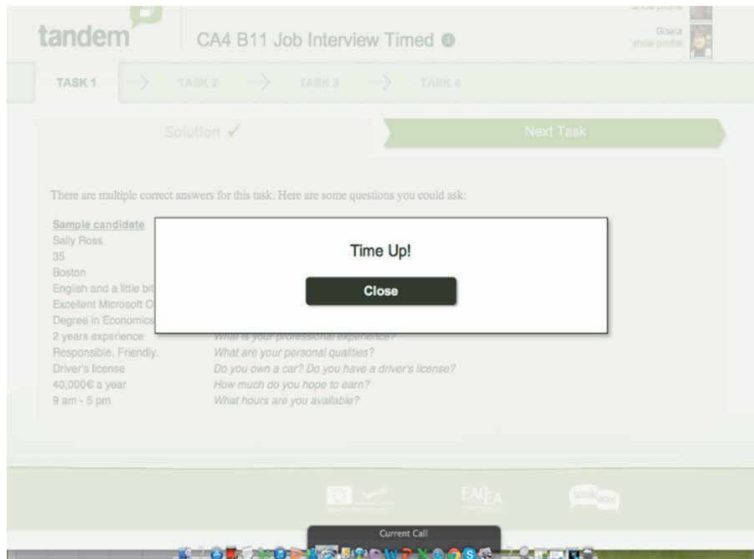


Figure 1.
Pop-up on Interface page before students start conversing orally.

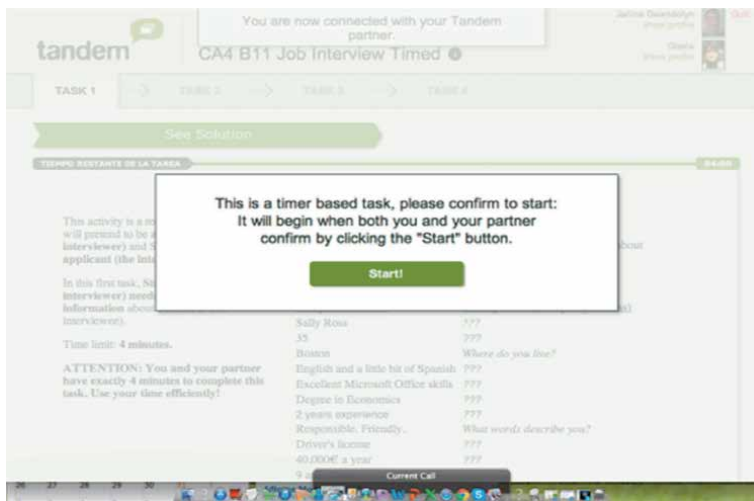


Figure 2.
Pop-up on Interface page (when time is up for task 1).

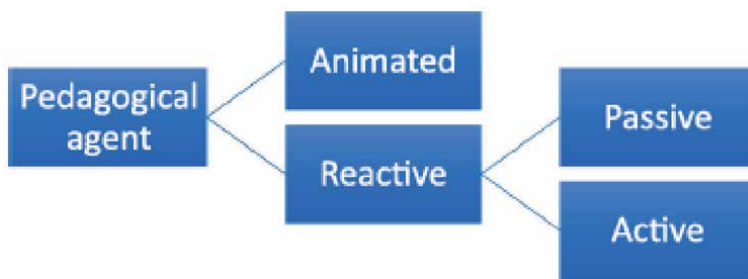


Figure 3.
Classification of pedagogical agents in HCI studies (cf. Fischer et al., 1985; Müller, 1998; Johnson et al., 2000; Jondahl and Mørch, 2002).

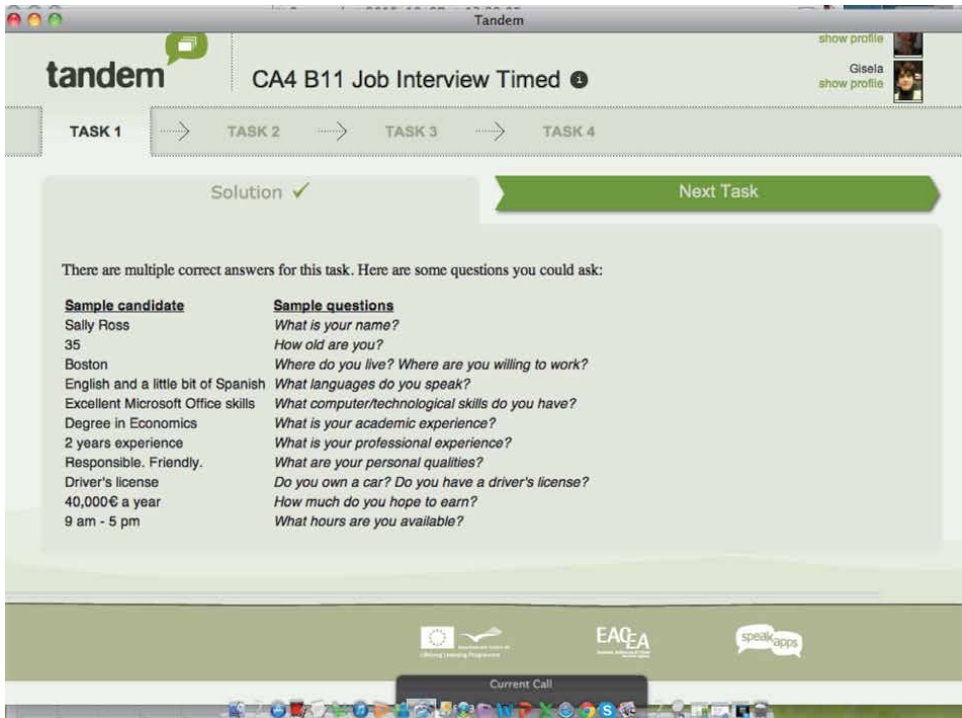


Figure 4.
 Navigational button on Interface page for students to navigate to the 'next task'.

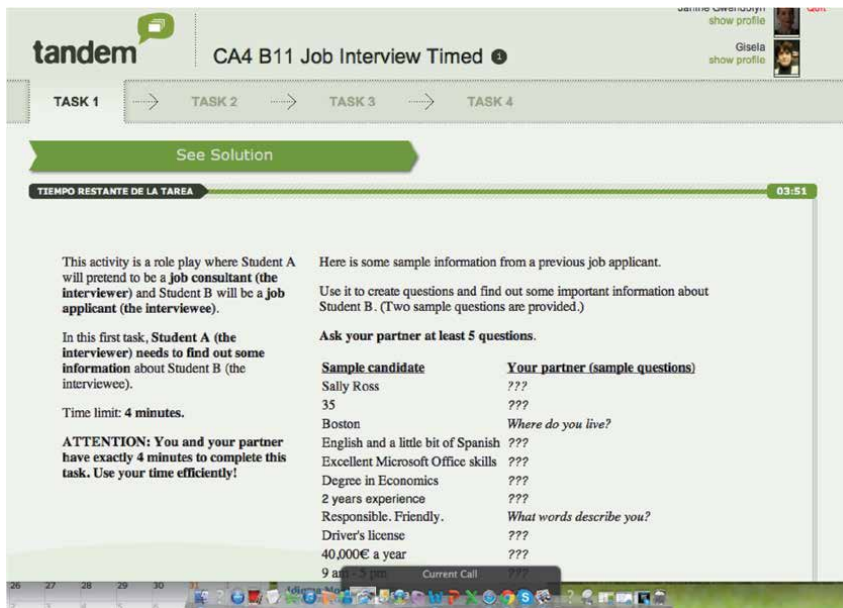


Figure 5.
 Navigational button on Interface page for students to check their answers 'see solution'.

another page or from the learner, clicking) the signs were considered to be “agentialised”, a notion from Van Leuwen [34]. This “multimodal experience revealed how peer-to-peer talk can occasionally resemble a multi-party encounter

whereby some resources can act as or be oriented towards as participants in the interaction” [23].

This dual-focused analysis, particularly in the analysis of learners’ oral turns from the audio-recordings, also revealed another type of human-computer ‘relationship’ in the form of screen-based resources that acted as “shaping agents” [18]. The resources that acted as “shaping agents” were invoked or made relevant in the context of learners’ oral turns, thereby they became part of the oral messages in the human, user-user, oral interaction. Specifically, the screen-based resources became: 1) embedded or modified in oral turns (as in **Figure 6**); 2) resources to initiate and support oral turns (also in **Figure 6**) or 3) diverse topics of talk (as in **Figure 7**).

Regarding shaping agents, The ‘?’ sign, with suggested answers next to it (**Figure 6**), was used by learners as a resource to initiate and support oral turns. Also in **Figure 6**, a textual lexical item on the screen, ‘Where do you live?’ becomes embedded in learners’ oral turns.

<p>1 M Hi</p> <p>2 O How are you today?</p> <p>3 M I'm fine thanks</p> <p>4 O Erm Sorry, what is your name?</p> <p>5 M My name is Maura, Maura Bater</p> <p>6 O Okay...</p> <p>7 M Yeah</p> <p>8 O sorry, how old are you?</p> <p>9 M I'm 34 years old</p> <p>10 O Er Well, where do you live?</p> <p>11 M I'm live...I live.. I'm living near of Girona.</p>	<p style="text-align: center;">Resources for asking questions</p> <p style="background-color: #e0e0e0; padding: 5px;">Ask your partner at least 5 questions.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Sample candidate</th> <th style="text-align: left;">Your partner (sample questions)</th> </tr> </thead> <tbody> <tr> <td>Sally Ross</td> <td>???</td> </tr> <tr> <td>35</td> <td>???</td> </tr> <tr> <td>Boston</td> <td>Where do you live?</td> </tr> <tr> <td>English and a little bit of Spanish</td> <td>???</td> </tr> <tr> <td>Excellent Microsoft Office skills</td> <td>???</td> </tr> <tr> <td>Degree in Economics</td> <td>???</td> </tr> <tr> <td>2 years experience</td> <td>???</td> </tr> <tr> <td>Responsible. Friendly.</td> <td>What words describe you?</td> </tr> <tr> <td>Driver's license</td> <td>???</td> </tr> <tr> <td>40,000€ a year</td> <td>???</td> </tr> <tr> <td>9 and 5 min</td> <td>Current Call: ???</td> </tr> </tbody> </table>	Sample candidate	Your partner (sample questions)	Sally Ross	???	35	???	Boston	Where do you live?	English and a little bit of Spanish	???	Excellent Microsoft Office skills	???	Degree in Economics	???	2 years experience	???	Responsible. Friendly.	What words describe you?	Driver's license	???	40,000€ a year	???	9 and 5 min	Current Call: ???
Sample candidate	Your partner (sample questions)																								
Sally Ross	???																								
35	???																								
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Excellent Microsoft Office skills	???																								
Degree in Economics	???																								
2 years experience	???																								
Responsible. Friendly.	What words describe you?																								
Driver's license	???																								
40,000€ a year	???																								
9 and 5 min	Current Call: ???																								

Figure 6. Transcript of student-student oral interaction whereby screen-based resources became embedded or modified in oral turns or resources to initiate and support oral turns.

<p>1 L Oh, well...I have not great aspiration and perhaps a thirty thousand... Euros per year.</p> <p>2 A Okay, perfect! Okay, thank you. I look for the position we have. Okay... well ok..now... close, no, I suppose...?</p> <p>3 L I suppose too, close it...</p> <p>4 A Well here are the questions and the answers...We go to the next task...?</p> <p>5 L Sorry?</p> <p>6 A We go to the next task?</p> <p>7 L Okay, huh...But the computer say me that the time is up.</p> <p>8 A Ah, yes.</p> <p>9 L So, I think, I think, Tandem is not working correctly.</p> <p>10 A No, maybe no because I'm in another page, is in the solutions page.</p>

Figure 7. The screen-based resources become topics of talk.

In **Figure 7**, the visual textual signs are used as topics of talk, namely about whether the students are going to 'close' the pop-up or not, a word that also appears on the pop-up.

Signs were also considered turn-takers in the interaction, as shown in **Figure 7** where the pop-ups initiates an action and the students refer to the pop-up as "the computer" or "it" (**Figure 7**).

These examples and results from the exploratory study on learner agency in an online language scenario contributed theoretically as a first step towards a typology of signs-as-agents: Signs can shape human (oral) turns [23] and can be understood as 'shaping agents' [18]. In addition, signs that can establish an exchange structure with humans (either 'system-user' [19] or 'user-system' [18]) can be understood as either

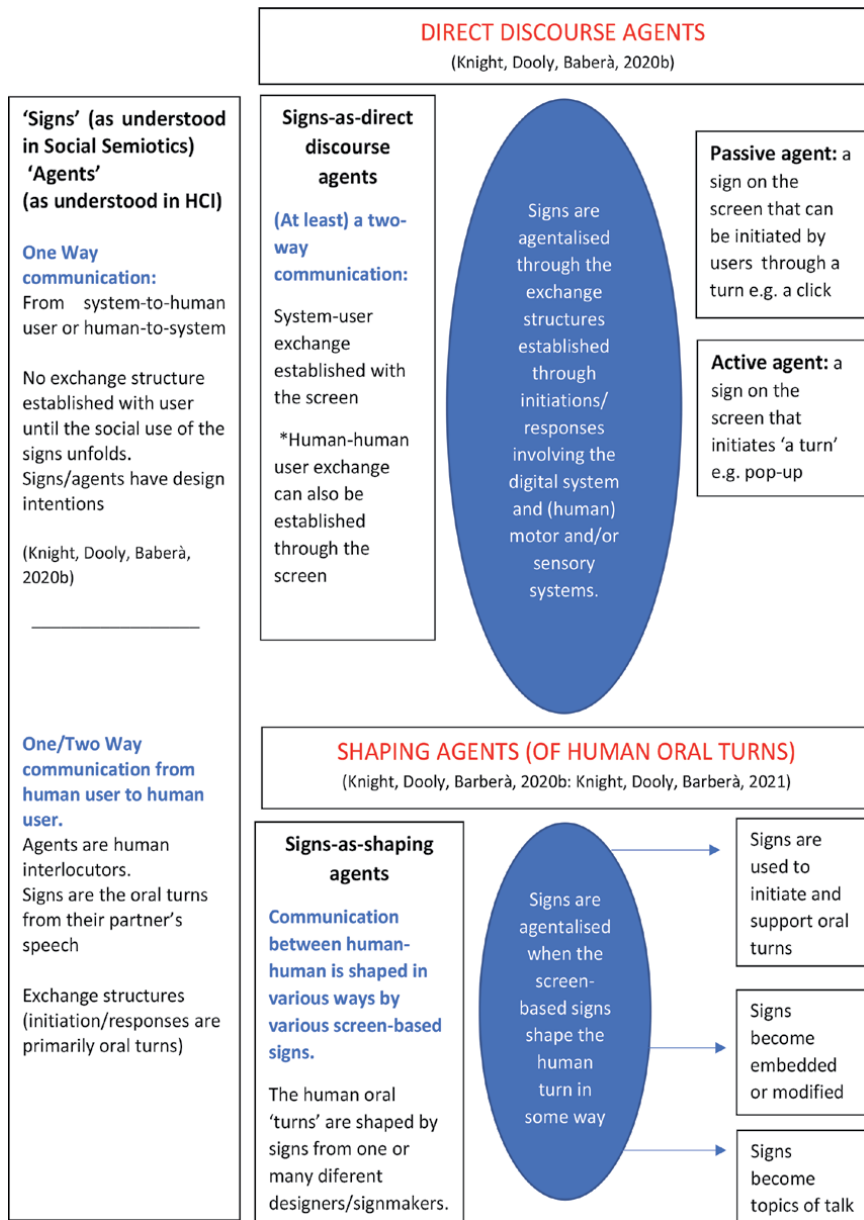


Figure 8.
 Emerging typology: Version A.

‘active’ or ‘passive’ ‘direct discourse agents’ [18]. This emerging typology is illustrated in **Figure 8**. It reflects the classification of agents from HCI studies but also expands on how the concept of agents relates to the notion of signs from the field of Social Semiotics. The notion of “shaping agents” is not in **Figure 3** of the classification of pedagogical agents in HCI studies because social practices, or use of the digital tool or signs was not explicitly considered in such HCI studies. However, I incorporate it into the typology of signs-as agents now in **Figure 8**. **Figure 8** also includes the notion related to “shaping agents”, that signs are agentialised when the screen-based signs shape the human (oral) turn in some way.

The following sections, Sections 4 and 5, illustrate how this emerging typology can be applied to two other educational scenarios, involving digital tools, and can be developed even further.

4. Signs-as-agents in WebQuests

A WebQuest is an inquiry-oriented lesson format in which most or all the information that learners work with comes from one or more websites [35]. The following screenshots are from webpages that were incorporated into pre-service teachers’ designs for WebQuests. Webquests typically involve teachers creating questions and choosing internet-based links so that students can follow the links and collect specific information on a topic.

The following examples illustrate how the typology for signs-as-agents, developed in the first analysis from the Tandem tool, can be applied to websites incorporated into WebQuests. WebQuests are particularly interesting to analyse, because depending on the WebQuest designer, the web sites included in the quest may include a wide range of internet pages with diverse modes (e.g., static, moving images, videos), functionalities (e.g., ability to ‘like’, ‘dislike’, leave textual comments on the site) as well as ‘housing’ different intentions which may be designed for educational purposes or not.

The following screenshots (**Figures 9–12**) were taken from a screencast video recording of a pre-service teacher trying out various webpages as part of WebQuests designed by other pre-service teachers. It is a common educational (social) practice for teachers to try out teaching and learning activities to check whether they are appropriate for the students that they are going to teach. They

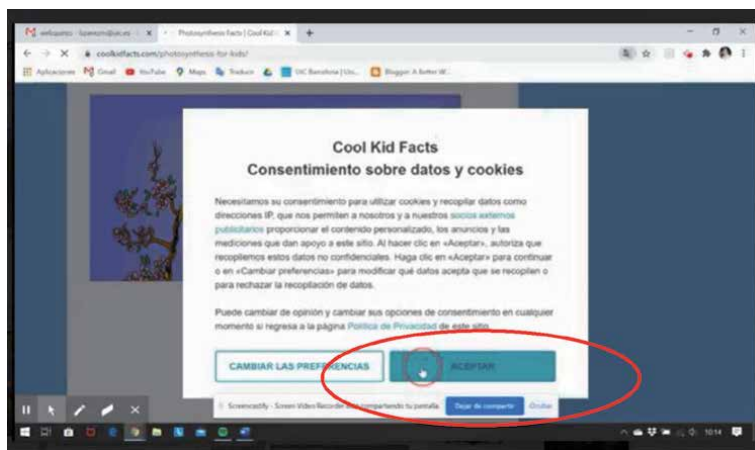


Figure 9. A screenshot of a screencast video recording of a pre-service teacher trying out the ‘Cool Kids Facts’ webpage.

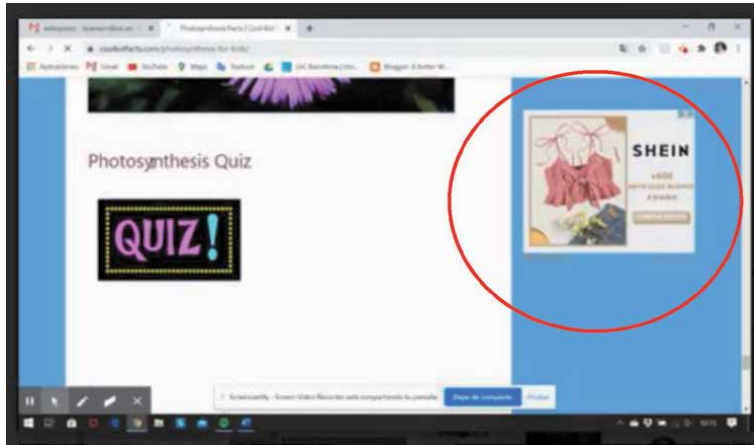


Figure 10.
A screenshot of a screencast video recording of a pre-service teacher trying out the 'Cool Kids Facts' webpage.

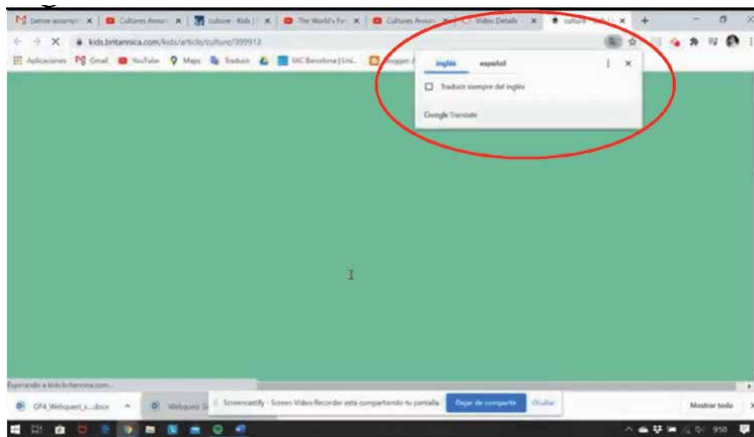


Figure 11.
Pop-up translation tool offering a translation of the English website to 'Espanyol' (Spanish). Offered by Google translate.

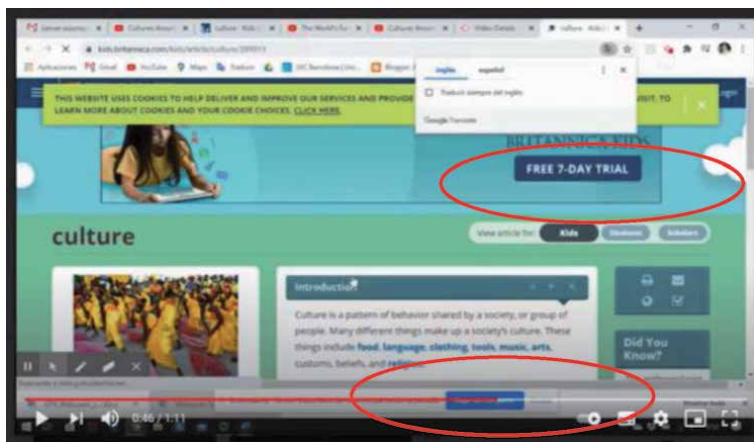


Figure 12.
A Britannica kids banner with '7 day free trial' in another colour.

need to check whether the activities will develop the particular competences that they are trying to develop in their students. Additional screenshots (Figures 13–16) of the webpages were also taken by the researcher, while navigating to and within the web pages. The two websites in the analysis pertain to ‘Cool Kids Facts on Photosynthesis’ and ‘Kids Britannica’ focused on the topic of ‘culture’.

As in keeping with a Semiotic Technology approach, the signs on the screen, captured from a pre-service teacher’s video of her/him “checking out” different webpages that form part of other pre-service teachers’ WebQuests, were analysed separately from their use. During the researcher’s follow up navigation, the researcher used the opportunity to check if the signs, were ‘passive’ or ‘active’ by clicking various signs, as the pre-service teacher did not do this because he/she had his/her own navigational path and intentions. The screenshots were chosen, to illustrate how the developing typology, outlined in Section 3, might

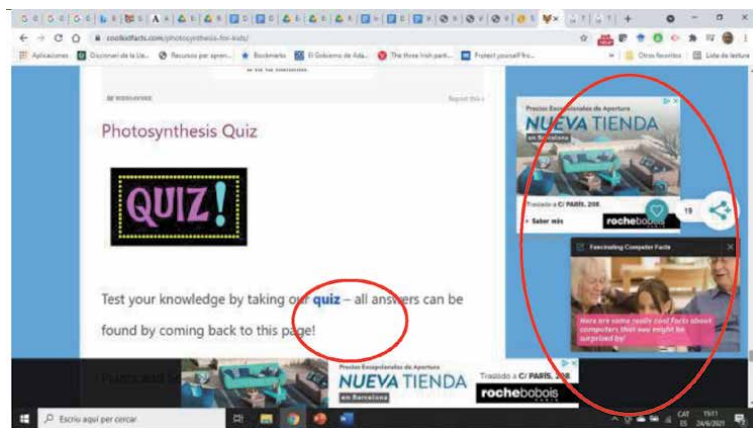


Figure 13. Animated advertisement for furniture company ‘Rochebobois’ (right) and hyperlink for a ‘quiz’ (bottom).

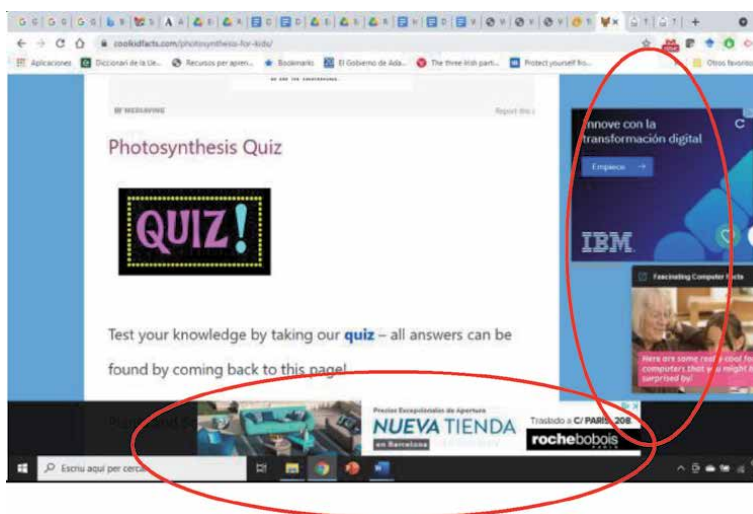


Figure 14. Animated advertisement for an technology company ‘IBM’ (right) and animated advertisement for furniture compant ‘Rochebobois’ (bottom).

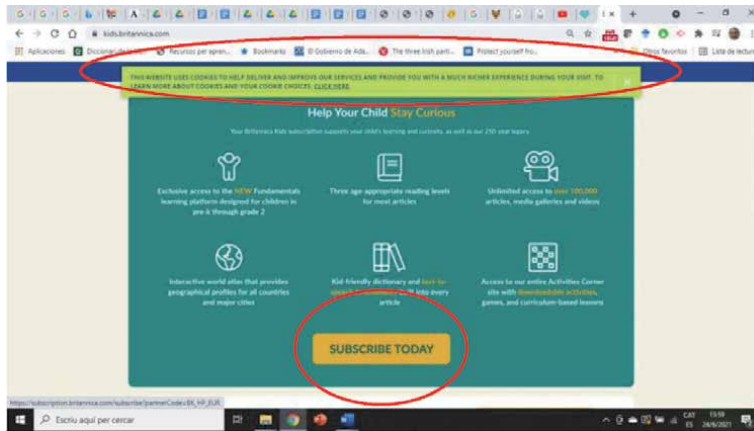


Figure 15.
Pop-up with 'subscribe today' (bottom) and an invite to know about cookies (top).

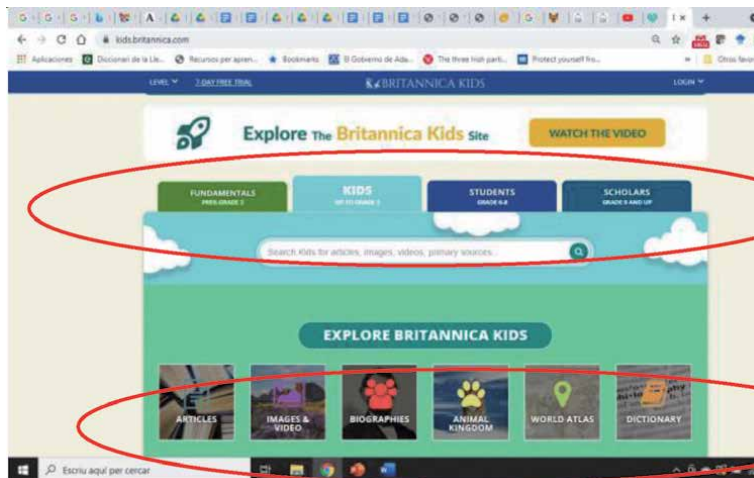


Figure 16.
Tabs with different options – 'Fundamentals', 'kids', 'students', 'scholars' that can be clicked (top) and 6 square images representing 'articles and videos'.

be applied to different educational, digital resources and scenarios apart from the Tandem App.

Table 1 illustrates how the typology was used to analyse web pages in order to identify signs-as agents. While the analysis is not systematic¹ in the sense that not every sign was analysed in relation to the different semiotic modes (e.g., layout, texture, colour, sound, etc.), which is a common feature of studies from a Social Semiotics perspective, there is enough visual, textual and navigational information from the two web pages (Cool Kids Facts Photosynthesis and Kids Britannica) to tentatively apply the typology for the purposes of this chapter.

¹ To be systematic with these examples, the analytical tool created by Knight, Dooly Barberà [18] could be applied. It involves a detailed identification of Initiation and Response turns, agents, their role and purpose.

Webpage	Signs-as-agents		
	Active (REACTIVE)	Passive (REACTIVE)	Animated
Cool Kids Facts Photosynthesis	Pop-up about consent for using Data and Cookies. Requiring to be clicked by the user (Figure 9)	The word 'quiz' is a hyperlink, that when clicked leads to a 'Photosynthesis Facts Quiz' (Figure 13)	Adverts on the left change and are animated with moving arrows or the start of a video which then stops (Figures 13 and 14)
Kids Britannica	Pop-up translation tool offering a translation of the English website to 'Espanyol' (Spanish) offered by Google Translate. It can be removed by clicking the 'x' (Figure 11)	Banner at the top of the page giving information about Cookies with an 'x' that symbolises ability to close this banner (Figure 15) <hr/> A Britannica Kids Banner with '7 Day Free Trial' in another colour (Top of Figure 12) <hr/> A 'Subscribe Today' text in a coloured box (Figure 15) <hr/> Tabs with different options – 'Fundamentals', 'Kids', 'Students', 'Scholars' that can be clicked (Figure 16) <hr/> 6 Square images representing 'Articles and videos'	None

Table 1.
Analysis of two webpages in order to identify signs-as-agents.

4.1 Pop-ups as active signs-as-agents

The pop-ups that appeared when navigating to both webpages, 'Cool Kids Facts', and the 'Kids Britannica', can be conceptualised as signs as potential agents because they "invite" the user to click on them. The pop-up consent for using Data and Cookies in Figure 9 requires the user to "Aceptar" (Accept) or "Cambiar Las Preferencias" (Change the preferences). When the user clicks in response, the exchange structure can be considered to be established and the sign is 'agentalised'.

Similarly, when navigating to the Kids Britannica webpage, a pop-up in the top right corner occurs before the webpage fully appears (Figure 11). The text on the pop-up says "Traducir siempre de Ingles" (Always translate from English) which can be considered to be an invite to change the language preferences when navigating to a page in another language. The pop-up requires the user to click "Espanyol" (Spanish) to translate to or close the pop-up indicated by an 'x'. In this case, the pop-up was closed. This pop-up was not generated by the webpage Kids Britannica but rather "Google Translate" (Figure 11). Importantly, this highlights a need to recognise distributed agents and agency across the "layers" [36] "of message, interface, communication flow, organisation of information, the platform" [36] in order to unveil power relationships more fully. Designers (or signmakers) can be involved not only in webpage design but also navigation design between pages, namely browser design, in this case from Google.

4.2 Hypertext and visual icons as passive signs-as-agents

Both websites had what can be considered to be 'passive agents' on the pages. These were in the form of hypertext, indicated by a different colour than the body copy (**Figures 12** and **13**) and visual icons that could be made up of colour, text and shape such as the 'Free 7 day Trial' (**Figure 12**) and 'Subscribe Today' icon (**Figure 15**). These could be clicked, or "initiated", at any moment by the user, depending on user intentions. The "response" of the system would be to move the user on to another page. Therefore, they are considered to be passive signs as potential agents that can be "agentalised" when clicked. Similarly, visual/textual icons including 'tabs' (4 Tabs in **Figure 16**) and visual icons including images could also be clicked (6 square images in **Figure 16**).

During the analysis, another type of agent was present that did not emerge in the results of the exploratory study with the Tandem tool, namely 'Animated agents'. Animated agents simulate human behaviour, such as facial expression, body movement and gesture. In the case of webpages for example, certain signs flickered on and off and people in embedded videos moved, all of which humans could click through navigation. Such animated movement can be understood as mirroring human behaviour.

4.3 Animated signs-as-agents

Finally, with respect to animated signs, only the Cool Kids Facts webpage housed these. These were located on the right hand side of the page (**Figures 13** and **14**), taking up a third of the page space. In addition, an animated sign banner was also present at the bottom of the screen saying 'Nueva Tienda' (New shop) for the furniture company Roche Borbois (**Figure 14**). This banner changed advertisements from different companies including the companies 'Just Eat' and 'Western Union' while the researcher was observing. Clicking on this banner led the user to the various company web pages.

The key point to highlight before applying the typology to another digital tool, is to note the presence of animated signs that were highlighted in the HCI classification of agents (**Figure 3**. Classification of pedagogical agents in HCI studies), as well as passive and active signs/agents. These are signs/agents that can be agentalised through the completion of either a computer generated or human initiation and response. These turns are multimodal in nature and through analysing the webpage, as well as its use, agents can be identified.

The analysis of the webpages for WebQuests shows how the typology outlined in Section 3, can be applied to another digital tool and practice within Education. Unlike the Tandem tool, where the social interests were pedagogical in nature, the webpages house social interests that are not purely educational in nature, but rather, have legal and commercial interests. Legal interests are present in the Cookies 'agreement' as the pop-up seeks acceptance to use users' data. Commercial interests can be seen in the '7 Day Free Trial' for access to Britannia Kids Encyclopedia, which requires later payment. Although this commercial aspect does relate to the area of education, commercial interests that are unrelated to education are also present. Notably, these interests can take up approximately half of the screen space, underscoring how the co-existence of different social interests can be embued in the diferent design intentions of signs on one 'educational' webpage. While these signs/agents can be considered as 'direct discourse agents' because users can click on them as a response or initiation, they can also be understood as attempts to shape users' tool use. The adverts (**Figures 13** and **14**) have the potential to shape a user's attention, and therefore the user's interests, away from the educational content on

the webpage on ‘photosynthesis’, towards commercial interests. Similarly, the navigation choices on the Cookies pop-up are limited to ‘accept’ and continue, to change preferences or to click away from the site to another. The use of a solid block of colour used to highlight ‘accept’ can be understood as an attempt to shape the user’s navigation pattern towards ‘accepting’ a legal interest before the continuation to the educational content for the user is made navigationally possible.

5. Two digital tools from ‘Google workspace for education’ fundamentals

The final example in this study relates to two tools within the ‘Google Workspace for Education’ suite of tools for educators. Google Workspace for Education is used by many educational institutions including universities and schools. It is a cloud-based tool that according to Google, provides “a free suite of easy-to-use tools that provide a flexible and secure foundation for learning, collaboration, and communication” (Google, 2020 <https://edu.google.com/products/workspace-for-education/education-fundamentals/>). The range of tools include Gmail (email tool), Calendar, Meet (videoconferencing tool), Docs, Sheets, Slides, Forms, Classroom, Assignments, Sites, Groups, Drive, and the Administrator Dashboard. The suite of tools can be shared with other users so that they can collaborate synchronously or asynchronously.

Screenshots of the tools in use were taken by the researcher. The screenshots are from my own social practice, in my role as a teacher who has to manage a wide variety of social actions related to teaching and learning. These roles include contacting students and communicating with colleagues by email (Gmail) as well as creating educational resources by ‘writing’ on a document in Google Drive.

Figure 17 is a screenshot of an email from an (anonymized) student to me. In the email, the student has sent me work, attached as a document. At the bottom of the screenshot there are three phrases: ‘Great’, ‘Thanks for letting me know’, ‘Great!’ and ‘Great. Thanks!’. One of the affordances of these phrases for the user is being able to click these phrases for intentional use as a response to the sender, that may save time writing. It is also useful for making sure that the phrases used by the writer of the email are grammatically and orthographically correct. This is conceivably important if English is not your first language. However, using the typology in **Figure 8** of signs-as-agents, I propose that these phrases, that can be clicked on by users as “off the shelf” pre-made responses, can be understood as passive agents.

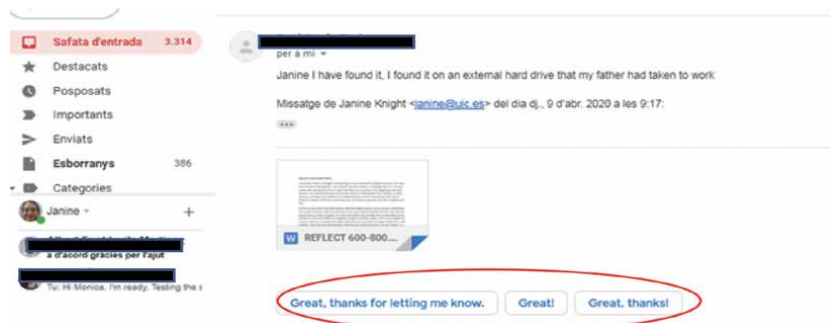


Figure 17.
Screenshot of an email from an (anonymized) student to me.

The design intention of the signs ('Great. Thanks for letting me know.', 'Great!' and 'Great. Thanks!') is presented to the user in order for the user to initiate (click) instead of making a human typed response. In this action, the initiation serves to *replace* a human written/typed turn.

At this point it is useful to compare this finding with the findings from the Tandem tool, specifically how learners' oral turns can be shaped in different ways. Whereas Knight, Dooly and Barberà [23] highlighted how screen-based resources could shape oral turns by lexical/visual items becoming embedded or becoming topics of talk, results of the analysis in this study illustrates how screen-based resources can shape written (typed) turns of humans in a different way. This is illustrated in **Figure 17** whereby if the user intentionally clicks on a sign/screen-based resource, the chosen sign can then replace the user's (typed) turn completely. We can understand these signs as other potential shaping agents.

In **Figure 18**, I turn to another tool in the Google Suite, namely a Google Document in Google Drive. The affordance of using Google documents is that they can be shared across time, space and also be used by a number of users, synchronously or asynchronously.

In the Google Document, in my role as a teacher, I have started to use the document for course planning purposes within an educational setting. As I am typing, the system 'suggests' how I might finish the word that I have started to type ('said') as well as suggesting complete words that I might type next ('and done'): acting as a predictor. To 'accept' the suggestion, I can press the right-arrow key. To 'reject' the suggestion, I can keep typing. Following the emerging typology, we can understand this predictive text to be a shaping agent that is passive and that can become embedded in my typed turn (understood as the completion of the word). Also following the typology, I can agentalise it by 'accepting' using the right-arrow key. This choice of 'accepting' and 'rejecting' can be understood as my response turn. Furthermore, this process conceivably resembles a negotiating process with the digital tool, rather than a purely creative one, as I negotiate my responses through touch, with the screen-based resources.

Before concluding, a second version of the typology is presented in **Figure 19**, encompassing all the signs-as-agents identified across the three examples analysed.

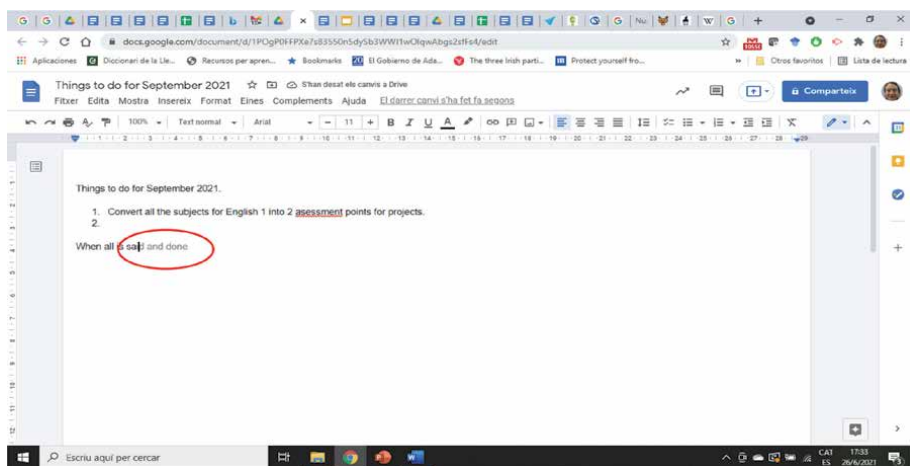


Figure 18.
Screenshot of a Google Document that is being used for planning and educational course.

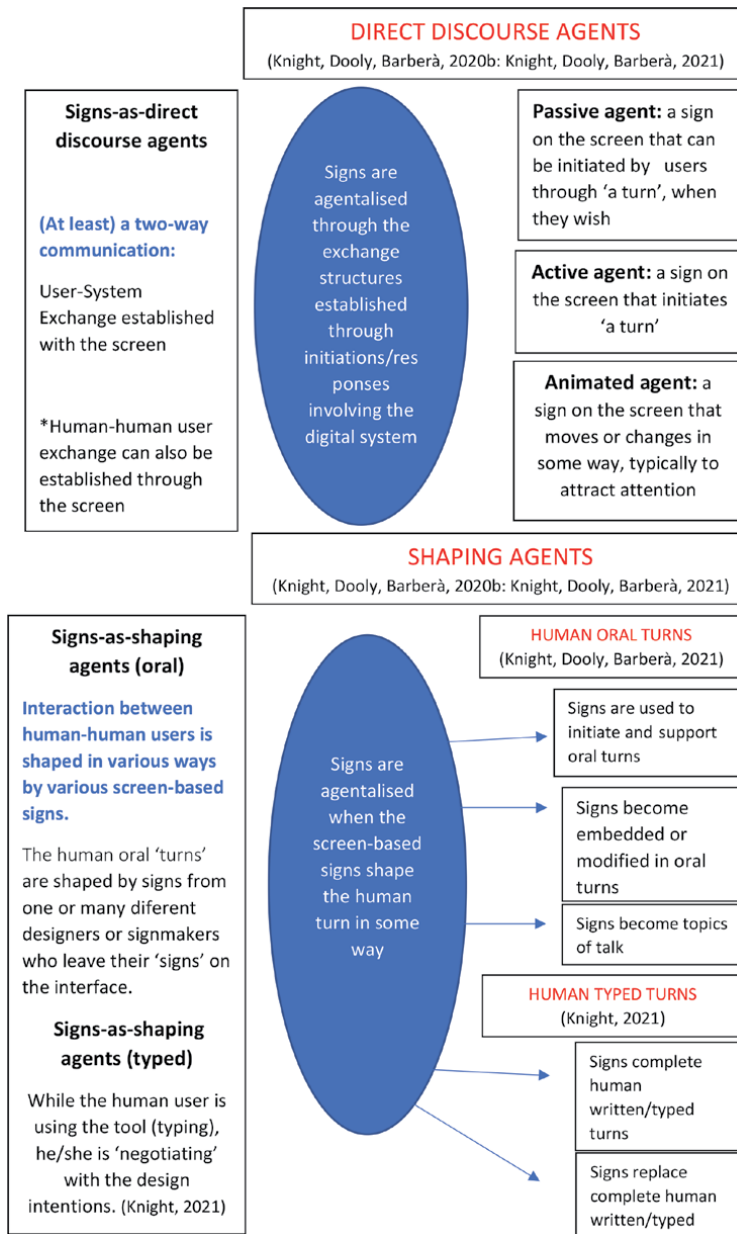


Figure 19.
Emerging typology: Version B.

6. Conclusions

This study aimed to highlight how educationalists might (re)conceptualise digital tools and their use through a critical lens. It achieved this by specifically focusing on the development of a theoretical and analytical framework that formed the basis for a typology for identifying signs-as-agents. This typology was shown to be applicable to other educational tools and scenarios. It can be expanded further, taking into account different digital technologies in use and different social practices it is being applied to. The study has highlighted, through analysis with examples, why educationalists should rethink the concepts of 'affordances' of tools

and 'agency' because digital agents are also present as human users/agents carry out their semiotic work. This focus highlights a shift in emphasis from a human centric, individual agency towards a systems-based understanding of agency in which the human systems (e.g., motor system) together with the digital system, form a part. Furthermore, the focus highlighted why the notion of 'designers' and 'design intentions', rather than end 'user' is perhaps a more relevant concept for a more holistic and critical understanding of how semiotic work is produced/created in educational social practices. Importantly, the study has shown how and why this process is a negotiated process with other designers' intentions, not a purely productive or creative endeavour of a human user.

This paper, as a critique, broadly focused on 'patterns', 'designs' and 'shaping' [28] which are key notions in Critical Digital Literacies. The patterns under focus were exchange structures (or interactional patterns), understood as turn-taking. This focus included an analysis of the 'designs' of potentially many designers and users of others' designs across time and with different social interests or intentions. This highlighted the social interests that permeate the designs and use of digital tools [26]. Furthermore, signs-as-agents can be understood as an extension of their human designers (as agents) highlighting the role of signs as 'proxy agents' [5] for designers. Signs understood as extensions of their designers also underscores the notion of designers' interests or intentions being 'distributed', echoing Distributed Cognition Theory [9]. Furthermore, the ability of signs-as-agents to *act on* and *be acted on* by teachers and learners highlights the distributed agency that both human and digitally manifested intentions are capable of.

In addition, the results highlighted how the 'shaping' of both learners' and teachers' semiotic work can occur, as well as the use of/shaping of pre-designed digital tools and their accompanying signs-as-agents. The ways of 'shaping' human semiotic work were shown to be extremely diverse, understood through an analysis of human oral and typed turns.

The chapter sought to add to pre-existing theoretical and analytical tools for educationalists to understand and approach digital tool use from a more critical stance. In doing so, the author proposes that the process of identifying and uncovering signs-as-agents, can contribute to the development of Critical Digital Literacies for Education. This could include looking beyond notions of creation and empowerment to notions that are centred on awareness, design intentions and teachers' and learners' abilities to identify and negotiate with those intentions.

Finally, the central contribution of this chapter is a typology of signs-as-agents. Specifically, it has emerged and been developed in order to critique how digital tools shape how we *act* in educational social practices, rather than how we *think*. The typology and underpinning theoretical framework potentially supports 'expanding' the critical digital literacy research agenda' [27]. This typology can serve a critical literacies agenda towards digital tools in education that Knight, Dooly and Barberà [18] call 'Critical Digital Literacy Pedagogies' (CDLP). CDLP was a proposal conceived to expand Critical Digital Literacies specifically to pedagogy. CDLP can be understood to include, amongst other things, identifying fake news (e.g. The National Literacy Trust, UK's teaching and learning resources, <https://literacytrust.org.uk/research-services/research-reports/fake-news-and-critical-literacy-final-report/>) as well as uncovering ideologies or undemocratic discourses in digital content (e.g. see the DISCO project – Embedding a Democratic Culture Dimension in Teacher Education Programmes (EDCD-TEP) focused on embedding the Competences for Democratic Culture in Primary Teacher Education Programmes, 2021 [23], <https://pjp-eu.coe.int/en/web/charter-edc-hre-pilot-projects/embedding-a-democratic-culture-dimension-in-teacher-education-programmes-edcd-tep>). The proposal for CDLP could conceivably unite analytical tools that aim

not only to expose power relations in relation to content and how people think but also in relation to power relations with other digital signs-as-agents and how people (inter)act and negotiate with them.

Regarding future research, the typology could be applied in order to support a much wider analysis of digital tools by teachers and researchers. In doing so, the typology can be added to and developed further. Furthermore, while this chapter has focused on tools and scenarios that involve human responses to signs-as agents while speaking, reading and/or typing as social practices, greater attention could be made to human initiations. For example, the use of QR codes in Mobile Assisted Learning as well as the use of human voice activation with digital tools which would encompass more modes and signs than exist in the current version of the typology.

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Author details

Janine Knight
Universitat Internacional de Catalunya, Barcelona, Spain

*Address all correspondence to: janine@uic.es

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Onlife Drama: Towards a Reference Framework for Hyper-Connected Activity

*Nektarios Moumoutzis, Desislava Paneva-Marinova
and Lilia Pavlova*

Abstract

An important aspect of ICT, identified 25 years ago within the user interface design community, is dramatic interaction: The deep engagement promoted by digital technologies that can be better explored by adopting a conceptual framework traditionally used to describe and study theater. This framework offers a wider perspective that demonstrates a deep connection between the qualities of our hyper-connected era and drama as an art of representing action. These concepts transcend the prevailing technical mentality when addressing ICT. They imply that we all participate as “interactors” on the “onlife stage” where other agents (either humans or computer-controlled) are also present. By promoting deep experiences, the hyper-connected environment in which we live in, changes our metaphysics and self-conception. A dramatic framework can explain the power of ICT and help us work towards the development of an equilibrium both personally and collectively: When used to enrich our experiences and extend our agencies, ICT can be considered as an enhancement of reality. When, on the other side, they are used to promote a false reality experience, they should be rectified. Important ethical and anthropological concerns are framed on the same philosophical ground as ancient drama. Ancient drama was a major pillar of Ancient Democracy and served the need to educate citizens with empathy in order to participate as responsible actors in decision making processes.

Keywords: performative turn, computers as theater, onlife manifesto, dramatic interaction, hyper-connectivity

1. Introduction

The Onlife Manifesto [1] emphasizes the need to reengineer key concepts in our societies in order to enable a deeper understanding of the hyper-connected reality in which we all live today. This chapter addresses this need for new conceptual frameworks to guide our minds and our actions in appropriating and governing ICT starting from an important aspect of computing identified 28 years ago within the user interface design community: The dramatic nature of the interaction between humans and computer agents, either software agents or more tangible ones such as robots and AI-enabled machines and devices. To better understand the dramatic nature of these interactions a conceptual framework traditionally used to describe

and study theater is really illuminating and opens up an interesting exploration of important implications on issues identified by The Onlife Initiative [1]. This framework has special focus on the so called whole action, i.e. human activity that is complete in terms of goals pursued, loaded with meaning and can be logically justified and interpreted. Whole action in theater is related to the concept of plot and subsumes notions of form and genre and the patterns that define them. In the case of dramatic interactions between humans and computer agents, whole action is collaboratively shaped by the designer of the computer agents and the interacting humans, thus varying in each interactive session.

Decades ago scholars and researchers in social sciences have argued that people act towards things based on the meaning that they attribute to these things and to the relation of themselves with these things [2]. These meanings are grounded in social interaction and modified through interpretation [3]. These symbolic interactions are transformed, through the use of ICT, into dramatic interactions employing concepts and approaches that have initially emerged within the context of theater. In particular, in a seminal book within the Human Computer Interaction domain that was initially published in 1993, Brenda Laurel [4] argues that a model based in Aristotelian Poetics can explain the deep engagement promoted by digital technologies and the emotional experiences triggered by computer agents [5].

Laurel's book has received much attention in the last years. This is related to the fact that her ideas, although quite futuristic when initially introduced, are very well suited with the advances of input and output devices in Human Computer Interaction: Nowadays we often interact with a computer through devices other than the usual screen, keyboard and mouse. These new modalities including mobile devices, voice-operated assistants etc., make it more evident for us to understand today what Brenda Laurel first tried to show in the early '90s: That digital technologies are better understood and better designed if we adopt a conceptual framework that is based on theater where we frame ourselves as "interactors" in relation to "agents" that could be either humans behind the software we use or fully automated agents based on sophisticated algorithms. These "agents" can take forms that resemble living entities, thanks to the plethora of sensors, actuators and more complex input/output devices, thus blurring the distinction between human, machine and nature, as underlined by The Onlife Initiative [1].

This blurring of the living and the non-living is in a way the result of the human tendency to anthropomorphizing whatever things or entities we interact with especially if we attribute to these things or entities the qualities that are found in theatrical characters: capability to think and pursue goals. From the one hand this could be considered as a threatening situation. From another point of view, it is a way by which we humans can find meaning in our interactions and orient ourselves more effectively in complex situations involving multiple acting agents. The key to distinguish between these two extremes is more or less related to the awareness we humans have when we do such anthropomorphizing, i.e. if it is a mindful or mindless act [6].

The blurring between the virtual and the real [1] is complementary with the above and can be explained within the conceptual framework of dramatic interactions enabled with ICT by employing the key concept of engagement: the capability of ICT to establish frameworks governed by causal relationships that can be explored, understood and exploited in order to make decisions and initiate actions. This should be managed in an effective way giving to the human interactor as much control as possible to decide when, where and how she/he will be engaged with the virtual and when, where and how she/he will detach from it, or more accurately where and how she/he will move from one virtual context to another. Consider for example a situation that one suspends a Skype meeting to use a car to go to another

place and continue the meeting face-to-face. Using a car entails a number of embedded systems such as the ones that control the function of the engine of the car, the flow of fuel, the brakes and the steering of the car. Consequently, the drive to another place is an experience that is in many aspects equally technology-powered as a Skype conference. Consequently, hyper-connected experiences call for a new conceptual interpretation of humans as actors in multiple stages each one with its unique characteristics and affordances.

Laurel is not the first to identify the power of theater as a model for mindful human-computer activity. After a short summary of her ideas, this chapter traces back the influence theater has in social sciences and humanities. A common route is found in the ideas of Nietzsche in one of his first works, namely “The Birth of Tragedy” [7]. There, the German philosopher reconstructs the social and political context that gave birth to ancient drama, especially tragedy, in Ancient Athens and draws important lessons that could be valid for modern societies in terms of pursuing a synthesis between the so called “Dionysian” (the power of emotions and instincts) with the “Apollonian” (the power of reason and logical thinking).

Hyper-connectivity presents an important opportunity to achieve a Dionysian—Apollonian synthesis, like the synthesis achieved, according to Nietzsche [7], in Ancient Athens. A synthesis that is also related to patterns of “dramatic interaction” in public life and especially in political life as described by Mackenzie and Porter [8] who identify what they call Method of Dramatization that links drama to political theory. This method, founded on the philosophical work of Deleuze [9], aims at determining the quality of ideas and concepts by bringing them to life in a way that is similar to the way that characters are brought to life through a playscript. In this respect, the approach presented here addresses some important constraints initially posed by Laurel [4] regarding the applicability of her theatrical approach to application domains of ICT beyond entertainment. The conclusion is that this approach, as enriched and extended following the thought of philosophers like Nietzsche, Deleuze and many scholars from social and human sciences, provides a generic framework equally applicable to all application domains of ICT addressing issues of the new reality codified with the term “hyper-connectivity” in the Onlife Manifesto [1].

2. Theater as a model for computer mediated activities

The book *Computers as Theater* by Laurel [4] was initially published in 1993. It initiated an insightful discussion on an alternative understanding of digital technologies, an understanding that is based on theater as a model for human-human interaction and extending to human-technology interaction. Laurel underlines the fact that when using computers, people are essentially interacting with representational worlds in a way that resembles how characters interact in theatrical plays [4] (p. xvii). Laurel’s ideas were subsequently mainstreamed in computer science after the first publication of her book. The computer science field that was mainly influenced is certainly the field of Human Computer Interaction. Don Norman, cognitive expert and usability engineering pioneer, in the foreword of the second edition of the book, underlines the importance of moving from a traditional interface-oriented conception of computer systems to a theater-oriented conceptual framework:

When I first encountered Brenda’s ideas, I envisioned them being applied to the formal elements of display screens and the early devices used for interaction. This is a very limited viewpoint. It is better to think of these systems and their programmed applications as a platform, the stage upon which the dramas are enacted.

[...] Thinking about interfaces is thinking too small. Designing human-computer experience isn't about building a better desktop. It's about creating imaginary worlds that have a special relationship to reality—worlds in which we can extend, amplify, and enrich our own capacities to think, feel, and act. [4] (p. xii)

This is indeed an important aspect of ICT: the ability to bring into life imaginary worlds. To put it in another perspective, we could argue that the power of ICT is the capability to bring into life what resides in our minds, incarnating our ideas, so that our senses can grasp and interact with these ideas. In this respect, the computer code of any software system could be considered as the “rules” that we provide to a computer system to follow in order to create entities (i.e. symbols on screens, movements of computer controlled devices etc.) that are experienced by humans in a way that helps them construct representational worlds that extend, amplify and enrich their own capacities to think, feel and act (or better, interact) with these entities and through these interactions possibly create very real effects into the actual world.

Laurel makes emphasizes once more the capability of ICT to create representations that extend human agencies when she elaborates on the concept of “interface”:

[...] the computer [is] a machine naturally suited for representing things that you could see, control and play with. Its interesting potential lay not simply in its ability to perform calculations, but in its capacity to co-create and represent actions with human participants.

[...] reconceptualizing what computers do as enabling and representing actions that involve both human and technological participants suggests a design philosophy that diverges significantly from much of the received wisdom about interface design. [4] (p. 2)

This capacity of computers to represent actions is very much related to the structure of theatrical plays:

*“All the world's a stage,” said Jacques in William Shakespeare's *As You Like It*, “and all the men and women merely players.” For us, the computer and its various programs and applications are the stage, providing the platform on which we enact our own scenes and activities. Much as plays are divided into acts, sometimes with intermissions, our computer-based activities are divided into sessions, sometimes separated by short periods and other times by long breaks. [4] (p. xiii)*

The above comment also underlines the need to support engagement (sessions) and detachment (short or long breaks) during an activity and bridge the gaps between different sessions through reminders, prompts etc. This is an important aspect of computers as means to represent action: The capacity to support human interactors with the ability to select when, where and how they will engage with the computer supported actions and disengage if needed.

Another important concept in Laurel's proposed framework is the notion of common ground: It refers to mutual knowledge, beliefs and assumptions between participants in an interaction, human and computer agents: All collective actions are built on common ground and its articulations. Laurel explains:

The concept of common ground not only provides a superior model of the conversational process, but it also supports the idea that an interface is not simply the means whereby a person and a computer represent themselves to one another; rather, it forms a shared context for action in which both are agents. When the old tit-for-tat

paradigm intrudes, the “conversation” is likely to break down, once again relegating person and computer to opposite sides of a “mystic gulf” filled with hidden processes, arbitrary understandings and misunderstandings, and power relationships that are competitive rather than cooperative. Mistakes, unanticipated outcomes, and error messages are typical evidence of such a breakdown in communication, in which the common ground becomes a sea of misunderstanding. [4] (p. 5)

This is indeed an important point from the perspective of the need to support effective coordination between human and computer agents in hyper-connected environments. In other words, the need to design systems with appropriate “common ground” that will promote the collaboration between human and computer agents becomes critical. Such a common ground is related to the “intelligence” accommodated in computer agents from the one side and with the necessary skills and knowledge of human agents regarding the nature and the capabilities of ICT (codified with the terms digital literacy and digital fluency) on the other side. It is important to note that following the advances in AI, machine learning and other domains related to the development of smart computer agents, various initiatives are put forth the recent years addressing the need to educate the young generations in computational thinking and computer programming as a way to understand deeper the ICT and be able to participate in the digital culture in an active way [10].

In order to justify the capability of humans to combine worlds of representations created by computers and the physical world, i.e. human agency of creating mental models, Laurel emphasizes the role of imagination or fantasy and how theater creates imaginary worlds that have real world consequences [4] (pp. 35–38). Fantasy could be considered as the laboratory for virtual experiments related to problem solving. Arts can be described as the concrete representation of things initially emerging in artists’ minds. This aspect of arts to bring mental realities into existence has been identified and used from the dawn of civilization. With the advent of computers, human societies have access to a new kind of “machine”: One that can emulate any known medium, as Alan Kay (1984) observed:

The protean nature of the computer is such that it can act like a machine or like a language to be shaped and exploited. It is a medium that can dynamically simulate the details of any other medium, including media that cannot exist physically. It is not a tool, although it can act like many tools. It is the first metamedium, and as such it has degrees of freedom for representation and expression never before encountered and as yet barely investigated. [11] (p. 59)

3. Human fantasy and the blurring between the virtual and the real creating universal objects

Within the new social context brought about by ICT, fantasy is a core concept to understand how the “blurring between the virtual and the real” is happening. The key observation here, made by Laurel, is related to causality as a way to understand reality and interact with it in a mindful way:

The fact that people seek to understand causality in representational worlds provides the basis for Aristotle’s definition of universality. In the colloquial view, an action is universal if everybody can understand it, regardless of cultural and other differences among individuals. This would seem to limit the set of universal actions to things that everyone on the planet does: eat, sleep, love, etc. Aristotle posits that any action can be “universalized” simply by revealing its cause; that

is, understanding the cause is sufficient for understanding the action, even if it is something alien to one's culture, background, or personal "reality." [4] (p. 94)

It is important to understand that the “blurring of the distinction between reality and virtuality” in the hyper-connected era [1] (p. 7) is related to the transformation of real world objects into universal ones, following the above Aristotelian definition as described by Laurel. A real world object or process that has been enriched with new capabilities for interaction with humans via computer hardware and software integrated into it is more understandable in terms of causal relationships, more predictable in terms of its behaviors, less chaotic in its reactions to human actions. Consider any kind of cyber-physical system such as autonomous automobile systems, medical monitoring systems, robots, or autopilots. All these systems are essentially enhancing real world objects or processes with “computer intelligence” that makes them more human friendly: easier to understand and interact with them. Due to the embedded digital technologies the capabilities of such objects or processes seem more “natural” as they provide affordances that are more intuitive for humans interacting with them. In this respect, the meaning of the word virtual is not to be used as a synonym for artificial as in terms like virtual reality or virtual world. It is rather reframed to denote potentiality as being equally real to actuality, but in a different manner. This is exactly what Deleuze describes in his treatise of Bergsonism [12] (pp. 96–98). This potentiality that is the essence of Deleuze’s virtuality is the key concept that enables the exploration of how human Logos (reason), through causality, is transforming disconnected reality into hyper-connected stages where meaningful action and interaction is possible.

At this point, it is important to add Laurel’s [4] (p. 94) additional comment on how fantasy works, in relation to causality, offering the basis for make-believe environments:

We need only look to works of fantasy to find obvious examples of how universalization via causality works. Actions that are patently impossible in the real world (such as a person flying) can be made believable and understandable in their dramatic context if probability is established. This fact led Aristotle to observe that in dramatic action, an impossible probability is preferable to an improbable possibility. We can believe that Peter Pan flies because of the way the potential of his world is revealed, through the way his character is established in the action, and through dramatic situations that provide him with causes to use his ability to fly. [4] (p. 94)

One can see here that causality is considered far more important than real possibility. In other words, reality is better understood and given meaning if it obeys causal relationships. This is indeed very much facilitated with the use of ICT, if systems are properly designed. Consequently, one can find here an important imperative for the designers of digital technologies: To effectively support the construction of causal mental models that can then be followed in order to enhance the interactions between humans and computer agents.

It is interesting to note here that although Laurel succeeds in capturing the most intrinsic characteristics of digital technologies, the characteristics that explain their success in enabling meaningful interpretations of reality through its “virtualization”, she maintains a rather conservative view on the applicability of her ideas. The engagement that digital systems can offer to their users is considered from an entertainment point of view only:

Engagement, as I use the concept in this book, is similar in many ways to the theatrical notion of the “willing suspension of disbelief,” a concept introduced by

early 19th-century critic and poet Samuel Taylor Coleridge. It is the state of mind that one must attain in order to enjoy a representation of an action. [4] (p. 139)

This phenomenon of “willing suspension of disbelief” can be clearly seen in both drama and computer games where the audience and the players respectively feel for and with the characters in essentially the same way: Someone might cry when watching a film or share other feelings with the characters within a virtual setting. However, as Laurel puts it, “spreadsheets aren’t pretend!” She argues that the activity within a virtual setting should be separated from its artifacts: The representation of a text, spreadsheet, database or any other artifact residing at computers, as it is being manipulated on the screen is in fact pretend, as compared to physical artifacts like printed text or files in computer storage. The artifacts are real much like actors, lighting instruments, and scenery in a theatrical play, but the working rules related to the representations of dramatic actions or interactions are distinct from the artifacts. Consequently, it is important to understand the fact that the notion of representation is the key to understand what one can do, the affordances attributed to the artifacts. Furthermore, their special status as representations affects human emotions about them, enabling experiences that are much more pleasurable than those we regularly feel in real life, as Laurel argues. The distinguishing characteristic of the emotions triggered in a representational context is that there is no threat of pain or harm in the real world, she adds. Finally, Laurel emphasizes the playful attitude of humans when interacting with such representations and warns against the dangers this attitude may have in certain situations:

Further, engagement entails a kind of playfulness: the ability to fool around, to spin out “what if” scenarios. Such “playful” behavior is easy to see in the way that people use photo editing suites and document creation software. The key quality that a system must possess in order to foster this kind of engagement is reversibility; that is, the ability to take something back. In the age of the Internet, taking something back once it is published is nearly impossible. We and our children need to understand that; fooling around is playful, but publishing is forever. [4] (p. 140)

In a footnote, Laurel further analyses this distinction between the uses of computers for entertainment from the uses in other contexts:

This principle suggests that activities like running a nuclear reactor or launching a spacecraft—things with real potential in the real world—should be taken off the table when we talk about dramatic interaction. For example, the control system on a nuclear reactor involves many, many representations of the state and operations of various system components, but in the context of real-world consequence, these representational affordances are much more about human factors and tele-operations than they are about the pleasure of interaction. [4] (p. 140)

From another point of view, however, dramatic interaction (or meaningful performance) is not related to entertainment alone. It is also present in other kind of human activities, much more serious, as in politics and social interactions in workplaces, education, economic transactions etc. In domains where the decisions taken and the actions initiated have very important real consequences that may not be reversible as in entertainment-oriented contexts while, at the same time, exhibit clear dramatic character. In this respect, the work of important scholars from the humanities and social sciences that are linked with the so called performative turn is relevant. This is the topic of the next section.

4. The performative turn in social sciences and humanities

Human behavior can be understood and analyzed by assuming that all human practices are performed so that actions can be seen as a public presentation of self. This is the conceptual basis of the methodological breakthrough titled the performative turn. The term turn signifies the trend to reverse the ontological premises that reality corresponds to particular objects, entities, and configurations that exist in and of themselves exhibiting certain essential qualities towards a new central hypothesis that objects are textures of partially coherent and partially coordinated performances existing through multiple situated practices [13].

This trend entered in cultural studies, social sciences and humanities in late 20th century and has greatly influenced disciplines like ethnology, anthropology, and sociology, bringing an alternative way to look at how members of groups and society at large interact, work, and share knowledge within the context of groups and societies [13]. The major premise is that people create and recreate meaning and knowledge in social settings through performance. And even more: The social reality itself is created through the actions of its members. Thus, the focus is redirected to “the active social construction of reality rather than its representation” [14] (p. 4).

The roots of this approach can be attributed to the need to move beyond the prevailing focus on texts or symbolic representations to capture meaning. Performance is, above all, a meaning making bodily practice. Consequently, it is related to rituals and other forms of spectacles and social practices. Moreover, performance can be related to lifeless mediating objects, such as architectural objects or, in modern days, digital systems that constitute our hyper-connected societies [15].

The performative assumption is that reality becomes in the process of knowing and it implies that the object that is known and the subject that does the knowing are co-produced in and by the same performance. This has paramount significance for the epistemological problem (what is true) and the ontological question (what is): They are both resolved (or remain unresolved) in the same moment [13]. This is a quite important and thought-provoking claim that proved very fruitful in renovating many disciplines and creating a movement towards the performative understanding of various phenomena on the one hand and the adoption of research tools that explicitly focus on the performative aspects of human behavior in order to reveal the performative aspects of life and describe them with rigor on the other hand [16]. Therefore, the idea of a “performative turn” evokes a more historical attitude, which was exhibited by individuals that have deliberately turned away from representationalism to adopt action-oriented and embodied perspectives.

Recently, scientists and scholars from various fields have adopted performance as their research subject or method [16]. It is indeed offering an interesting framework for understanding and describing meaningful action. Beyond the main premises and the theoretical justification of the validity of performativity, one could attribute the significance of this paradigm to an inherent dramatic quality of human experience. This is one of the major claims of this chapter. Furthermore, this scholarly and scientific focus on performance that begun at the dawn of the hyper-connected era, and steadily continues to evolve as the infrastructures of the hyper-connected societies evolve as well, seems to be closely related to the capacity of digital technologies to provide new ground for dramatic interaction (i.e. meaningful bodily and symbolic actions).

One of the seminal books in establishing the performative turn in social sciences is certainly Erwin Goffman’s *The Presentation of Self in Everyday Life* [17]. In that book, Goffman adopts theater as a model to frame face-to-face interactions based on the assumption that when an individual interacts with other people, both at

informal and formal settings within the context of social institutions, the individual tries to control the impressions of the other people, thus building a self-identity. In parallel, the other people that interact with the individual are seeking to form and obtain the identity of the individual. This framework ultimately promotes a dramaturgical analysis as a basis for microsociology employing terms such as front region vs. back region (like stage and backstage in theater) to distinguish between the playing of the individual's role in front of the audience and the preparation of the individual respectively.

When it comes to the domain of politics Mackenzie and Porter remind us that:

The idea that drama can serve as a medium for the expression of political ideas and debates is virtually co-extensive with the history of drama itself: from the early Greek plays to the recent theatrical reenactments of politically charged public inquiries. Equally, the idea that political theory often contains dramatic elements and references within it is hardly contentious. For example, it has been said that Plato's Republic owes a 'debt to Aristophanic comedy' [...] In a general sense, moreover, we are familiar with the political theorist as a kind of director, staging a situation for the reader that presents a dramatic version of the problem being addressed. [8] (p. 483)

In modern times, we find again this double relation between politics and theater: Not only does theater play an active role in society as an important means to influence the political understanding of citizens and their political actions, but also philosophy in general and political philosophy in particular have adopted dramatization as a method of presenting their concepts and claims. One contemporary political thinker who explicitly used dramatization as a method to bring political ideas into life and put them in action is Gilles Deleuze [9]. He adopts theater as a model for his theory of singular events claiming that theater, as any performance-based art, is based on activity that is happening in front of us in contrast with an approach that is based on symbolic representations or texts. His conception of theater is completely free of any representationalism. Drama is ultimately used as a model to frame purposeful action to interact with the world and bring real changes to the world.

In an attempt to summarize the recent discourse about performativity, three intertwined aspects could be highlighted: (a) reality is understood as incessant creation or practice; (b) matter itself is understood as entangled intrarelation; and (c) individuals do not preexist their interactions in any essentialist, objectivistic sense. As Cabitza and Simone argue:

The concept of performativity therefore invites us to abandon the Kantian notion of "thing per se" (at least in system design) to recognize the relational and manifold nature of any perceived phenomenon, irrespective of its seeming solidity, as well as the co-constitutive entanglement of the social and the technological (i.e., material) and "the performance of the emergent sociomaterial assemblage". [13] (p. 222)

Consequently:

[...] researchers adopting a performative turn put first in their research agenda the study of the contingencies of time, space, technology, materiality, or discourse, [...] all things that the more classical "representational" model of thinking [...] i.e., the one assuming a detached observer that studies real objects and their essential properties in an objective world (or that designs and puts new objects into the world), escapes either consciously or unaware with profound consequences also on the conception of the role of technology in society and of its "designers". [13] (p. 224)

By attributing to our daily lives a performative quality, the close relationship between drama as an art and drama as a social process is evident. The next section explores this relationship.

5. Social drama and stage drama

William Beeman offers a very interesting comparison and in-depth analysis of the relation between theater and other performative genres:

Revolutions, public demonstrations, campaigns, strikes, and other forms of participatory public action all have performative dimensions. Moreover, they share certain features with the fundamental ritual processes [...] Such “social dramas” involve a break with “normal” structures of ongoing life, the entrance of groups of individuals into liminal transitory states, and the reincorporation of the liminalized individuals into a re-constituted social order. The efficacy/entertainment distinction is a way of separating ritual from theatre, but other performance genres also fall under the general functional rubric of entertainment. [18] (p. 379)

Furthermore, Beeman [18] identifies three descriptive dimensions that can illuminate the relation between theater and other performance genres such as public speaking (e.g. lectures, sermons), exhibitions, demonstrations etc.: (a) efficacy vs. entertainment in intent, (b) participation vs. observation in the audience's role, and (c) symbolic representation vs. literal self-presentation in the performer's role.

Based on the above distinction, Beeman goes on to analyze the interrelationship of stage drama, as a generalization of theater, and social drama, as an inclusive term to describe all performative genres that aim at changing actual reality, employing a scheme initially proposed by cultural anthropologist Victor Turner [19]. This scheme is depicted below (**Figure 1**).

The two rectangles above the horizontal line represent what is actual, visible and public while the two rectangles below the horizontal line what is hidden and virtual, i.e. implicit and internal. The left rectangles represents social drama, i.e. all performative genres related to social life. The right rectangles represents any genre of cultural performance, any kind of aesthetic or stage drama. The interesting point is how these parts communicate (following the arrows between rectangles) thus creating a process with four distinct feedback directions:

1. Manifest social drama (i.e. visible social and political action) feeds into the hidden space of esthetic drama influencing both form and content of the latter.
2. The latent space of stage drama feeds into manifest performance. This way, stage drama operates as an active or “magic” mirror meant to do more than entertain being a metacommentary on the major social dramas within the wider sociocultural context such as wars, revolutions, scandals, institutional changes etc.
3. Stage performance, within its own turn, feeds into the latent realm of social drama with its message and its rhetoric and partly account for its ritualization.
4. Finally, life itself stands as a mirror of art, of the stage drama, and the living perform their lives in a way that the protagonists of life are equipped with salient opinions, imageries and ideological perspectives created in stage drama.

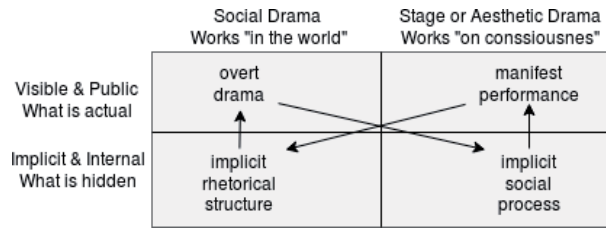


Figure 1.
 The interrelationship between social drama and esthetic (or stage) drama. The concepts depicted are based on Schechner [20] following the ideas of Turner [19].

The above feedback loop continues not as cycle but rather as a helix: At each exchange new elements are added and other elements are left behind (forgotten or discarded). Turner underlines that:

Human beings learn through experience, though all too often they repress painful experience, and perhaps the deepest experience is through drama; not through social drama, or stage drama (or its equivalent) alone, but in the circulatory or oscillatory process of their mutual and incessant modification.

[...] the interrelation of social drama to stage drama is not in an endless, cyclical, repetitive pattern; it is a spiraling one. The spiraling process is responsive to inventions and the changes in the mode of production in the given society. Individuals can make an enormous impact on the sensibility and understanding of members of society. Philosophers feed their work into the spiraling process; poets feed poems into it; politicians feed their acts into it; and so on. Thus the result is not an endless cyclical repetitive pattern or a stable cosmology. The cosmology has always been destabilized, and society has always had to make efforts, through both social dramas and esthetic dramas, to restabilize and actually produce cosmos. [19] (p. 17–18)

Following the social-stage drama interrelationship, some interesting conclusions can be drawn on how hyper-connected activity can be framed as a unified space where stage and social drama, the real and the virtual, promote the emergence of a new synthesis between the chaos of raw reality (Dionysian) with human Logos (Apollonian) in a way similar to the vision presented by Nietzsche [7] drawing inspiration from a certain conception of Ancient Tragedy.

6. Conclusion: the rebirth of tragedy?

Tracing back the appeal of theater in Western thought as a framework to understand reality in its deepest interaction with human psyche, we reach one of Friedrich Nietzsche's first works: *The Birth of Tragedy* [7]. In this book Nietzsche aims to pave a new way for meaningful life by proposing a synthesis to the dichotomy between the Dionysian and the Apollonian spirit inspired by the Ancient Greek tragedy. In Nietzsche's view, the way to achieve a new synthesis in his times was through music.

In his effort to trace the origins of tragedy, Nietzsche makes important arguments that are, in some sense, prophetic in the way that digital technologies give rise again to the dramatic notion of life especially with respect to the relation of the spectator to the spectacle not as an esthetic relation but as an experiential one. In a comment about the origins of tragedy in general and the chorus in particular, Nietzsche [7] brings in front the argument of Schickel, who considers the chorus as the "ideal spectator". Nietzsche contrasts this view with the usual belief that a real spectator is

expected to “remain conscious of having before him a work of art, and not an empiric reality” (p. 57). And he continues with the following important remarks:

[...] whereas the tragic chorus of the Greeks is compelled to recognise real beings in the figures of the stage. [...] We had believed in an aesthetic public, and considered the individual spectator the better qualified the more he was capable of viewing a work of art as art, that is, aesthetically; but now the Schlegelian expression has intimated to us, that the perfect ideal spectator does not at all suffer the world of the scenes to act aesthetically on him, but corporeo-empirically. Oh, these Greeks! we have sighed; they will upset our aesthetics! [7] (p. 57)

This insight of Nietzsche to consider the chorus as the impersonation of the spectator that confronts the characters on stage as real is indeed very close to the experiences promoted with virtual reality and augmented reality systems. The immersion induced in these experiences and the phenomenon of flow [21] signifies the entering of the interactor into the stage. The ideal spectator approaches the action on stage not aesthetically but empirically.

Nietzsche’s approach recalls Schiller in the celebrated Preface to his *Bride of Messina*:

[...] where he regarded the chorus as a living wall which tragedy draws round herself to guard her from contact with the world of reality, and to preserve her ideal domain and poetical freedom. [...] It is on this foundation that tragedy grew up, and so it could of course dispense from the very first with a painful portrayal of reality. Yet it is not an arbitrary world placed by fancy betwixt heaven and earth; rather is it a world possessing the same reality and trustworthiness that Olympus with its dwellers possessed for the believing Hellene. [7] (pp. 58–59)

A few pages later, Nietzsche concludes:

[...] the public of the Attic tragedy rediscovered itself in the chorus of the orchestra, that there was in reality no antithesis of public and chorus: for all was but one great sublime chorus of dancing and singing satyrs, or of such as allowed themselves to be represented by the satyrs. The Schlegelian observation must here reveal itself to us in a deeper sense. The chorus is the “ideal spectator” insofar as it is the only beholder of the visionary world of the scene. A public of spectators, as known to us, was unknown to the Greeks. In their theatres the terraced structure of the spectators’ space rising in concentric arcs enabled everyone, in the strictest sense, to overlook the entire world of culture around him, and in surfeited contemplation to imagine himself a chorist. [7] (p. 65)

This is indeed an important note: The physical organization of the ancient theater brings the spectator into the stage as part of the chorus, inside the representational worlds created by the theatrical plays. However, in order to achieve this harmonious resonance between the chorus on stage and the spectators, the people of the democratic Polis, a mediator is necessary: The author of the dramatic play that is living the reality that subsequently is made visible through the theatrical play. Nietzsche notes on the qualities of this mediator:

[...] at bottom the aesthetic phenomenon is simple: let a man but have the faculty of perpetually seeing a lively play and of constantly living surrounded by hosts of spirits, then he is a poet: let him but feel the impulse to transform himself and to talk from out the bodies and souls of others, then he is a dramatist.

The Dionysian excitement is able to impart to a whole mass of men this artistic faculty of seeing themselves surrounded by such a host of spirits, with whom they know themselves to be inwardly one. This function of the tragic chorus is the proto-phenomenon: to see one's self transformed before one's self, and then to act as if one had really entered into another body, into another character. This function stands at the beginning of the development of the drama. [7] (p. 67)

This is indeed the ideal of virtual reality within hyper-connected activities: To provide the means to surpass the “raw reality”. The dramatist can do this without the use of additional facilities. Theater, then, is in its essence a means for creating virtual realities. And there are two options here: Either the virtual reality corresponds to actual experiences that are difficult or impossible to be reproduced in another way (e.g. historical experience that cannot be reproduced due to different technology, conceptual frameworks etc.) or it is an imagined experience. In this last case, the theater does not mimic a reference reality but creates a new reality for the first time, a reality that corresponds to the imaginative creativity of the creator.

Nietzsche compares drama with the art of rhapsodist:

Here we have something different from the rhapsodist, who does not blend with his pictures, but only sees them, like the painter, with contemplative eye outside of him; here we actually have a surrender of the individual by his entering into another nature. Moreover this phenomenon appears in the form of an epidemic: a whole throng feels itself metamorphosed in this wise. [7] (p. 67)

In this final comment Nietzsche distinguishes drama from other art forms that assume a kind of external description of the reference reality. In drama, the reference reality is experienced from the inside in a way that spreads over all participants. This magical transformation resembles what happens inside the magic circle [22] in games where objects, behaviors and actions take unique meaning within fantasy worlds when someone goes beyond this conceptual membrane: a shield of sorts, protecting the fantasy world from the outside world.

In the ancient (and modern) theater, the spectator is invited to transform himself during the play in order to transform the world. Within the realm of hyper-connectivity the interactor is invited to take part actively in the transformation of her/his own existence and the world in parallel! The magic transformation is the basis of the dramatic art and ICT can be considered as a global form of dramatic art that breaks the barriers of the theatrical stage and brings the theatrical interaction anywhere anytime.

Laurel [4] (pp. 44–46) provides a short summary of the function of theater in ancient Athens and reminds us of the fact that the stories enacted in Ancient Tragedies were already known to the audience. The interesting thing about those performances, always given in public feasts with massive participation of the Athenian people, was that they provided the means for public discourse taking into account the current situation within the Polis. Within this context, the chorus played a very important role:

The Chorus in the Greek Theatre was like a mass character representing what might be cast as the citizens' responses through dance and song.

[...] Greek drama was the way that Greek culture publicly thought and felt about the most important issues of humanity, including ethics, morality, government, and religion. To call drama merely “entertainment” in this context is to miss most of the picture. [4] (p. 46)

It is indeed important to note once more as concluding remark that tragedy (and comedy) was born in Ancient Athens within the context of a historical development that employed drama as a means for collective reflection and discourse in the Polis. Theater provided the means (stories, characters, social gatherings) to experience, not just discuss, the public issues and, this way, educate the democratic citizens, the members of the General Assembly (Ecclesia of Demos) that was the ultimate decision making body, in order to act as responsible decision makers.

It is interesting to note that Turkle attributes a rather similar function to computers, which she describes as “an evocative object, an object that fascinates disturbs equanimity, and precipitates thought.” [23] (p. 19).

Turkle and Papert directly link computers with philosophy from a performative point of view i.e. from a perspective that addresses philosophical issues not as mere texts presenting abstract ideas but as concrete things in action, as agents interacting with other agents:

The computer stands betwixt and between the world of formal systems and physical things; it has the ability to make the abstract concrete. In the simplest case, an object moving on a computer screen might be defined by the most formal of rules and so be like a construct in pure mathematics; but at the same time it is visible, almost tangible, and allows a sense of direct manipulation that only the encultured mathematician can feel in traditional formal systems [...] The computer has a theoretical vocation: to bring the philosophical down to earth. [24] (p. 162)

Within this broader perspective, one could argue that digital technologies update theater (and representational arts in general) in their “ancient” form giving new birth to the dramatic view of social life, transforming social spaces into stages and social life to social drama in a unified hyper-connected space where stage drama and social drama are fused together as onlife drama. In such a setting we humans, as logical/social beings, are living inside two realities: The virtual reality of our concepts, our language, or ideas etc. and the actual realities of our bodies, the material requirements of our existence. Culture is the embodiment of virtual realities into actual realities (e.g. architecture, food culture, clothing, science, language etc.) specifying the way, the mode of living in order to bring our virtual realities into existence. The problem of identity and the continuous “creation” of reality within the performative approaches of social sciences and humanities reflect exactly these facts. With hyper-connectivity a new culture is emerging, or better a meta-culture in the same way that a computer is not a medium but a meta-medium that emulates all other media [11]. This new culture can be better understood and engineered if we go beyond conceptions focusing on representations and the dichotomy between the virtual and the real. The challenge is to raise our awareness of the dramatic character of the hyper-connected era that promotes performative interpretations within contexts that enrich reality with universal entities that follow causal rules thus promoting mindful actions and interactions.

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Author details

Nektarios Moutzaris^{1,2*}, Desislava Paneva-Marinova¹ and Lilia Pavlova³


1 Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, Bulgaria

2 Laboratory of Distributed Multimedia Information Systems and Applications, School of Electrical and Computer Engineering, Technical University of Crete, Crete, Greece

3 Laboratory of Telematics, Bulgarian Academy of Sciences, Sofia, Bulgaria

*Address all correspondence to: nektar@ced.tuc.gr

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Toddlers and Movies: A Fresh Approach

Cary Bazalgette

Abstract

For more than a century, parents have been warned about the supposed dangers of letting children under 3 watch moving-image media. But the evidence on which these warnings are based remains remarkably limited. Crucial failings today include the rarity of ethnographic studies in the home, a prioritisation of research on “digital technologies” and an almost total neglect of toddlers’ early cultural experiences with media other than print. This chapter starts from the proposition that research on children and media needs to move away from a preoccupation with risk and to place more emphasis on the crucial but much-neglected 0–3 period, in which, as well as learning to talk, infants and toddlers start learning to understand several significant and unique cultural forms, of which moving-image media (referred to here as “movies”) are probably the most prominent for many. Debates about whether we do all have to learn how to understand movies, and the problems of studying toddlers, are discussed. Based on the author’s own research and drawing on embodied cognition theories as a rich source of insights into toddler behaviour, three examples of toddler viewing behaviour are described (focused attention, emotional responses and self-directed viewing) and interpreted as potential evidence of learning in progress. The chapter concludes with a discussion of the challenges that must be confronted by those who wish to explore toddlers’ “movie-learning” further.

Keywords: early years, moving-image media, embodied cognition, ethnography, semiotics, cognition

1. Introduction

To argue for the distinctiveness of moving-image media as a cultural form, with its own codes and conventions for the creation of meaning, is to confront the folk-wisdom that moving images simply provide a “window on the world” that anyone can understand. However, the relationship between these two perspectives is a paradoxical one. Between 1895 and 1929, the film industry extended the initial appeal of very early films by evolving what many film scholars and teachers call “film language” and Noël Burch calls the Institutional Mode of Representation: a highly complex system using the many new technologies that emerged in the 1885–1929 period, such as moveable cameras, editing equipment, colour systems and sound recording [1]. Despite the complexity of this language, it was developed precisely to enhance the new medium’s appeal to mass audiences by intensifying the illusion of reality that it presented, while continuing to ensure that reading this “language” was a skill that could be learned at a very early age – so early, in fact, that most of us

do not remember learning it. Hence the general assumption – or folk wisdom – that nobody has to learn how to understand moving-image media.

In this chapter, for brevity's sake, I will refer to moving-image media as “movies” – by which I mean all the moving-image forms which use similar codes and conventions, including, for example, computer games, YouTube videos and advertisements, as well as cinema films and TV broadcasts. I begin by describing the folk wisdom's contribution to an ideology that underpins theories and even policies concerning child management as well as informing the status of movies within hierarchies of cultural value. This frames the central argument of the chapter: that by recognising the distinctiveness and complexity of movie language, we can study and interpret children's movie-viewing behaviour as a learning process, rather than as evidence of passivity or mesmerisation.

Scholars who wish to engage with this argument face considerable ethical and methodological challenges, when it becomes obvious that for most children in industrialised countries this learning must start in their second year of life and be sufficiently complete by the age of around 3 when they start being able to follow and enjoy some mainstream feature-length movies with other family members, and to play increasingly complex games on smartphones or tablets. This chapter discusses the challenges that have led to this age-group (which I will refer to as “toddlers”) being significantly under-researched, and it proposes potential solutions to the challenges of trying to understand their early learning about movies. For illustration, I draw on my research experience of studying toddlers within my own family, and on using embodied cognition perspectives in the analysis of video data.

2. Children and movies: folk wisdom and its pitfalls

In the UK in 1917, an independent inquiry on children and the cinema, commissioned by the National Council for Public Morals with the backing of cinema exhibitors, concluded that “the cinema, under wise guidance, may be made a powerful influence for good; if neglected, if its abuse is unchecked, its potentialities for evil are manifold.” ([2], p. xxi). This judgement encapsulates what could be called the “risks or benefits paradigm” which dominated research and policy in relation to children and movies until the second decade of the 21st century. In all cases, the potential benefits are dependent on substantial safeguards, e.g. “wise guidance”, and are not exemplified further than the *possibility* of “influence”, whereas the risks look quite threatening: for example it's implied that “abuse” is inevitable. But equally telling is the way movies are referred to: they are not considered as a diverse, complex and evolving cultural form, open to critical analysis, but as a kind of undifferentiated, ever-present phenomenon. This perspective has endured: the idea that television is pretty much all the same and that children are “exposed” to it, rather than watching it (so, a bit like rain) has meant that some researchers have had no qualms about trying to test children's responses to television by getting them to watch commissioned bits of crudely constructed video, rather than actual TV programmes, and had little if anything to say about the stylistic or generic features of TV itself (e.g. [3–8]).

The need for “wise guidance” and the danger of “manifold potentialities for evil” remained the dominant, if less luridly described concerns in research on children's relationships with movies for the rest of the 20th century. Advice to parents based on this research nevertheless had to recognise that most parents were

unlikely to take much notice of detailed guidance for managing their children's movie-watching, given their need for time to cook meals or take showers without having their toddlers underfoot. A compromise was found in the widely-accepted "two-hour rule" – the maximum daily amount of television-viewing that any child of two or older should be allowed (under-tuos should not watch at all) – which the American Academy of Paediatrics recommended in 1999 [9] and which has been widely quoted. Today, many parents still nervously try to adhere to it without knowing where it comes from or what the ill-effects of movie-watching are supposed to be. And toddlers can be observed every day in shops, restaurants and public transport, sitting in their buggies or highchairs and happily poring over games, apps or YouTube on their parents' smartphones or on iPads. In February 2021, Google's 16.5 million results for a search on "lists of movies for toddlers" was headed by Good Housekeeping's "The 15+ Best Toddler Movies for When You Need a Short Break", whose introductory text, after a brief nod to the AAP's "two-hour rule", sympathetically supports movies' "child-minder" role, carefully emphasising what we are all supposed to believe: that parents will only want to leave their kids watching movies for a "little bit of time" [10] – although most of the recommended movies are at least 90 minutes long!

The folly of attempting to impose a simple time-based "rule" on a complex cultural activity is finally beginning to be acknowledged: for example, in their study of parental anxieties about "screen time", Blum-Ross and Livingstone argue that "for parents caught between fears of media harms and hopes for a digital future, a more nuanced consideration of the nature and purpose of screen media in different contexts is now urgent." ([11], p. 185). Although they do not go into detail about what "nuanced" and "different contexts" might mean, this is an important challenge to researchers and one that I address in this chapter.

3. What toddlers have to learn when they learn to watch movies

In the preface to the second edition of his book *How To Read A Film*, James Monaco asks "Is it necessary, really, to learn how to read a film?" ([12], p. 17). He immediately answers the question: "Obviously, anyone of minimal intelligence over the age of four can – more or less – grasp the basic content of a film, record, radio or television program without any special training." Monaco was a film critic, not a child development specialist: he could be forgiven his easy equation between learning and training, and for forgetting that we all also learn the much more complex systems of verbal language without any special instruction. However, in his 1992 book *Narrative Comprehension and Film*, Edward Branigan re-poses Monaco's question seriously and in more detail, although only in a footnote:

It seems remarkable that no one has undertaken to discover what special problems of narrative comprehension may be posed to a child by filmed narratives. For example, when and how do children understand an eyeline match, screen direction, cross-cutting, an unusual angle, off-screen space, or non-diegetic sound? ([13], p. 225)

Anyone who has taught Film Studies to beginners, even in higher education, will be aware that most adults, let alone children, cannot define any of the six devices that Branigan names, but given that we know (if only on the basis of the Good Housekeeping list referred to above) that by the age of about 3 most children can follow and enjoy at least some full-length mainstream feature films, then it has to be recognised that they can probably "read" these devices before they can speak

fluently. Monaco's dismissive remarks suggest that it's not worth investigating anything that must be so easy to learn that toddlers can do it – although this has not deterred scholars from a huge range of significant research into language acquisition, which happens at the same age. Of course, language acquisition produces evidence in the form of utterances. Evidence of the ability to understand movie language is much harder to pin down.

Paul Messaris argues that many filmic devices, including for example eyeline matches, jump cuts and point of view shots, actually mimic people's everyday perceptions and instinctive behaviour [14], many of which are established in very early childhood. Jerome Bruner describes how, even at nine months old, a child "looks out along the trajectory of an adult's 'point' and, finding nothing there, turns back to check not only the adult's direction of point but the line of visual regard as well" [15, p. 75]: this reflects the mechanisms of the point of view shot (the shot that follows a character assuming a meaningful expression, e.g. delight, terror, etc., as s/he looks at something out of the frame, raising audience expectations that the following shot will show us what s/he is looking at). Similarly, a cut to close-up mimics our behaviour when we suddenly see something we have been looking for (a mislaid bunch of keys, for example) or when we focus in shock on something unexpected (a spider in the bathtub, for example): our attention is tightly focused on the object in question, not on the surroundings. These are just two examples of the ways in which the development of the Institutional Mode of Representation involved moviemakers in creating devices which can seem complex to explain but have what is effectively a metaphoric relationship to human instincts and are therefore easy to learn, as Messaris and Bruner imply.

4. The problems of studying toddlers

There is a noticeable gap in the Early Years research literature between studies of infants (i.e. children up to about 18 months old) and pre-schoolers (i.e. children of 3 years and older). Research on this age-group's media-related behaviour is even rarer. As Plowman and Stevenson point out, such studies inevitably involve "practical and logistical considerations including gaining access, involving children as active research participants and negotiating consents" ([16], p. 330), whereas research samples of infants can be reached through clinics and those of children of 3 and up can be reached through nurseries.

The UK's media regulatory body, Ofcom, part of whose remit is to promote and research media literacy, has an excellent, continuing research programme that monitors adults' and children's media use and attitudes and the changing roles of media in people's lives. But it focuses mainly on children aged 5–15, with a smaller programme that gathers data on 3- and 4-year-olds: typically, they have nothing on the crucial 18–24-month period of life. Where toddlers' movie-related behaviour has been studied, scholars have tended to favour experimental methods, (e.g. [5, 17–20]) and large-scale studies have depended on parental surveys (e.g. [21–23]). Experiments and surveys cannot address what Lemish and Rice, in their 6–8-month study of 16 children aged between 6.5 and 29.5 months, call the "the richness of the interactions surrounding the television experience" ([24], p. 261) or what many parents – at least in Anglophone cultures – describe as typical "terrible twos" behaviour: incessantly adventurous, exploratory and self-willed. A more informed Early Years approach recognises that what is most difficult about studying toddlers is also the essential feature of their behaviour: continuous, often playful, self-driven learning.

Because of these challenges, many scholars have pointed out that longitudinal, ethnographically-styled and if possible home-based research models are the only way we can gain a fuller understanding of toddlers' learning behaviours, given that these typically take place in the home environment [25–31]. Family members are well-positioned to undertake this successfully. Scholars who have studied their own children's development, such as Piaget, Britton, Halliday, Weir and Edmiston, have been deservedly influential in the fields of education, Early Years, language and literacy [32–36]. While access, consent and ethical issues in these contexts are different from those in conventional ethnographies, there is a strong case to be made for the value of parental studies when the focus is on toddlers: children who are mobile, learning to talk, but whose language, and much of their behaviour, are idiosyncratic and hard for anyone outside the family to interpret. But as academic gatekeepers tend to be wary of studies that are based on “small samples” and are dubious about the ethical validity of scholars studying members of their own families, it is understandable that such studies are uncommon. This chapter draws on my own doctoral research study of my twin grandchildren's movie-viewing between the ages of 22 and 42 months, in which I used video (taken unobtrusively on a smartphone) to capture aspects of their behaviour [37].

5. The relevance of embodied cognition to the study of toddlers

Levels of language development are of course the central issue in trying to study toddlers, if we are trying to gather evidence about their responses and thoughts in relation to movies. But even when toddlers can speak fairly fluently, their ideas and thought processes can still be hard to follow, even if we know them well. What we can also do however is observe their whole-body responses: posture, gesture, facial expressions, eye direction and movement. Although these are mainly instinctive, and can be fleeting, the developing field of embodied cognition theory has much to offer here.

In the Cartesian tradition which dominates popular beliefs about the separation of mind and body, and distinguishes between rational thought and instinctive behaviour, it is seen as important to control our emotions and beware of acting instinctively. Referring to instincts as “primitive” sounds derogatory, but as the neuroscientist Jaak Panksepp explains, the neural structures that govern important instinctive behaviour such as avoiding predators and spotting something edible were present in very early life-forms and many are shared today by all mammals [38]. So metaphoric devices in movies such as the point-of-view shot and the cut to close-up mimic skills that were obviously vital for survival in dangerous environments millions of years ago, and the fact that we all retain them today shows that we still need them. Using an evolutionary perspective to study toddlers' instinctive behaviour can therefore be illuminating: what may often be interpreted as idiosyncratic or inexplicable actions can turn out to be potentially meaningful after all.

Although we differ genetically from chimpanzees by only 1.06% or less of our DNA [39], human babies take much longer than chimpanzee babies to become mobile and dextrous and to be able to eat food other than their mothers' milk. But our big brains and hence our capacity for storing and analysing information, as well as the complex cultures we are all born into mean that, despite being physically almost helpless, human infants must begin social learning from the moment they are born. They communicate emotionally in enjoyable, intersubjective exchanges with their carers: “From birth, a child's learning depends upon sharing his or her impulsive acting and thinking with other familiar persons, who themselves are experimenters, discoverers, and communicators, eager to share what they think and

do” [40]. This forms the foundation for their later learning, as they become mobile and begin to be fluent in verbal language at around 12–18 months old. And if they have access to books, pictures, games and movies, this is when their interest in the meaning-potential of these media starts to grow exponentially. Thus, the second and third years of life are a phenomenally important period in which a great deal of our emotional, social and cultural learning starts to be established. In these three areas, we have to be cautious about the extent to which we can ever hope to gather hard evidence about what has been learned. What we can do however is establish that a child is learning and is investing an extraordinary amount of energy in the process. This should have a significant effect on the judgements we make about the value of toddlers’ movie-watching.

6. Evidence of learning (1): focused attention

Panksepp describes four emotions that he says are likely to have arisen from basic environmental challenges: fear, panic, rage and seeking, each of which triggers immediate, instinctive actions. They remain deeply embedded in the ancient circuits of our brains because they have continued to be of survival value over millions of years, as humans evolved from earlier mammalian species. The only one of these four emotions whose meaning may not be immediately obvious is “seeking”. Panksepp uses this term to describe feelings of engagement and excitement: feelings that generate curiosity, anticipation and investigation. So not only would seeking get early humans (and their evolutionary predecessors) doing things like foraging and finding shelter, but it has always also been essential to logical thought and reflection: it “helps cement the perception of causal connections in the world and thereby creates ideas” ([38], pp. 144–149). In other words, it has been perhaps the most important emotion for us because it has driven human ingenuity and development (for both good and ill). So if we bear this in mind when we see a two-year-old intently gazing at a screen, rather than simply dismissing her behaviour as “mesmerised” or “zombie-like”, it makes better sense to interpret it instead as seeking: as an intense process of trying to make sense of what she is watching.

But “seeking” on its own does not tell us enough about what the attentive child is really after. Here Lesley Lancaster’s remarkable study of a two-year-old engaged, with her father, in making drawings and marks, may be helpful. Lancaster observes “physical and bodily actions [as] visible indicators of the course of abstract reasoning used whilst engaging with the difficult business of finding out about how a system of symbolic representation works” ([41], p. 132). She describes all of the child’s efforts to understand what her father is doing and to make her own meaningful marks on the page, as “characterized by an expectation of significance about the semiotic objects encountered. Children are introduced to them, one way or another, as having a social or affective purpose: the cartoon makes you laugh; the soft toy comforts; writing can entertain and inform” (p. 136). I find the phrase “expectation of significance” highly illuminating in the context of trying to understand what two-year-olds are up to when they clearly seem to be “seeking”.

The situation Lancaster describes and the viewing contexts that many toddlers experience is a social one. With toddlers’ acute awareness of what others are doing and what their emotional states are, most of them are familiar with occasions when other family members are not only intently watching a film, video or TV programme on a shared screen, but are also exhibiting emotional responses such as laughter, suspense, shock, disgust or surprise, and exchanging comments about what they are watching (readers who only ever watch movies in respectful silence can find exaggerated versions of this behaviour in the British TV show *Gogglebox*:

<https://www.channel4.com/programmes/gogglebox/>). At minimum then, toddlers who have experienced this will have expectations of significance when they watch any movie. Just as toddlers who are read to will quickly adapt to the conventions of reading, such as sitting still, waiting for page-turns, examining the pictures, etc., they will also quickly become eager to discover and share what is pleasurable and interesting about watching movies.

For a toddler, this is also hard physical work. If he wants to maintain an absolutely steady gaze at something that is not actually in his hands (a big flat-screen television for example) he may well have to brace himself against a nearby object such as a piece of furniture. Studies of human movement and balance point out that a toddler's centre of gravity is higher than that of older children and adults [42] and that in any case, most people can never maintain total stillness for very long [43]. So toddlers have to find ways of supporting themselves if they want to maintain steady visual contact, especially with a large area of moving images. Thus, bracing is often just an essential response for keeping the body stable. From other observations, I noted that if there is not a handy support, the child may stiffen his body and perhaps hunch his shoulders in the effort to maintain a steady position and may even have to pause now and then for a couple of seconds' relaxation before resuming the rigid pose. An adult with an attentive toddler on their lap will be able to feel the child's bodily tension and perhaps his grip on their limb or clothing as he maintains his gaze. If the child is also apprehensive about what he is looking at, the grip is likely to be tighter. Of course, if a child is sitting down watching a movie on a tablet or smartphone, keeping still is not such a problem, although the images are less overwhelming and satisfying.

It is also interesting to observe what a toddler does with her hands, if they are not already in use as part of the "braced" posture. It is likely that wherever the hands were before her attention was focused, they will remain in that position – so continuing to grip a bottle, cup or toy for example, or perhaps simply remaining placed on a nearby piece of furniture. There are parallels here with the way in which a predator such as a cat will instinctively "freeze" when it spots a movement that could be potential prey: if the cat is walking when this happens, one paw may remain raised so that no movement takes place that might alert the prey. A toddler suddenly enthralled by something in a movie will "freeze" in the same way.

The other obvious physical features of focused attention are facial expressions. These can be extremely fleeting, and in the case of toddlers with their relatively plump faces, it can be difficult to spot some expressions such as a frown. The major facial characteristic of more relaxed but still focused attentiveness in toddlers is commonly an open mouth, often accompanied by the typical toddler runny nose. Watching attentively for several minutes with one's mouth open leads to dry lips, so lip-licking will happen regularly, and perhaps also some hasty nose-wipes with a handy sleeve. If a child is watching something attentively while drinking from a bottle or feeder cup, she may have to hold it to one side in order to maintain a gaze on the screen. Highly focused attention – in watching something suspenseful, for example – may be accompanied by deeper breathing – indicated by chest movements. Spotting the tiny rim of tears around a child's eyelids when she is moved by something sad in a movie, is difficult in a live situation but can be spotted in video analysis.

It is when one realises how much energy has to be committed to maintaining this level of attention for any length of time, that it becomes apparent how completely inappropriate terms such as "passive" and "mesmerised" are as characterisations of children's focused attention on a movie. For an adult, standing rigidly still, holding tightly to a piece of furniture, frowning, breathing deeply and gazing open-mouthed and fixedly at something for a few minutes will convey some idea of how

much physical energy a toddler can invest in maintaining focused attention. For a toddler, any learning is a very serious business, and the world is full of new things to discover and understand. Additionally, my earlier parallel with a cat's hunting pose indicates that this kind of attentiveness has deep evolutionary roots. The early humans who survived their dangerous environments no doubt did so because they were as good as their non-human ancestors at concentrating very hard, quickly identifying and assessing potential threats or opportunities, and reacting appropriately. They must also have been good at working out solutions to practical problems or intellectual challenges and enjoying the satisfaction of having done so. While it is very often difficult to identify exactly what has caught a toddler's attention in a movie, it has to be recognised that toddlers must have a strong motivation to invest so much energy.

7. Evidence of learning (2): emotional responses

Young children can easily be frightened by unexpected things that they do not understand, and this can include things that to a more experienced viewer are completely innocuous. A Google search for "my toddler is scared of TV" on 5th August 2021 yielded "about 8,240,000 results", including numerous instructions to parents about the dangers of watching TV. Discussions on parents' social media sometimes address similar issues, but are more likely to include reassuring advice such as "don't worry, it'll pass". My own interest in studying toddlers' movie-watching behaviour was sparked off by an event in which my 13-month-old twin grandchildren were suddenly terrified by what is clearly meant to be a light-hearted part of an episode of the BBC TV series *In the Night Garden*, in which a puppet character's big black moustache suddenly detaches itself from his face and flies around like a moth. What interested me was that they had seen this episode several times already. So although their ability to follow and interpret the episode must have been growing as they re-viewed it, their generic knowledge had not yet developed enough to be always capable of recognising humorous intent. In fact they did not spontaneously laugh at a visual gag in a movie (the "Water" episode of *Teletubbies* Season 2 - <https://en.wikipedia.org/wiki/Teletubbies>) until they were 27 months old. Being able to do this involves memory – to hold in mind the sequence of events that leads to the gag, and perhaps also the typical behaviour of a character – and the generic or social knowledge that enables us to anticipate humour as well as to appreciate inappropriateness.

The common-sense parental view, that this is just a phase and will not result in long-term trauma, is probably well-founded, but it makes better sense still if we see it as part of a learning process. Most of us can be frightened, if only momentarily, by sudden and apparently inexplicable phenomena, but we can quickly be reassured if we can draw on our life-experiences to figure out what has happened or talk about it with others. Toddlers have less experience and more limited language skills than pre-schoolers, so their fear responses are magnified by the impossibility of sharing them. It usually does not help much if adults show alarm as well, and it can magnify the distress if co-viewers stop the movie as soon as a toddler expresses fear: watching it through to the end can often help a toddler understand what the point of the frightening bit actually was.

Another perspective on toddlers' "inexplicable fears" is provided by Paul Kagan, who describes how 18–24-month-olds can often be distressed by what they see as violations of states of affairs "which adults have indicated are proper". His examples include broken toys, damaged or dirty clothing and things missing from their usual places ([44], Chapter 5). He links this to their interest in categorising

objects into groups sharing physical or functional similarities (p 88). So a toddler seeing something strange in a movie may be frightened rather than amused, because he sees it as “something that’s not supposed to happen”. An example of this from my research was when Connie (one of the twins, then aged 24 months) watched the *Peppa Pig* “Sports Day” episode (<https://www.youtube.com/watch?v=AJdE21yxwxw>) and burst into a storm of tears when the girls-versus-boys tug-of-war contest ended suddenly because the rope broke. In this case it is likely that Connie had invested her narrative expectations in the girls winning the contest: Peppa had failed to win anything so far because she had (typically) wasted time chatting to Daddy Pig. However, in this case there was an interesting sequel. Connie deliberately continued to re-view the episode whenever she could, until – three months later – she had found a way to cope with the breaking rope merely by sighing sadly. This could be seen as an example of self-directed learning, which I discuss in Section 8, below.

Toddlers’ responses to sad events or sad characters in movies are different from their fears, because they are already well-attuned to interpreting emotional states in others [45]. They may therefore find it too difficult to watch something sad but find it difficult to explain why. When the twins saw the main character crying in *Baboon on the Moon* (<https://vimeo.com/58445945>), which they watched at 30 months old, they devised a strategy for dealing with it. Because the sound of snoring can be heard when the movie begins, both children expected to see their mother (Phoebe) appear (because she is famous in the family for snoring). Although Phoebe obviously never does appear in the movie, they both seemed to have convinced themselves that she was there somewhere. She had not watched the movie with them, but came into the room at the end and asked what had happened, seeing that Connie looked sad. Connie rushed into her arms for comfort and then said hesitantly “he ... cried” but refused to say more when asked why. She changed the subject, saying very brightly instead “YOU were there, Mummy!” Alfie managed a second viewing, but when asked what he thought of the movie simply said “I liked Mummy!” So in spite of clear evidence to the contrary, both used the “mummy snoring” concept as a way of deflecting their distress about the Baboon’s sadness as he gazes tearfully at the faraway Earth from his lonely home on the Moon. This enabled them to resist giving way to tears, although the fact that they were both on the verge of it could be seen in video analysis from the tiny rim of tears on their eyelids and their pursed lips.

8. Evidence of learning (3): self-directed viewing

In their 2018 survey of media use [46], Ofcom found that 96% of 3–4-year-olds watched TV on a TV set for an average of 14 hours per week, while 30% also watched TV on other devices, mainly on a tablet. 32% watched TV programmes via what are called “over the top” services, such as Netflix, Now TV or Amazon Prime Video. 36% of 3–4-year-olds played games for an average of over 6 hours per week, and 52% went online, for nearly 9 hours a week – much of which would have entailed going to YouTube for animated movies, funny videos or pranks. While most of these figures increased substantially for older age-groups, it was still the case that watching movies on a TV set, although declining slowly but steadily overall, was still a very important activity for three-year-olds. However, as any parent – and indeed any three-year-old – knows, three-year-olds are not the same as two-year-olds! It is extraordinary how little research there is on two-year-olds’ movie consumption, given that researchers, at least, have known since 2005 that many babies start watching movies at around 3 months [47].

In the absence of data on the viewing practices of children younger than 3, we have to make inferences about them. It is likely that at home, when parents are too busy to supervise very young children but know that movie-watching will probably occupy them for a while, they will be more likely to leave them to watch a movie on TV than to hand over a phone or tablet, which might get dropped or fought over; and in any case, the younger the children are, the less likely they will be able to deal with menus on VoD services, digital recorders or DVDs, and may thus be more likely to watch broadcast TV, switched on by a parent, carer or older sibling. So it may be reasonable to surmise that the percentage of two-year-olds watching movies on a TV set could even higher than that of 3–4-year-olds. But we also know that many toddlers do watch movies on mobile devices in their buggies when they are in shops, restaurants or other public places, so they may be watching more movies than older children, when we add up the number of opportunities they get to watch movies on any device. It may also mean that they may now have more opportunities to watch on their own, bearing out Ofcom's claim that "consuming content is becoming a more solitary activity, with many children watching on their mobiles" ([46] p. 4).

But what are they watching? A toddler might be ranging over many types of movie, or she might be going through phases of favourite genres, such as funny cat videos on YouTube. In either case, the more significant outcomes for a two-year-old using a portable device to watch movies on her own would be firstly, that she would be developing her own preferences as regards genres, styles and content, rather than having to go along with others' choices; secondly, that her facility with the technology would rapidly improve; and thirdly, that she would be occupied in self-directed learning as she re-viewed those movies that she judged worth watching more than once – perhaps even many times.

Toddlers' interest in re-viewing movies is another phenomenon that worries many parents. A Google search on "my toddler is obsessed with watching ..." in August 2021 yielded "about 8,630,000 results" with many social media comments revealing how this magnifies parents' existing anxieties about "screen time" and is usually described in pathologizing terms such as "addiction", while links to parental advice sites offers alarming "evidence" about the negative effects this is likely to have on their later lives. It is interesting that social media concerns about demands for repeat viewing are not paralleled in concerns about repeat reading. For example <https://theconversation.com/theres-a-reason-your-child-wants-to-read-the-same-book-over-and-over-again-105733> advises parents who "might wonder if all this repetition is beneficial. The answer is yes. Your child is showing they enjoy this story, but also that they are still learning from the pictures, words, and the interactions you have as you read this book together". If this is true for print media, then why would it not also be true for moving-image media?

In the contrast between the discussions of toddlers' "obsessions" with movies and their demands for re-readings of books, we see the folk wisdom at work again. The idea that toddlers might need to re-view the same movie many times because they need to understand the medium, just as they need to hear stories and look at the pictures over and over again, does not figure in either social media debates or scholarly research, although there have been numerous important studies and reviews of toddlers' cultural learning (e.g. [48–52]). We can excuse Vygotsky's failure to mention children's repeat-viewing of movies, given that he was writing in the 1930s and repeat-viewing was not available to the general public until the VHS format for video-cassette players became widely available in the late 1970s. But the same omission by scholars writing in the 1990s and later only serves to demonstrate the durability of the general belief that no one has to learn how to understand movies. It also demonstrates film scholars' lack of interest in child audiences. Even David Bordwell, one of the major scholars in the field, has no qualms about defining

the audiences he is referring to as “schooled perceivers in contemporary Western culture” ([53], p. 34) and no apparent interest in discussing how “perceivers” managed to get “schooled”.

9. Why study “movie-learning” and what are the challenges?

There has been very little scholarly consideration of the concept that understanding a movie requires some effort, apart from Branigan’s 1992 footnote (quoted above). Bryant and Anderson’s edited collection of studies, drawn largely from developmental psychologists’ work in the 1970s and 1980s, did address “the act of television viewing itself” ([54], p. xiii) before the expansion of the domestic VCR market (in the UK) and cable (in the US) radically changed the nature of most children’s access to this medium, by enabling re-viewing at will. An important feature of this book is a determination to oppose the then dominant idea among developmental psychologists that visual attention in young viewers “is primarily reactive and controlled by the television set,” and to make the radical counter-argument that “visual attention is actively under the control of the viewer, and is in the service of the viewer’s efforts to understand the television program” ([55], p. 1). One implication of this argument is that television has distinctive features that need to be understood, so several of the chapters address questions about the specificities of televisual codes and conventions. For example, Meringoff et al. are interested in “the distinctive cognitive consequences for children of their experience with television and other story-bearing media” (p. 151) and recognise the relevance of classical film theory to their research questions, although without any speculation about the age at which dissolves and jump cuts are understood:

Descriptions of the specific ways that editing techniques are used to suggest associations between shots and to imply transitions in time and space have aroused our curiosity about children’s ability to ‘read’ across film and television story lines. For instance, dissolves and jump cuts imply the passage of time only to those audience members who understand the meaning of those conventions. ([56], p. 157)

But, like most of the book’s contributors, their investigation involved older children (in their case 6–7-year-olds and 10–11-year-olds). Huston and Wright ask (again, of older cohorts of children), “What’s attractive about television? How does the child learn the codes of television and become increasingly sophisticated in understanding its content?” [57]. But they admit that “...one interpretation of our failure to find large developmental differences might be that we have not sampled children early enough to locate the critical period for familiarisation with television” (p. 43).

The contributors to Bryant and Anderson [54] recognised the need to study younger children but clearly did not want to tackle the methodological challenges of trying to elicit evidence about awareness of movie codes and conventions from children who would be too young to articulate them. They were less conscious of the further limitations imposed on their inquiries by their very schematic accounts of what the “codes of television” are, as well as by their commitment to experimental methods, their cognitivist approach and their reliance on “age and stage” models of child development.

When I was in the Education Department at the British Film Institute (1979–2007), where we worked with children, teachers, and policymakers to try and establish learning about movies within the UK’s mainstream primary school curricula, teachers constantly told us about their amazement at children’s responses to the materials and approaches we were offering. They were often sceptical about the

movies we provided for them to show (non-mainstream short movies, not necessarily made for children but appropriate for them) and the approaches we suggested, such as getting children to listen to a soundtrack and discuss what they expected to see on the screen, and asking them to think about what features of a movie had generated their response (e.g. laughter, suspense, sadness). But in follow-up discussions they reported their pupils' unexpected levels of knowledge and understanding when discussing movies, and the transformative effect on children of being allowed to talk about a medium they loved. One teacher wrote about her experience as follows:

I used one of the short films with my literacy set. I found the children motivated, engaged and exceedingly attentive right from the beginning. Their descriptive, inference and predictive skills were extended and they found that they were better at this than they thought because this form of media was familiar to them. The biggest difference was in the participation and quality of work from the boys who were usually not easily enthused by literacy. By the end of two weeks the children had extended their vocabulary and were able to write for a variety of purposes and in different styles with greater confidence. ([58], p. 27)

Even teachers in nursery schools (3- and 4-year-olds) had similar responses, for example:

When I was told that we were going to have to introduce visual literacy and do filming with nursery children, my heart sank and I thought, "oh no, another initiative'. I was dreading it. I thought I really have got to the end of my career and I can't do this anymore. But when I tried the Baboon film [<https://vimeo.com/58445945>] with my children for the first time and used the method of play, pause, talk to the children, get them to predict, play all the way through I couldn't believe how enthralled the children were and how interested. There was no dialogue but they were glued ... and it just took off from there. [quoted in [59], p. 82].

The characteristic teacher response to experiences such as this is excitement about the potential they seem to offer for getting children to be more enthusiastic about the prescribed curriculum. But the first teacher quoted above also comes close to what I see as a more important insight when she says "they found that they were better at this than they thought because this form of media was familiar to them". What she and others who expressed similar excitement could not quite bring themselves to say was that the children they had been teaching were a lot more knowledgeable and confident than they had assumed – a confession most teachers understandably do not like to make. Few researchers have investigated the relationship between traditional literacy and movie knowledge, but the results can be illuminating. Comparing the work of two groups of primary school children, one of whom studied a novel in the traditional way, and the other who also made their own animated version of the novel, David Parker found that in the written work of the moving image class – in contrast to the work of the other class –

...we find a device used constantly in moving image media to predicate [sic] an audience towards a particular character and thereby create empathy. It is the use of point-of-view - seeing something through the eyes of another. What is interesting about these examples is not merely that a cinematic stance seems to be taken in terms of the written output, though that is certainly interesting in itself, but that in a piece of writing which aimed to establish the feelings or state of mind of a character, the class which was in the process of producing

an animation understood that by spatially re-positioning the reader inside the character you could access feelings without necessarily describing them [60].

This observation indicates the potential value of exploring two cultural forms side by side, as a way of deepening understanding of both. It is an immensely important part of children's learning to develop an understanding of how narratives work and of how to make judgements about whether a visual or verbal representation is "real" or "true". Early movie-watching provides a thorough apprenticeship in both.

In Section 4 I discussed the challenges of trying to study toddlers' viewing behaviour and trying to identify evidence of learning to understand the medium, suggesting that the only really effective way of doing this is through "longitudinal, ethnographically- styled and if possible home-based research models". The findings from such studies could potentially challenge the dominant paradigms that prioritise digital media as the object of study and the potential risks of "exposure", but a larger evidence base is needed. Although visiting researchers can and do attempt to do this – the EU Kids Online study is a good example of how this can form the basis of large-scale studies (<https://www2.lse.ac.uk/media-and-communications/research/research-projects/eu-kids-online>) – identifying significant aspects of toddlers' viewing behaviour at the level of minute detail that I have described in this chapter is both essential if we are to understand pre-verbal learning and impossible unless done by researchers based in the home, who know the children well and are able to respond to toddlers' spontaneous decisions to pay attention. The essential tool for such research is the use of video, given the need to capture minute changes in toddlers' expressions, postures and gestures.

There is plenty of scholarly discussion about the ethics as well as the practicalities and value of using video as a research tool for studying very young children (e.g. [61–65]), almost all of which deals with video use by visiting scholars. These issues could potentially change in studies designed to involve family members in data-gathering: the "video diary" approach. If my arguments in this chapter are seen as persuasive, then one obvious next step could be to design a larger-scale study that co-opted a cohort of parents prepared to commit to a video diary project, gathering evidence of their toddlers' movie-learning.

10. Conclusion

In this chapter I have set out the case for a paradigm shift in the study of children and media, on the basis that research in this field so far has largely avoided the study of children younger than 3, has failed to address the cultural dimensions and specificities of children's media experiences, and has over-prioritised the risks of media consumption. I have backed up this case with examples of how close observation of toddlers' behaviour as they watch moving-image media (referred to here as "movies") indicates that they are involved in highly intense learning processes. My accounts of these exemplify the value of an embodied cognition approach in interpreting toddlers' engagements with movies. With reference to nursery and primary school teachers' discoveries of their pupils' unexpectedly sophisticated approaches to movies, I argue that early movie-learning may be a significant contributor to children's later learning. I have not minimised the considerable methodological and ethical challenges that would face any other scholars who wanted to undertake similar research, but I do argue for the value of longitudinal, ethnographically-styled studies, if possible by family members, as a way of exploring this perspective further.

Author details

Cary Bazalgette
UCL Institute of Education, London, UK

*Address all correspondence to: carybaz@gmail.com

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Section 4

Sign Systems and Aesthetics

Images beyond Representation: Evidence and Depth of Meaning

Sonia Campaner Miguel Ferrari

Abstract

In this article, I consider images from a philosophical point of view, starting from its definition and its relation to thinking. Some analogies with imagetic signs and words are established. And in doing this, I try to value seeing, not to the expense of saying or thinking, but as a way of getting in touch with images that privilege a certain way of knowing.

Keywords: images, language, thinking, perception, fantasy

1. Introduction

When considering images, the first problem is to identify the theory of images that best define them. That is something often difficult to establish because such theories lead us to articulate discourse and image. In addition, in an attempt to explain them, the discourse overlaps the images. However, do they need an explanation?

One of the issues at hand when tackling the possibility of discourse on images is their relationship with thought and with seeing or looking. For an image presents us with something to be seen and looked at, about which we formulate a thought. Barthes ([1], p. 32) wonders if an image is not a simple agglutination of symbols or if it produces a system of signs. If we consider that the language-based thought system operates differently from image reading, we will come to think of that question as not valid. However, in semiotics, language is just spoken or written language because of the way in which it is articulated. Images, on the other hand, seem to form a rudimentary system that resists meaning. If meaning is intrinsic to images, how is it added into it? Marie-Jose Mondzain states (in [2], p. 23) that thought, in paintings, is within images. We learn from images, though it is necessary to distinguish between seeing and looking. Visibility cannot be reduced to what is merely apparent, since it is also related to invisibility.

Didi-Huberman [3] explores this theme in *Devant l'image. Questions posées aux fins d'une histoire de l'art*. When presenting the issue that prompted him to write this book, the author refers to the experiences of whoever lays eyes on a work of art: the experience is that of a paradox because, despite unclear and indistinct, what we see is simultaneously evident. Nevertheless, those unsatisfied with this paradoxical experience need an explanation. Such an explanation comes in the form of a speech – that is the historian's or art critic's discourse, the one who sets himself up as the knower of art. However, what prompts us to rise to this level of certainty regarding this object that gives us this paradoxical experience? Elkins ([2], p. 41) concedes to feeling the attraction to what we call the ontology of the image – meaning the idea that the

image has something non-linguistic that is beyond logic and language. It is possible to identify in this statement some of the problems we face when seeking to define the image and, thus, find a field to understand it: we end up placing the discussion in binary distinctions that come from language, such as rational and irrational, logical and illogical. Whenever we want to understand them through concepts from other areas, we lose sight of them. Every time we establish codes or references, we realize that they cannot fully account for the image. Barthes ([4], pp. 68–69) realizes that the photographic image cannot be reduced to the object portrayed or to the image of the person reproduced. The concept of “*punctum*”, which can be approximated to Walter Benjamin’s idea of aura, refers to something beyond the image. Elkins recognizes that some of the positions taken in this discussion are pragmatic, like Goodman’s or even his ones. He also argues that non-Western concepts could have a more central place in the discussion about image¹. Initially I will present Georges Didi-Huberman’s and Roland Barthes’s positions on this debate.

2. Didi-Huberman, Rosalind Krauss: minimal art and European *avant-garde*

According to Didi-Huberman’s [5], minimalism launches an attack against seeing. The author discusses the requirements and purpose of minimalism. For Robert Morris and Donald Judd, they aim at eliminating the illusion to impose specific objects, objects that only asked to be seen. For Didi-Huberman, however, this purpose seems simple in theory, but it proves to be more complex in practice, since the tendency of illusion is to project itself onto any object. Belief easily comes about regarding something. This statement brings an important element to the act of seeing an image: our eyes are not neutral. They do not see colors and spatial material shapes only; instead, the argument is that meaning is added to what is seen. Robert Morris and Donald Judd make the following requirements: (1) manufacture a visual object stripped of all spatial illusionism – an artefact that does not lie about its volume (Didi-Huberman, [5], p. 50); (2) eliminate every detail in order to conceive the object as an individual indecomposable totality ([5], p. 54); and (3) the purpose of these first two requirements is to eliminate all temporality of objects in order to impose them as objects to be seen always immediately, always exactly as they are. When thinking about these requirements and purposes, it seems that what these artists proposed amounts to a new form of aestheticism. Pure objects should be seen in themselves, even without external references and meaningless attribution. In this case, art would refer only to itself, to its own history. For Didi-Huberman, minimalist art sought to overcome the representational image, thus presenting objects devoid of meaning to those who see these images. In the 1950s and 1960s, minimalism emerged as an offshoot of the European *avant-garde* movements in the United States, mainly of expressionism. This movement, unlike what Minimal Art proposed, brought images that expressed feelings. Emptying the meaning of image is a proposal that is constituted at that later moment. Frank Stella states in an interview [6] that everything he did originated from Kazimir Malevitch’s Black Square [1878–1935] with a blue triangle. Here, I would have to differentiate Malevitch’s proposal from Stella’s, which I will do in the near future, as this is not our intention at this time. For

¹ At a seminar held in 1998, participants read a revised version of his text *Different horizons for the concept of the image*, in which the author explores Persian, Chinese and Indian concepts of image. I am currently investigating this theme and it will be the subject of a future publication. Approaching the image from Eastern concepts can broaden our vision, but more than that, it requires an immersion in a culture that needs a deeper interest than a mere reference or comparisons with our usual concepts.

Malevitch the Square [7] is a subconscious form. It is the creation of intuitive reason, which he considers necessary to be placed alongside utilitarian reasoning.

Malevitch does not explain the meaning of the expression “intuitive reason”, but it can be assumed from some of his statements that it knows things as they are, thus opposing utilitarian reason, which “invents the world” and “fake effectiveness” ([8], p. 124). For Martineau, the proposal of a new pictorial and philosophical ontology by suprematism means an identity between being and nothingness, as well as a liberation of the latter. This would result in man as pure freedom. Rosalind Krauss ([9], pp. 303–306]) discusses these relationships and the heritage of the European *avant-garde* movement in the United States. If artists of European expressionism and futurism used sculptural form to create a metaphor for organic life, artists like Donald Judd will reject the idea of a deep meaning of their sculptures.

The sculptures by Naum Gabo [10] [1890–1977] and Antoine Pevsner [11] [1886–1962], made of plastic, plywood or tinplate, says Krauss, “do not revolve around” ([9], p. 303) these materials. However, they visually present “the creative power of thought, a meditation on the growth and development of the Idea” (idem). Behind the material surfaces, there was an indication of “the interior and it was from this interior that the life of the sculpture emanated” ([9], p. 303).

However, according to Krauss, minimalist sculptors, whether in choosing the material used or in composing the form, “had the objective of denying the interiority of the sculpted form – or at least rejecting the interior of the forms as the source of its meaning” ([9], p. 303). What the minimalists intended was the “reduction of art to the point of emptiness”. In this way, they denied the relationship between the work and the artist’s interior. Still according to Krauss, by rejecting this relationship, Judd was “rejecting a notion of individual self that assumes personality, emotion and meaning as elements existing in each of us separately” ([9], pp. 308–9). Thus, the minimalists, here represented by Donald Judd, are questioning the very illusion produced by art, and thus art itself. Moreover, they present a posture that is in line both with this questioning of art as an activity that puts us in contact with other spheres of experience and as a form of communication. Saying “what you are is what you see” means to find it impossible to say anything beyond the obvious. Everything that one can say or communicate, one says and communicates within the public space.

Dislodging the unintelligible from art is to consider seeing an operation without depth, and the spectator as an almost inert body deprived of the illusion game: seeing happens so quickly that the observer does not spend much observation time. Apparently, the observer will not ask what is hidden behind such clean images. We can identify in the images of minimalist art the reference to the seriality of industrial production. Nevertheless, for those who look at them, the question remains: what am I seeing? Do minimalist artists intend to provoke the public, or they simply accommodate themselves to the reduction of the image as reproduction? The vision of these images is disconcerting: both because they present, as heirs of the *avant-garde* arts, an artistic production that subverts the production procedures of the work – they even subvert the *avant-garde* proposals – and because they present to the viewer an image that seems to say nothing to him or her. However, for Didi-Huberman [5], there is a contradiction in the minimalist proposal itself. The minimalism to which they intend to reduce their works provokes and disturbs, thus posing a current question about the image and its visibility.

If Robert Morris was dissatisfied with the way iconographic and iconological discourse is invested upon sculpture, betraying its specific parameters, Judd was opposed to the optical illusion that intends to suggest a third dimension, the answer for both would be to manufacture a visual object stripped of illusionism, a spatial object in three dimensions that produced its own spatiality. Non-relational objects are closed in on themselves ([5], pp. 50–53).

For Morris, such objects should be “simple volumes” and “their parts... so unified that they offer a maximum resistance to all separate perception” ([6], p. 54).

As for Judd, he considered that “a strong work should not be composed” ([5], p. 54). The result of eliminating composition was to “propose excessively simple objects, generally symmetrical, reduced to a minimal form... Objects reduced to the simple visibility of their visible configuration, offered without mystery, between line and plane, surface and volume.” ([5], p. 54). Frank Stella, whose painting produced in that period had in it “only what can be seen in it” ([5], p. 55), agreed with Morris and Judd. Didi-Huberman concludes that the result of this is the victory of tautology. The artist speaks of the obvious. His art is exactly what you see. Moreover, that is what it will always be.

What these artists aimed to produce were stable objects: their stability resides in the absence of the marks of time. For that, they used industrial, resistant and mass-produced materials, as opposed to classic materials. Yet, as we have seen, they aimed to produce objects theoretically without meaning games. For them, there is no interiority, no latency, no time, no being, just the specific object. No recoil, mystery or aura. For Judd, the purpose of this problem is to eliminate all anthropomorphism in order to rediscover and impose this obsessive, imperative specificity of the object that the minimalist artist took as his manifesto. For these artists, seeing would be thus condemned to the smooth and equal surface of their objects, without background or depth. In addition, it would not refer to anything beyond that surface. This is a pessimistic position that somehow condemned any mention to the private nature of experience, to the sphere of the unrepresented, to a product of illusion and imagination, or to a utopia.

However, for Didi-Huberman, there seems to be an internal contradiction in minimalism: by presenting themselves as simple objects, do they not engender any discourse about them, or is the paucity of words due to the discourse’s inability to account for the visual world? For Didi-Huberman, the second alternative is the case, since discourses do not always account for what is seen and the attempt to bring them together is not always a good solution for the critic. For him, the critic’s work is precisely to point out the disjunction between work and discourse, “because it is in it that the work’s beauty is found” ([5], p. 69). The disjunction is the place of an opening, of a breach that a discourse about the work problematizes it. He regards the act of seeing not as the act of a machine perceiving the real as composed of tautological evidence. The act of making visible is not the act of giving visible evidence to pairs of eyes that unilaterally seize the “visual gift” to unilaterally satisfy themselves with it. Giving to see is always to disturb the seeing, in its act, in its subject ([5], p. 77). The work of the critic who penetrates the gap is to find words for what is disturbing in minimalism; that is, its insistence on saying nothing.

3. Benjamin’s reflections on paintings and child perception

We can say that Walter Benjamin inspired some of Didi-Huberman’s reflections on images. In the quoted work [5], *Ce que nous voyons, ce qui nous regarde*, the French author wrote at least two chapters in which the reference is the work of the German critic. There, he mentions both the notion of “aura” and of “dialectical images and thought-images”. Here, I will refer to texts from Benjamin’s early period in which he presents his reflections on images as well as his experiences in front of some paintings.

According to Sigrid Weigel ([12], p. 206), “painting, art history and the discussion of modernist art play a fundamental role in his way of thinking”. Nonetheless, his thoughts on these themes have attracted little attention from scholars. For

Weigel, Benjamin's reflections on paintings and memories of the ones he saw, serve as "incubators" for concepts such as thought images, dialectical images and non-sensible similarities. I cannot demonstrate this path here, but I shall shed some light on some of those reflections that expand the notions of image and seeing. I have selected some passages from volume VI of the *Gesammelte Schriften* [13] by Walter Benjamin. This volume brings together autobiographical writings and fragments, as well as some sketches grouped under the title *Zur Ästhetik* (On Esthetics), which deal with fantasy and color, in addition to comments on painting, child perception and children's books. Based on this material, I briefly to highlight the relationships between child perception, color, and fantasy, which recognizes the extension of the ability to seeing and a perception not colonized by culture.

According to Schiavoni ([14], pp. 12–13), childhood is configured in Benjamin's life in the following terms:

*como una especie de tierra de desembarco (categoría al mismo tiempo histórica y mítica) recuperada luego de su toma de distancia ideológica del potencial fascistizante insito en los "movimientos de la juventud" (las Jugendbewegungen) que operaban a principios de siglo, y del idealismo de impronta liberal activo en el círculo reformista de Gustav Wyneken, el innovador "maestro" de su adolescencia y fundador de la "libre comunidad escolar" de Wickerdorf en Turingia, con el que Benjamin rompió drásticamente en el verano de 1915 por las elecciones filomilitares patrocinadas por Wyneken.*²

Benjamin's comments and reflections on 19th century children's books represent the pursuit of a childhood capable of fantasizing and perceiving the world for itself, without the influence of education tailored to them, which ends up making them docile and compliant to the rules of the system. A work aimed at children and praised by Benjamin in *Alte Kinderbücher* ([13], III, pp. 14–22; [15], pp. 47–53) provides colored prints, fairy tales, and songs that escape the "control of philanthropic theories". They are cultural assets inherited from previous centuries, not sacrificed in the 19th century, and which still maintain the relationship with aspects that may resemble the primitive due to the used technique. This and other books tailored to children, when not treated by the moralizing philistine culture, come to them "as...a sacred text", a place in which "there is a promise of happiness that adults have lost or betrayed" ([14], p. 28).

Benjamin underlines the role of fantasy in texts on child perception and in ancient books. To him fantasizing is a primordial phenomenon, different from creative imagination. This feature of fantasy can best be seen in fairy prints of German children's books. Different from creative imagination, fantasy is based, for example, on the reception of colors. "Pure colour is the medium of fantasy, the home of clouds of the child who plays; it is not the rigorous canon of the artist who builds" ([13], IV, p. 613; [15], p. 59). Fantasy appears as an anthropological feature to which the child is closest. When putting together a proposal for child education, Benjamin places at the core of his proposal the notion of creative imagination that manifests itself in play, in children's play. Benjamin stresses the feature of the reading game; a game proposed by the booklet itself that leads children to do their own reading, to learn how to decipher "hieroglyphs" ([13], III, pp. 127–132; [15], pp. 71–75).

² "as a kind of landing ground (a category both historical and mythical at the same time) recovered after its ideological distancing from the fascistic potential found in the "youth movements" (*the Jugendbewegungen*) that operated at the beginning of the century. Also, distancing from the idealism of liberal imprint active in the reformist circle of Gustav Wyneken. Wyneken was the innovative "teacher" of his adolescence and founder of the "free school community" of Wickerdorf in Thuringia, with whom Benjamin drastically broke apart in the summer of 1915 because of the filo-militaries elections sponsored by Wyneken."

In *Spielzeuge und Spielen* he affirms the importance of the game as a resource not to harden the habit, but to learn it as a game so that it does not become nature. Thus, eating, drinking, sleeping, dressing are habits that “come into life as games.” On the other hand, the characteristic of the game is “doing it again and again”, and that means creating a habit. The child wants to repeat the lived fact, to taste again “triumphs and victories” ([13], II, p. 131; [15], p. 75); yet, narrating an experience “relieves the heart” of horrors” (idem). Habits are like fossils, testimonies of a “primal situation from which the first impulse was born” (idem). Benjamin’s statements are intended to challenge the way we learn – he is opposed to the Enlightenment education model characterized, in the afterword of Seidmann-Freud’s booklet, as “relentless pursuit of goals, widespread dispute to conquer the ‘knowing’ of what the adult (...) demands” ([13], III, p. 272; 1984, p. 107). To this model “the doors of true knowledge are closed”.

Thus, Benjamin emphasizes the importance of childhood experience in the development of adults. In *Grüne Anfänge*, he states that the seriousness ([13], III, p. 314; [15], p. 114) of life has nothing to do with life in black and white or better saying it, with the absence of fantasy in adult life, but rather with the scope and importance that childhood experiences have for the adult. The smaller the adult’s intervention in children’s activities, the greater the flow of fantasy. As indicated above, fantasy is related to perception. Benjamin considers it as a primordial phenomenon, in the anthropological sense. In his own words: “In the vision of colors, the nature of fantasy reveals itself, as a primordial phenomenon in opposition to creative imagination. Man himself corresponds to every form, to every trait he perceives, in his capacity to reproduce them. The body itself in the dance, the hand in the drawing, reproduces its elements of perception and appropriates them.” ([13], III, p. 613; [15], p. 59). Therefore, it is an anthropological feature in the sense that it is related to the way in which humans receive and reverberate colors, for example.

In their games and plays, children turn to thought and fantasy ([13], III, p. 611; [15], p. 57). The examples mentioned by Benjamin are of books that the child can build; books that they read and in which they surrender and are absorbed by them. They are impregnated with the “fairy central German world... their ingenuity is based, as well as that of colours, on fantasy” ([13], III, p. 613; [15], p. 59). In them, “colours, as if winged, float over things. For its charm does not radiate from the coloured object or simply from the colour” ([13], III, p. 613; [15], p. 60). Child’s experience with these readings, and the child’s visual experience with the pictures in the books, can be compared to the experience of contemplation, which in the essay on the work of art Benjamin opposes to distraction. That is the experience avoided by the minimalist works mentioned earlier; works created with the intention of establishing an immediate relationship with the viewer. The reception of these works is conceived by their authors as collective and public, in the register of distraction. If we follow Benjamin’s statements in the essay on the work of art, it is a tactile reception. Contemplation is the form of optical reception, distanced. It promotes the experience of the aura and leads the “receiver to immerse him or herself in deep meditation” ([16], p. 40). For Benjamin, this form of reception that is in decay in modernity finds conditions for its existence in childhood. The reception of color by vision takes place in order to promote a state of immersion in the object.

The human body, says Benjamin, is incapable of producing color, in relation to which the body behaves, therefore, in a receptive rather than creative way. In this reception, vision is the faculty that operates active and passive correspondences, standing out among the other senses, and allows a movement of immersion in things through imagination and fantasy. This movement is not just contemplation or concentration, but immersion in the object.

Thus, for Benjamin, children's esthetic perception emerges not as a form of "esthetic education", but as a form of maintaining what brings the child closer to the artist: the pure experience of colors. An experience that refers to an interiority and depth that is being lost.

4. Conclusions

This paper has tried to show how authors like Barthes, Didi-Huberman, Mondzain and Benjamin see images not as rudimentary systems of meaning and more than mere appearances. The paper has approached the dialectic between the visible and the invisible and how the reading of images must consider this dialectic.


In our contemporary world, images have become widely used as means of communication. This makes it urgent to understand the process of reading and interpreting images and the effects of this paradoxical experience; particularly when it comes to challenging artistic images. The relationship with artistic images makes possible to experience an active and passive reception of colours, thus awakening our faculty of imagination.

Author details

Sonia Campaner Miguel Ferrari
Department of Sciences of Language and Philosophy, Pontifical Catholic University of São Paulo, São Paulo, Brazil

*Address all correspondence to: soniacamp2@live.com

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Metaphoric Representation and Aesthetic in Advertising

Fatma Nazlı Köksal

Abstract

The function of the visual representation in advertising communication is the fact the image that was instrumentalized for a purpose can be effective with the right wording. In visual representation, which takes place in two stages, *form and content*, content needs form. Designing everything there is to be conveyed within a certain meaning system creates the language of visual representation. As for the form, it is inevitable to resort to an esthetic language. In this regard, the form and content can be regarded as two basic factors that create the metaphorical meaning in advertisements. When it comes to the metaphorical expression in advertisements, one can say that examining semantical aspects will not be enough, as it is also necessary to take linguistic aesthetic of form into account. In this regard, the purpose of the current study is to examine the visual representations of advertisements that feature metaphors using a dualistic approach, from form and content aspects. The examination is going to be carried out on the television commercial inspired by Johannes Vermeer's Girl with a Pearl Earring and the layers of the metaphorical expressions used in the commercial will be revealed.

Keywords: visual metaphor, aesthetic, advertising, representation, image

1. Introduction

A metaphor is a linguistic tool that transfers the qualities of one object to another. Metaphors can appear not only in language but also in static and motion pictures, sounds, music, gestures, and even in touch and smell [1, 2]. Conceptual metaphors help us understand complicated and abstract concepts in simpler terms [1, 3]. This process involves the matching between two impact areas in our minds. Individuals can categorize the phenomena that they can see, hear, feel, taste, and smell more simply in contrast to these. In this regard, the mind systematically concretizes the abstract to make sense of abstract concepts. The idea of conceptual metaphors was first discovered by Lakoff and Johnson and mainly mentioned in their work 'Metaphors We Live By' as follows:

“Our conceptual system thus plays a central role in defining our everyday realities. If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor. (...) In most of the little things we do every day, we simply think and act more or less automatically along certain lines. Just what these lines are is by no means obvious. One way to find out is by looking at language. Since communication is based on the same conceptual system that we

use in thinking and acting, language is an important source of evidence for what that system is like” ([1], p. 124).

According to Lakoff and Johnson [1], metaphor is when we understand one conceptual domain from the perspective of another conceptual domain. Metaphors are not only poetical expressions that have no connection with meaning. These are “general matching in conceptual domains” [2]. This matching has a common structure: a source impact domain, a target impact domain, and the relationship between the source and the target.

The transformation of a visual image—particularly of a metaphor in its core—into a visual element of an advertisement turns the image into a representation. This is the stage at which the metaphorical aspect of the visual argument of the advertisement is constructed. Advertisers tend to use metaphors when conveying their messages to convince people. For instance, Rossiteri and Percy define advertisement as “informing customers about products and services and convincing them to buy those” ([4], p. 3). Similarly, Pateman points out that “the purpose of an advertisement is obviously to sell products” and adds:

“It can be argued that it is only because of the genre assignment that we pick out certain formal properties as the relevant properties which then confirm or disconfirm our initial genre assignment. ...The relevant ‘formal’ properties of texts and images used in advertisements can only be specified on the basis of the recognition that they are being produced in advertisements” ([5], p. 190).

Advertising takes place in two stages as a design process: *content and form*. Content also needs form. When it comes to the form, it is inevitable for the advertiser to resort to an esthete language. Considering something to be aesthetic depends on the formal properties it possesses. Aesthetic, as a notion of beauty, also encompasses forms of description that nourish human memory. The semiotics itself is the process of designing whatever is to be transmitted in the advertising within a meaning system. At this point, it can be stated that form and content are two constituents that expand to the use of the semiotic scope of visual images in advertising. For a visual image to transform into the semantic backbone of advertising, it must be built over a content-wise context. The image that is used finds its metaphorical meaning in the language of advertising. In addition to this, it can also be stated that the language developed by the advertising designer from the semiotic fiction of the ad speeds the process of subjective association. When the meaning and association are in relation with the content of the visual image, the function of visual argumentation is positioned at the association level, and the instrumentalized image becomes the rationality of the advertiser.

Because semiotics has a theoretical definition equipped with scientific extensions, it requires scientific evaluation. However, when it comes to incorporating the formal aesthetic in question, advertising requires more of a philosophical language and analysis. In this instance, visual argumentation in advertising is inevitably dualistic; *semiotic and aesthetics*, that is, science and philosophy. When it comes to visual argumentation in advertising communication, rather than perceiving it as a situation that can be explained solely through semiotics, if we consider that emotions and intuitions are also reflected in the advertising as a reality of duality within the scope of aesthetic, it will be reasonable to assume that the same duality holds here.

Beyond being a visual language aimed at persuasion, advertising communication bears a cultural context that possesses various categories within itself. This is where we encounter visual culture and the visual image memory that composes it. The content of the image utilized as a semiotic instrument and its function in the

aesthetic context may necessitate its inclusion in a cultural structure. Because there is an absolute purpose (*intentio*) and objective (*telos*) in advertising. No intention or purpose is circulated without generating its own codes. The meaning built for the advertising should be evaluated from a visual cultural perspective. While any image used in advertising, a layered form of communication, is a literal sign, it is also a connotative symbolic signifier. When an image is instrumentalized as a message in advertising, it transforms into an argument not only physically, but also conceptually. At this point, the advertiser circulates the image both formally and contextually as a representative visual presentation at the same time. In line with this objective, in the current study, visual argumentation in advertisements containing metaphorical actions will be discussed and examined through a dualistic structure, aesthetically and semantically.

2. Visual metaphor and advertising

Advertising, one of the application areas of communication design, is a way of communication that aims to attract people's attention to a product, service, or organization and change their views and attitudes about it in the desired direction. In today's communication society, it is possible to state that advertisements have evolved into an indicator system. Advertising, which can also be considered a process of creating meaning, is a process in which symbolic changes are experienced at any time, changing according to culture, context, and consumer experiences, and symbols reproduce themselves by including social and cultural codes ([6], pp. 7–8). The meaning of the advertisement is rebuilt during the reproduction process by replacing another 'thing' for the person, object, image, or symbol in the advertisement, and it, of course, obtains representational force. The representation in question is usually created with an image taken from outside the advertising world ([7], pp. 23–24). This image, according to Berger, is "a reproduced or recreated view" ([8], pp. 7–10). Therefore, instead of transmitting messages directly with signs, communication is provided with sensory-intensive tools such as visualization. It is possible to say that the most widely used of these tools are metaphors.

When compared to other contemporary forms of human communication, advertising is notable for its frequent use of the imaginative expression to persuade. Studies reveal that the emphasis on images rather than words has progressively increased in advertisements over the last century [9–12]. A metaphor is a linguistic tool that transfers the attributes of one object to another. Lakoff and Johnson note that "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" ([1], p. 5). Although a metaphor can be conventionally described as a figurative language, it is more than an "artful deviation" in language, as it is primarily understood in its rhetorical context. It is the foundation of human thought, metaphor as it is first understood in the context of rhetoric, is more than an "artful deviation" in language. Metaphor is the foundation of human thought [1, 2]. Rather than simply summarizing the similarities between two objects, metaphors highlight the difficulty of thinking about a specific object by conceptualizing another object. Metaphors are about combining numerous concepts into a single form, and our minds tend to need a new association or a new similarity beyond the already existing similarities or associations when such a form is formed [1].

Visual images used in advertisements may show similarities in terms of form and content. It is possible to make meaning based on the object in two physically similar images. When it comes to the independence of two images from their formal resemblance, however, the relational system that works for one image may not work for another. According to Phillips and McQuarrie, people assume that similar things

also share deeper characteristics. Similarity figures enable advertisers to use these assumptions for persuasive purposes ([11], p. 119). According to the authors, the use of metaphors in advertisements causes the consumer to evaluate an advertisement more cognitively. Further, advertisements using metaphors are more liked by consumers, and metaphorical figures in the advertisement are the forms of communication that are more likely to be remembered at the following exposure to the advertisement. It is assumed that metaphors offer many possibilities to advertisers and expand the limits of creativity. Advertisements take influencing values and characteristics from certain relatively structured areas of people's experience and transfer them to the product being advertised ([13], p. 69).

Figurative forms of communication are often used to aid in the formation of mental associations in the direction implied by advertising messages. Metaphor is one of those styles, as it seems. Images used in metaphorical communication give rise to implicit patterns of meaning, and as a result, perceivers need to generate mental associations and semantic associations to reconstruct the intended messages appropriately. With visual argumentation and conceptual metaphor, which can be described as tacit expression, the audience is likely to engage and detail the cognitive perception process while receiving the message, which is also a process that increases the persuasion skill of the advertisement. Sopory and Dillard refer to metaphor as a rhetorical form of expression as cognitive, emotional, and motivational processes. For example, mobilization of cognitive process, positive attitude towards the advertisement, increased source credibility [14]. Cognitive, emotional, and motivational processes are three broad categories of explanations offered to explain the relative effectiveness of figurative rhetoric compared to actual arguments. Cognitive explanations include the superior organization of information, the elaboration of thoughts, and the mobilization of cognitive resources. Message using metaphors helps receivers structure and organize their message information better than actual language [15]. This is because metaphors are built on the relational structure between two concepts (A is B) and can evoke a more sophisticated set of associations in people's semantic memory [16]. Metaphorical messages can influence audiences through emotional processes such as a positive attitude towards advertising and/or motivational processes such as increased source credibility. Regarding emotional processes, metaphors can result in greater persuasion mediated by a positive attitude towards the advertisement. Research on metaphors suggests that metaphorical messages can positively affect the message, such as getting pleasure due to tension and relaxation processes [17]. The motivational explanation for the effects of the metaphor includes the message recipients' perception of source credibility. Communicators using metaphors can be considered more reliable because they are considered to be highly creative [17, 18]. Perceptions of communicator credibility lead to greater acceptance of the message argument. In this way, metaphors can lead to greater persuasion mediated by message recipients' positive evaluations of the message source.

Charles Forceville attempts to review previous metaphor literature, hoping to develop a theory of visual metaphor in advertising, but he notes that much of the literature on metaphor is primarily verbal metaphors [19]. Forceville draws on the cognitive perspective from Black's interaction theory of metaphor and goes to what he calls a pictorial theory of metaphor in advertising. Metaphor takes place first and foremost at the cognitive level and can manifest itself at the pictorial level as well as the verbal level, and possibly in other ways. Forceville defined visual metaphors as follows by conducting an advertisement content analysis to find four different types of pictorial metaphors in advertising: (i) pictorial metaphors with the pictorially present term, (ii) pictorial metaphors with the two pictorially available terms, (iii) pictorial metaphors, and (iv) verbal-pictorial metaphors ([19], pp. 108–164).

For example, Forceville [13] stated that cognitive levels emerge as constructs that shape metaphorical perception, and then this perception leads to conceptualizations for both verbal and visual representations. Thus, a visual metaphor can create a conceptual comparison and similarity between two things on a semantic level, even though the two are entirely different. The semantics of visual metaphors are derived from the perception of the audience. Gkiouzepas and Hogg [20] argue that conceptual similarity is related to the semantic relationship between metaphorical objects in the audience's minds. Therefore, while images tell their stories indirectly, they have to rely on the interpretations of individuals. The requirements of reasoning and perception are based on this reason.

The function of the content of the visual image depends on how much the thematic structure is related to the content of the advertisement. This is related to what the image is representing. An advertiser creates the language of the advertisement in a way that triggers subjective associations of the recipients, that is why aesthetic looked out for.

3. Aesthetic as visual metaphor

Plastic products classified as 'beautiful' by art are reciprocated over the idea of beauty. It is aesthetic that deals with this field. Considering something to be aesthetic depends on the formal properties it possesses. Aesthetics includes subjective description forms nourishing the beautiful notion and the human memory. There is therefore a need for a more philosophical language and analysis based on further interpretation of the evaluation of aesthetics data. In aesthetic experience, the reality of the object has become a form of reality, and the only point of interest here is the form that makes the design-related existence of the object possible ([21], p. 73).

The image entering circulation as a metaphor on an advertisement plane brings aesthetic into the agenda as a modality. The designer's putting the image into circulation as an aesthetic image can be considered as his/her definitely taking the imagination of the onlooker into account as a level of sensation. Kant's aesthetics names the realization of a comprehensive function by imagination through synthesizing sensation and knowledge as *apprehensio*. Aesthetic enjoyment is achieved with its determination by a design without the mediation of concepts in the processing of imagination and understanding ability within free and independent intentionality and in compliance with an intention. In this process, imagination sets the understanding ability in motion also for its own freedom, and the understanding ability introduces imagination into an orderly game independently from concepts. As can be understood, another ability that has a distinctive role in aesthetic experience is imagination ([21], p. 32). The function of visual representation is its ability to be effective with the correct selection of design which is instrumentalized for an intention; if an image has not been designed well for an intention and is weak at the visual representation level, it will certainly not create an impact on the individual who perceives it. Here, we can argue that the image that has a functional value has been transformed into a component of visual representation ability. At the center of visual representation is a meaning-based visual linguistic ability. Hence, resorting to a reading performance with a subjective approach makes the value of the image on the aesthetic plane deficient. Therefore, representation and aesthetic, that is, intention and modality, should fulfil what is required by an analytical perspective. In this regard, the Karaca Fine Pearl advertisement inspired by Johannes Vermeer's *Girl with a Pearl Earring* will be analyzed. Thereby, both the representation capacity of an art piece for advertisement and the metaphorical structure of the advertisement will be revealed.

4. An analysis of Karaca's "Fine Pearl"

Vermeer's most known work of art, *Girl with a Pearl Earring*, is regarded as the Mona Lisa of Netherlands, which emphasizes the importance of this painting. *Girl with a Pearl Earring* is one of the character representations that came to life on the canvas, reflected from the imagination of the artist. The painting features a girl with slightly open and moist lips, bright eyes, a huge pearl earring, and an ultramarine blue and gold scarf on top of her head. There were numerous claims regarding the identity of the girl in the painting. The majority says that the girl is the servant of Vermeer. It has been claimed that she may have been one of the tourists who came to the Netherlands, as her scarf was not something locals wear daily. There are countless and various assumptions about the painting, but the only thing certain is that it is a painting that was done with an extraordinary technique, of a young white-skinned girl looking over her left shoulder, gazing upon the eyes of the viewer. The girl in the painting turns her head momentarily and catches the eyes of her audience, and that very moment comes to life on a canvas. So much so that Umberto Arte recalls Nietzsche's words: "Precisely the least thing, the gentlest, lightest, the rustling of a lizard, a breath, a moment, a twinkling of the eye—little makes up the quality of the best happiness." Arte thinks that this quote defines her momentary look. *Girl with a Pearl Earring* is the painting of eye contact with the audience and a brief silence [22].

The main theme of Karaca's "Girl with a Pearl Earring" advertisement prepared by Y&R Istanbul in 2016, which was broadcasted on television, is inspired by "Girl with a Pearl Earring" by Johannes Vermeer in 1665, as the name suggests. Although almost 400 years have passed, it can be seen that such works of art have become the main inspiration of advertisements, as in the works of other famous painters. These advertisements can either be in a printed form or a video. In this context, the television commercial chosen in the scope of the study consists of six shots and one scene. It is seen that the temporal and spatial contexts of the period in which the work was created were adhered to, and these aspects were supported by elements such as decor and costume choices. The commercial begins with shots including *Girl with a Pearl Earring*, proceeds to move onto next shots including the moments Vermeer creates the painting. The commercial continues with the close-up shot of the moment the *Girl with a Pearl Earring* puts her pearl earring on. The commercial nears the finale with a wide-angle view of the girl. From the moment she puts on the earring, the camera starts getting closer to her. The camera keeps moving to the point where the composition and framing ratios in the original painting are reached, then the moving image freezes and transitions into a single still shot, that is, the original work itself. Afterward, it is zoomed into the pearl earring, transitions into close shots of Fine Pearl series products of the brand Karaca. The commercial ends with one final shot including all of the Fine Pearl series. These shots are accompanied by calm and low-tempo music that includes string and wind instruments, and dominantly piano. The story is narrated, which supports the commercial.

The assumed story about and behind the painting is told by the narrator during the commercial. The pearl earring of the girl gazes upon the audience is used to draw attention to the fact that the Karaca Fine Pearl series is the world's first and only dinnerware made of real pearls. The semantical setup and visual metaphor in this commercial are made up by the mystery behind the figure and her earring. One other important thing is that the narrator, which is one of the most impactful elements of the commercial, says: "Of all the women Vermeer has painted, she is the only one that no one knows anything about", emphasizing the meaning of the commercial. The "Pearl" on the original artwork refers to the aesthetic modality

of the painting. The “pearl” on the commercial refers to the inspiration behind the visual representation of the commercial. This effectively establishes the metaphorical link between the original work and the commercial, and the fact that the product is named Fine Pearl compliments this representation. Just as the Girl with a Pearl Earring’s earring represents elegance, purity, aesthetic, and prestige, the commercialized product also represents elegance, purity, aesthetic, and prestige.

The way that Girl with a Pearl Earring, which has gone down in art history as one of the classics, is presented, the content and the aesthetic of the commercial makes up the rhetorical value of the commercial made for the Karaca brand. The fact that aesthetic that came to life in Vermeer’s work of art are transferred into the commercial, consolidates the metaphorical power of the art and the impact of cultural knowledge on the advertisement. Besides, when the expressions related to food are historically examined from semiotic, class, and social aspects, it is seen that food is not only an act of eating for the sustainability of one’s existence but also is a part of daily life since it appeals to the palate and eyes of people, is a part of rituals and celebrations. Moreover, it has a metaphorical function as it has emotional and associative aspects. In this context, the fact that the advertiser noticed that both the dinnerware series especially produced by the Karaca brand, and the artwork itself are associated with high culture, and the meaning of the art has been conveyed to the content of the advertisement is undoubtedly a very accurate choice. As we can notice, unlike many of Vermeer’s pictorial contents she is not engaged with a daily chore. Instead, represented in an evanescent moment, she turns her head, meeting the viewer’s gaze with her inviting eyes. This is a pick point of the idea of the advert. Girl with a Pearl Earring has no any upper social status, she is a simple woman that with a precious touch of pearl became an admirable personality with a brave and shiny look as all those modest dining rooms that with a touch of a Karaca Fine Pearl collection become more precious. The message here is that the pearl, that made the artwork famous with its elegance, is going to enrich the dining tables with its elegance.

On the other hand, the visual representation in the commercial and the narration with music that support this representation, naturally lead the audience to selectively perceive things. This is in parallel with the idea that the way images and stimuli are presented can affect our perceptions and thoughts. It is expected from the audience to associate two things that have nothing to do with each other in the commercial. Both visual and auditory messages point out the actual meaning behind what the audience sees. In the case of this commercial, the thing that is being pointed out is actually the brand Karaca itself.

5. Conclusion

As a cultural phenomenon that encourages consumption, advertisements need images to consolidate a meaning cycle reproduced continuously. Assuming that it is necessary to consider the object as a message that has gained its meaning for sublimation or promotion of the meaning in an advertisement, it is a must to develop the imaginary thinking as reasoning ability. This study reveals how the artwork itself and its backstory are represented as visual images and how these images fulfil the function of creating meaning. The artwork can be considered as both an intellectual product and a philosophy text that contains aesthetic tendencies. The creation process of the advertisement is a two-layered design process that consists of the creation of the image/visual (form) and meaning (content). At the same time, the image used is the message. The communication between the image, in which the message is encoded, and the recipients occurs only when the image supports the meaning and the recipients perceive and interpret them.


In this study, the usage of metaphorical setup, which includes artistic actions, with the work of art in advertising communication was examined. Although the work of art was created for form-regarding purposes, the role it plays during the commercial turns it into a visual element. Especially in advertisements, in which the images with an aesthetic value like artworks are instrumentalized, it can be seen that the meaning is set up using many layers. Because the work of art used in the advertisement turns into a representing image both form-wise and content-wise. In other words, while the work of art is fulfilling a communicational function, the content gets added on top of its aesthetic. The artwork, which turns into a sign in the advertisement, becomes a metaphorical message used to affect and convince recipients. Therefore, it is concluded that visual metaphors in advertisements should be examined as two layers, namely, aesthetic and representation.

Author details

Fatma Nazlı Köksal
İstanbul Aydın University, İstanbul, Turkey

*Address all correspondence to: fatmanazlikoksal@aydin.edu.tr

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Between Madness and Literature by Michel Foucault from a Philosophical Point of View of Language

Filippo Silvestri

Abstract

Michel Foucault's work in the 1960s is marked by two important works – *The Order of Things* and *The Archaeology of Knowledge* – but his research spans further topics. Among these, two are particularly interesting: his studies on the history of psychiatric thought from the Renaissance to Freud, and his work on literary works, which include two essays on Roussel and Blanchot. The psychiatric and literary experiences share a sense of being *outside*, a *dehors*, to use Blanchot's expression, and each has its own way of doing it. The discourses of mentally ill people are considered to be *outside* of the space of Cartesian reason, that is, enlightened and positivist. A certain type of literature experiments being *outside* semantic schemes, as it pushes writing to its *limits*. From these two sides, Foucault experiments with the meaning of experiencing difference: the language of the mad and that of literary people are two different ways to bring to light an *originary language*, untamable, that is before any *taking of the floor* – any speaking out – happens. The study of madness, psychiatry, and its history, and in parallel with the study of a certain kind of literature, with its respective languages and discourses, meant, for Foucault, understanding what it means to be outside of the *order of discourse* widely considered reasonable.

Keywords: Foucault, language, the history of psychiatry, literature, being outside

1. Introduction

A key difficulty encountered by those who first read Michel Foucault's works in the 1960s was not understanding what type of writing his was, to which *order of discourse* it belonged. Foucault's writing is "mad," in the sense that it is outside any scientific and literary genre. Was Foucault a philosopher, an essayist, an epistemologist, a historian of science, or something else [1]? Putting aside these impossible classifications in *Foucault's case*, the issue of language – of writing in general and of literary writing in particular – represented a "space" that the philosopher found hard to define. What type of language did Foucault study? From *Madness and Insanity: A History of Madness in the Classical Age* published in 1961 through his lectures at the Collège de France in the early 1970s, Foucault studied the mad, their discourses, and those delivered by the doctors across five centuries. The mad, the

doctors, and their discourses represent for Foucault an *outside* and an inside of the *orders of psychiatric discourse*. The mad is the *other* with respect to the definitions and identities established by scientific knowledge, from Descartes onwards. A certain literature can push the possibility of language beyond recognized semantic limits, *outside* the *orders of discourse* of ordinary language.

Certainly, Foucault's attention to literature is not linked to an interest in writing, which would be a "shelter for subjectivity" – an *existentially* subjective inner place, removed from the dialectic of relationships – because his archaeology is a research that points beyond, outside this same dimension that is itself still much too *subjective* [2]. Foucault's observations on literature disappear in the 1970s. His motivation is not easy to pinpoint, other than Foucault deciding to commit himself to the political and genealogical study of the relations between men, as literary studies simply were not enough for him. It stands that literature, among all the other studies, allowed him to *escape from himself*, from his books and certain aspects of his thought that were too structuralist. Nietzsche, Bataille, Blanchot, Roussel, as well as Sade, Mallarmé, Joyce, Kafka, Pound, and Borges were at the core of Foucault's literary passion, of his break with phenomenology and with a certain Hegelian French academia of the 1950s, and with philosophy in general, perhaps [3]. His literary studies are not only *archaeologies of knowledge* but *genealogies* too, which he attempts, of the historical present, of modernity, of the 1960s.

Alongside this attention to literature, Foucault, already in *Dream and Existence*, *Mental Illness and Psychology*, and *History of Madness*, wanted to start exploring what had historically been considered *different* due to it being pathological, from a psychiatric point of view. Foucault had to understand what the difference of madness, sickness (*The Birth of the Clinic*), criminality, the difference of what and who is *disturbing*, consisted of. For him, in every disciplinary field – not only in psychiatry – there are always attempts at retrieving, identifying, marginalizing all these *differences*. To this day, work is being done to bring them back as an *alterity*, the alterity of the *same prevalent reason*. In his books of the 1960s, Foucault attempts to reconstruct these techniques of *bringing back* and *identification* to understand why some people are inside a madhouse and others are not.

For Foucault, there are those who know how to *speak* about these differences with care, how to tell about and even paint them. They are painters, poets, a handful of philosophers, novelists, some French cultural figures of the 1960s, but also earlier, from the end of the 18th century and throughout the 1800s, all the way to Roussel, Bataille, Klossowski, and Blanchot. There are those who know how to paint the *others*: Bosch, Velasquez, Van Gogh, Manet, Magritte. Classic and contemporary philosophers, sociologists, scientists, doctors, and lawyers have instead, failed. This is how the confrontation – always at a certain distance – between madness, difference, sickness, criminality, and literature unfolded in the pages of Foucault's books from the 1960s. Here, Nietzsche, Sade, Artaud, Roussel, and Blanchot have lived, *speaking* to Foucault about these *differences*. They effected the possibility of *transgression* and *resistance*, of creating a literary and anthropological space, where they are not marginalized – or maybe they are – but without being put in a madhouse, at least in the "sane" phase of their lives. The cost of this operation is certainly high, even at the literary level, because a certain way of writing entails a "tormented" relationship with language and life that can stray toward a "structural esoterism" made of "haughty signs" [4].

As it is known, in *The Order of Discourse* Foucault explicitly mentions *powers* and *dangers*, an authentic *apprehension* that can seize us, concerning the language that we speak, which most people do not feel because they use it every day. But before reaching 1970, literary studies allowed Foucault to discover that literary writing had, for a long time – at least since Diderot – already subverted the linguistic codes of

belonging, in a confrontation (which was also political) with the *discourses of science*, and moreover in a confrontation at a distance with the *difference* of madness, a madness that the *discourses of medical knowledge* named and explained. Not only that, they *put it in its place*. This is where Foucault draws madness close to literature. Some literature is, in fact, a “disalienated madness,” [1] which cannot be confined to a madhouse, since it is made of “doublings of figures” [4]. This literary writing was not just a game and a literary experiment. It was also, and especially, a way to open up the signs and take them beyond their signifying function [4]. This literature was, in the 1960s of Foucault, “the madness of the outside,” [5] when things can be said but *cannot be thought of* as they are uttered. An example is Borges’ *Chinese Encyclopedia*, which opens *The Order of Things* and makes Foucault *laugh*. But if I speak and cannot think of what I say, what am I? If I move in a literary scene (Roussel, Blanchot, Borges, Artaud, and many others), I am not raving mad. If I am otherwise a *normal* man, then I am *anormaux*. It is worth repeating that we are on neighboring territories, because the two dimensions of mental illness and a certain type of literature are similar only for the discourses that they deliver. They are both *outside* the order of discourse of scientific knowledge, although under different titles.

This is how Foucault studied the history of psychiatric thought, from leper hospitals to Freud’s research, following a pace of this history that consisted also of interruptions, jumps, and sudden forward and backward leaps. In parallel, the *non-works* of literature coincided for him with *acts, events/enunciations*, where what counted was the *gesture*, not the person who made it, not the *author* who made it. Many were the incomprehensible, unnamable, un-assignable (at least temporarily) words in this semiotic horizon. It was almost like the language *twisted against itself* (Joyce). The sign opposed a resistance, and he who knew how to practice it moved to the *edge* and played on the borders of the *outside* (Blanchot) because the signs that he used could not be immediately recognized. In the face of this word, it is even possible that some *dispositifs* of power can change, because *transgression* [6] – even when only literary (Sade, Artaud, Nietzsche) – can cause a general movement of reversal that breaks with the “old.” For Foucault, at the basis of these breaks are *events*, a “solitary movement of singular precociousness” [1]. The switch to history, to a collective strategy, is hard, because everything seems temporary, isolated – an *accident*, an *event*, where the bringing back and integration deployed by the *dispositifs* of power are always right around the corner [1, 7]. It is thus necessary to look *always, again, for* another *outside*. The work of detachment, what Foucault will name *sé dépendre*, has to begin all over again, both in psychiatric studies and in the field of an archeological and genealogical philosophy that knows how to dialog with certain literary forms.

2. Notes on reason and madness in *History of Madness in the Classical Age*

Madness has been the object of many *discourses*, which Foucault studies and divides into periods. In his reconstruction in *History of Madness*, Foucault claims that the mad, at least since the 1750s, had to be excluded and their speech controlled. Only *reason* can speak and this is how *madness* is named, identified, and circumscribed. Of course, so pigeonholed, *madness* contributes to define the limits of this same reason: it is the *exteriority*, the *outside*, the *other* of reason. In any case, only one of them – reason – *speaks*, speaking also of the other one. And reason speaks about itself, about what it is and what it is not, of what others are and are not, being the only one entitled to do so. In all these cases, *discourse* is already an instrument in the hands of a power: the power of reason, and a psychiatric power too, if only in its early stages.

But how had people spoken until then? According to Foucault, the Middle Ages held together the scientific, allegorical, mythological, and poetic discourse, as well as that of magic and chemistry (alchemy). Again in the Middle Ages, the world had long ceased to be a *cosmogony*, a tapestry where man could read the signs sewn by God, because Babylon and its punished sins had rendered everything “opaque.” The men who built the Tower wanted themselves, and not only God, to be able to name things. Then like now, it was not a matter of simply *designating* things, but also of *creating* something, or re-creating something that already existed by designating/nominating it. We know that God punished the humans from Babylon for their arrogance and for building that Tower that pointed to the sky. And he punished them by making the signs and the traces that He has always left across the world, opaque and not immediately legible. Foucault maintains that the medieval men then tried to put back together a possible interpretation. Ferdinand de Saussure would write about the arbitrary relationship between the concept and the acoustic image. He would note that certain correspondences/transparences cannot be sought anymore, because sign, meaning, and the world refer to are different things, and nothing is transparent in these linguistic relationships. To the contrary, we have leaps of semiotic atmospheres.

While medieval people were still convinced that the great jigsaw puzzle of opacity could be read through different languages belonging to the same *leggenda* (in the sense of what can be read) [8], the *Âge classique* imposes itself and imposes the singular language of reason, of science, and Cartesian knowledge to everyone. This is how man will start differentiating between scientific, allegorical, and mythological discourses. Based on these rigorous languages, those with the power will be able to start *serializing*, categorizing, *naming*, identifying, and creating taxonomies (maybe we have never stopped doing it) to make other women and men into classifiable phenomena. Given this semiotic premise, the mad of the *Âge classique* are all pigeonholed in a template populated with cases of *abnormality*. According to Foucault, a “tragic awareness” of this madness developed since the very beginning, that is, in the early Renaissance. *Nature* could not be trusted anymore because it was suddenly populated by monsters, including the *mentally ill*, which could come out anywhere. In his reconstruction, Foucault claims that that is when the mad, the beggars, the vagabonds, the libertines, the blasphemers were all gathered at the *Hôpital*: a lager. It was a social problem: *order* had to be made. Undoubtedly, that *Hôpital* was filled with chaos: the homosexuals and debauched laid next to the mad. However, that was the price to pay to the Cartesian method, when a truth must be established that let only the reasonable and rational be free, whereas many and varied persons ended up together in a big hospital. Vagabonds cannot roam the streets, even better if everyone moves to the city from the country, because the country is still too *wild* and we must discipline, build the citizen, and create demography. Individuals must be controlled in order for them to be sent to the factory to work, already *serialized*, from the 1800s onward.

All the *mad*, indiscriminately, are empty, negative, and unreasonable [9]. Their bodies and minds (*spirit*) are too entangled and there is no physical cure that can go with some *moral consolations*. In the early *Âge classique*, this is how one could be innocent and should be cured, but chaos reigns and then the same innocent individual is guilty and must be punished. Thus, takes place the quick shift: reason on one side, madness on the other. Finally, with Pinel and Tuke, madness is *medicalized*, made into a scientific object. The mad are examined as if they were *phenomena*, in the same way *objects* are examined. These *mad objects* (which lack the qualities of the rational and reasonable subject) are our “objects” because they are in our “possession” and, as such, belong to us in every sense. Then, perhaps, we lock them in a drawer, but it is something we decide to do. These prisons/drawers are ours: we built

them to put in our objects, our possessions, our mad, and our physicians. They are the drawers of our desks, on which we compile our *archives* and note that someone is *mentally ill*. In Foucault's reconstruction, at this point this kind of madness is very close to us because it teaches about us, who are the mentally sane. We know ourselves through this madness, that is, through the modalities with which some discourses are made that let us know that someone is mad and maybe we, too, are not so well.

Only Freud will begin claiming that there is something *profoundly true* in the mad, which belongs to all of us. Again, Freud will say that there exist some familiar, *sleeping forms*: the same *voices* for everyone, and strange *lights*. It is as if the mad showed us our youth, being the mirror of the distortions of a civilization that has become modern. The instincts, perversions, pain and violence, the selfishness are ours. They are our mad side. But before reaching Freud, Foucault reminds us that Pinel – who took the important step of declaring that the mad are not monsters but persons in need of a cure – did not free anybody, precisely because he claimed that madness is a *sickness* that must be cured. Pinel, as a physician, was a man of power who practiced a discipline that had its own exclusions, “declassifications,” and desk drawers. However, Pinel's time is already the time of the *man-madness-truth* tryptic; not the time of the *truth/errors*, *world/ghosts*, *being/not-being*, and *night/day* dichotomies anymore. Foucault identifies a three-partite anthropological articulation that ripens in Pinel's hospitals of the 1800s, on city and country roads, in the literary works of all the authors that we have already mentioned. It may be 1961 and Foucault is speaking of *madness*, but *The Order of Discourse* of 1971 is already ready.

In any case and to stick with our theme, at the time of *The History of Madness*, Foucault attempts straying in the literary field more than once. Diderot's *Le neveu de Rameau* (1891), whose analysis occupies the introduction of the third part of the *History of Madness*, is a lonely man who makes continuous pantomimes. He is vain, *full appearance*, *immediacy*. He is a *raving* man, who interrogates us, even if he represents “all the elements that form a wordless dialogue between day and night [...] in the burgeoning transcendence of any act of expression, from the source of language itself [...]” [10]. Roussel, Joyce, Foucault: ““He is mad”, because that is what people tell him and because he has been treated as such” [10]. *Rameau's nephew* is *lyrical*: he imitates everything, knows all the languages. He is *one and nobody* because he is everyone. He is a man who, in the end, is left on his own, locked up, remaining there with an empty smile on his face that will frighten us. Foucault: “To be oneself that noise, that music, that comedy, to realize oneself as both a thing and an illusory thing, and thus to be not simply a thing but also void and nothingness, to be the absolute emptiness of the absolute plenitude that fascinates from outside, to be the circular, voluble vertigo of that nothingness and that being [...]” [10]. In the end, *Rameau's nephew* will be an *object* in the hands of the physicians and his lyricism will be explained and normalized in the *medical discourse*: his will be an *organic problem* and, as such, *medicalized*. And yet, like in a concave mirror, this *monster* of a nephew shows what and, most importantly, who is normal. In a short time, Sade and Baudelaire will be “declassified” too, because their discourses are perplexing. Sade will be classified as a *pornographer*. He will be identified and taxonomized: his work will be considered *obscene*, perverse, and deviant. The danger that he represents must be softened, thus he must be locked up and condemned.

Are *le neveu de Rameau*, Nerval and Hölderlin, Nietzsche and Artaud mad? Absolutely not, not in an important phase of their lives, because they have their own way to tell their experience, which for Foucault is symbolic. It is almost as if they established the sense of how the experience of life is changing in general, between the end of the 1700s and the beginning of the 1900s, thus also the experience of life of those who really experience madness and, especially, of those who watch and

listen to it, deciding whether one is mad, or not. Madness and literature stare at each other from their respective sides, experiencing each its *non-sense*. We are on the outermost edge of “two movements of poetic conversion and psychological evolution” [10], which imply, for Diderot in 1791 and Foucault in 1961, *the inebriation of sensible things*, the enchantment of *immediate things*, a painful irony, a certain loneliness, that of the *neveu de Rameau* and his madness that belongs to us. However, there is not only Diderot. Let us repeat and anticipate a theme that we will return to: Nerval and Hölderlin speak about man’s *senseless secret*, about “his first morning,” a “young light,” a “starting again,” an *outdoor* (an *outside*), which is crammed with items that are not mediated by any reason and are very attractive. We will return again to how these literary experiences happen like a tragic and painful “laceration,” even if always in the *full light* of the possibility that we might start all over again (Nietzsche). In short, we are dealing with dangerous experiences: “The moment of the *Ja-sagen*, of the embrace of the lure of the sensible, was also the moment they retreated into the shadows of insanity” [11].

The History of Madness was not appreciated by some psychiatrists, who deplored that someone could claim that their retreats had an obscure origin in the leper hospitals [12]. We have already recalled that, in spite of their merits, according to Foucault even Tuke and Pinel cannot be ascribed to hagiography of psychiatry. For Foucault, madness is a *cultural product* and, for psychiatry, things went one way, but could have gone another way as well: a *roll of the dice* – as we will see – a mode to conceive history marked by unforeseeable *events* and ruptures, which coincided with the birth of the bourgeois society and its ensuing, wide exclusions. At the beginning, psychiatry was, with Pinel and Tuke, one of the positivist forms that corresponded with a sort of apotheosis of the figure of the psychiatrist. In Tuke and Pinel’s retreats, a rigorous morality applies, where no *diagnoses* are made, only observations of the *behaviors* of the sectioned patients. For Foucault, here it is all about knowing how to deal with the mad and there is nothing metaphysical in the patient-physician relationship, but rather a full-fledged *political confrontation*. Madness attempts to make its voice heard, but science classifies it like a sickness, and achieves this by indulging its *moral sensitivity*. Since that time, many steps have certainly been taken, as we at least have tried to rely on the *medicine-verification* model [12]. Is Foucault an anti-psychiatrist? Maybe. Certainly, mental illness is not only a natural occurrence to him; it is also the effect of a specific medical interpretation. Psychiatry advances/imposes such interpretations, which are historically based on a power relation with the patients, is a power that makes institutions – and not only them – work. And yet, if this is how things stand, if psychiatry was and is a power, then its choices can be questioned and subverted [13].

Nevertheless, what *procedures* do men/women undergo to become physicians, as *subjects of conscience*? Simultaneously, on what basis do men/women become patients as *objects of conscience*? For Foucault this question is not only about *repressive systems*, with respect to which we would be *passive*, but about processes of *self-formation*: the mentally ill and the sane self-form with respect to the psychiatric power. The same goes for the physician with respect to the patient. It is a power fight over yielding the power of delivering a certain type of discourse. Is psychiatry willing to ask itself about how its ‘truth’ has affirmed itself through history, under sometimes violent circumstances? Does it make a genealogy of its historical processes that have led it to, today, deliver certain discourses, which profess the truth about who is mentally ill? To work on one’s history effects the *liberation* – albeit partial – of thought, including the psychiatric thought, working silently on what we think, because those who are defined as mentally ill do, indeed, *think silently*, but the same goes also for the physician who observes the patient’s behaviors and listens to his/her discourses [10].

Let us be clear on this: Foucault's whole operation in 1961 and then in 1972 with the new edition of *The History of Madness* and then with the two courses at Collège de France, *Le pouvoir psychiatrique* (1973–1974) and *Les Anormaux* (1975), was not easy, because Pinel is not at all bad. He is a physician who stands before the mad and tells his assistants that these people are not criminals, nor possessed by the devil, nor wild beasts to chain and lock up, but sick people, and it is necessary to treat them with care and humanity. But we have seen that for Foucault, Pinel's progress still carries within itself the discursive mesh of a series of passages that reduce the *other* to nothing, but a *sick person* to cure and, in a positivist sense, a scientific object to analyze like any other phenomenon. We will have to wait for Foucault to read Freud and even he will not be enough for the philosopher because his psychoanalyses are induced *self-confessions*. In any case, madness remains the result/discard of the Cartesian cultural gesture of separating *reason* from *non-reason*, being mentally sane from being mentally insane. For Foucault, psychiatry does not liberate, it excludes. Lepers were too excluded by means of specific rituals of purification. They were only one step ahead of the beginning of psychiatry's history, which was grafted onto their historical branch via an event, an *Hôpital*, a Cartesian distinction between *being* and *not being*.

Is Foucault's reconstruction of the *history of madness* perhaps too ideological? Does it wink to *Surrealism*? Is it too not historical enough, *anti-psychiatrist*, anti-Cartesian, and anti-Enlightenment (these are the accusations that were leveled at him and that he took in serious consideration) [14]? Maybe, but this is not what matters today. What matter are his observations on the discourses of psychiatry, *powerful* discourses that forced many *different ones* into a silence that stretched to Freud's time, even if, to Foucault, certain tales of the self (the dialog and the psychoanalytic encounter) look a lot like *self-surveillance*. In any case and at every moment in history, psychiatric time needs its own *microphysics*, which is only possible starting from the discourses that the psychiatrists make and let others make, or not: from a psychiatric point of view [15], *society*, *power*, and *normality* are important stakes. Is Foucault anti-psychiatrist, *post-romanticist*, and an idealist? Foucault signaled a discursive shift: the mad's discourse, which was silence, was replaced with the medical discourse, a kind of "transcription" of *madness* in the language of *mental illness*. This affects us, if nothing else, for all the times we speak of *medicalization*, a concept that touches us throughout our lives, from the moment of birth to that of death.

We know that in the 1970s and 1980s Foucault sought a return to the *Aufklärung* beyond its historical limits: a *critical*, *archeological*, and *genealogical* return to the time of the *Luminares*, because a different life is possible, because, if anything, the Greeks and the Romans, at least some of them, before the Christians, led lives that were ethically different from our present ones. But what kind of shift did Foucault attempt? Are not his *Aufklärung* and his *critical detachment* themselves constitutive of a new *scene*, with all the limitations that it entails [16]? Regardless of how we want to answer this question, already by 1961 Foucault had described a "madness of not madness," in the *non-sense* of a reason, a knowledge, and a medicine that impose themselves as *dispositifs of power* with catch-all pretenses. Then, next to it, we are left with the impression that the *sense* that we attach to things derives from a *non-sense*, which is of the world and of the same men and women that attempt to give *meaning* to themselves, walking on an *abyss*, the abyss of the *non-sense* that they find themselves facing.

For Foucault, let us repeat it, *power and knowledge* can constitute themselves in a *moment*, and therefore at the beginning of any time there is a *roll of a dice*, an *empirical* dimension that is necessary and not transcendental. There has never been, for Foucault, a *transcendental subject*. There was never a man, a woman, that had

been always made in a certain way and would be like this forever. There has always been and there will always be a man and a woman of knowledge and power, who change at each historical passage and some passages are, as we were saying, a *roll of the dice*. This is where we run along the edge of the abyss, that is also connected with what might happen: Nazism, Fascism, the lagers, the atomic bomb, the “madness of not madness” taken to their limits. And yet, *they* are the mad ones, the people whom we cure, medicalize, and confine in the madhouses. In Italy, Basaglia, first in Gorizia and later in Trieste, began opening some psychiatric hospital in the same years that Foucault was conducting his studies, from the end of the 1960s through the 1970s. Basaglia’s operation was not easy, especially for the families of the liberated *mad*, who were again hit by their relatives’ *non-sense of the sense*.

3. Why literature

Foucault writes for *La Table Rond*, *Tel Quel*, and *Nouvelle Revue Française*. He writes a book on Raymond Roussel and the introductions of other literary works. In the 1960s, Foucault makes his incursions in the world of literature, where he finds confirmation, among other things, about his notion that language precedes us (Blanchot); a language that is an *outside* (*la pensée du dehors*, the precise and famous expression di Maurice Blanchot) that envelops us. Our word is not the beginning. It is not at the beginning. For Foucault/Blanchot, it is a certain *surrealism*, a certain *aestheticism* of the beginning of the century that matters.

In *The Order of Things*, the Renaissance, was for Foucault, a time marked by a way of understanding language as governed by relationships of *similarity* and *analogy*: the inner *microcosm* corresponds to the *macrocosm* of the world via analogies, one resembling the other in the semiotic universe of the Renaissance. With the Baroque, these relationships of similarity are left behind and a crucial shift happens, as language is now considered a *mathesis* that allows things and names to be divided up and linked in a clear and distinct way. Then, in the 18th century, the *signifier-signified relationship* becomes problematic once again: a caesura intervenes between words and things. In any case, language has for a long time, since the Renaissance, lost its relation of similarity with something *enigmatic*, *primitive*, and *shining*, which coincided with an infinite opening up to the world. Foucault claims that no traces remain of that language today. This moment is when a certain literature that has its own semantic autonomy – not unlike a *counter-discourse* without representative pretenses – emerges, in a space otherwise dominated by scientific discourses. With it, a *language that pulsates*, that lives and breathes, makes its appearance once again with Hölderlin, and, for Foucault, Mallarmé, and Artaud, who are the first among the others to engage with this language [17–19].

Let us now move, then, to Foucault’s 1960s’ France and recall something we are now familiar with, that is, that Blanchot and Bataille intended language as a form of *negation*, a passage that Foucault appropriated. Blanchot and Bataille claimed that a *refus*, una *dépense* had to be opposed to an *omnivorous dialectic* of the philosophers, because things must be *consumed* for a real *expenditure* of energy (not only semantic ones). By doing so, one does not see goals and aims for themselves. It could be that in this literary context – and not only in it – it is necessary to also work on *psychic automatisms*, like the Surrealists did, since it is possible to be *manifold individuals* without a definite identity. Certainly, according to Foucault [20], we should not apply a psychological reading to works of art (like Jaspers did, for example [21]) because that would end up, if nothing else, twisting van Gogh’s art. Foucault notes [22] that if we want to adopt a psychological lens, then we should say, with Lacan, that the *originary language*, which brought together madness and reason, is always

there, within us, even after reason and madness have been separated. And yet, since some rational limits have been set up, that language has trouble making itself heard. For many, *it does not exist anymore*, and thus, there is no possible accommodation, no exchanges, no communication between the madness of some and the so-called *work* of others (for example, some psychiatrists). Madness is the *absence of work* and so is some literature. Are Van Gogh's paintings *works*? In Foucault's reading they are not and this is not because van Gogh cut his ear off, but because his works, his paintings, represent a break with all that precedes them in a historical and dialectical sense. Van Gogh and his paintings mark an *inaugural event*.

Moving with Foucault to an exclusively literary side, Hölderlin, in his time, already *resisted*. Hölderlin resisted through his poetry, a poetic resistance, infused, however, with a *divine violence that illuminates and incinerates* [20]. We are with Foucault and the Hölderlin that he reads, at the *limit*. Blanchot (whom Foucault will follow almost to the letter), also reflected on Hölderlin, and wrote in *La parole sacrée de Hölderlin*, in the book *La part du feu* [5], about a literary journey to an *inner reality* that can be in a relationship with what is *sacred*, here following Heidegger's lesson on *silence*. For Blanchot, this literary *inner reality* – and not only that – coincides with nothing reassuring, as its experience suspends the world and the self. Blanchot observes that, in Hölderlin, all this takes on an ambiguous and dangerous appearance, because it is like we are waiting for the *dawn* and the *song of the Gods*, while, at the same time, facing the loss, the ruin of the self's word. As we have repeatedly pointed out, even if these are not experiences of madness, they are nevertheless painful dimensions that are difficult to hold, being at the very *edge* of what others would treat medically. We can, therefore, consider them as forms of alienation. The literary experience is a path that can be tread, which can lead to a new Zarathustra. Its journey and its outcomes too are painful, almost unbearable, and in any case they are not an experience for everyone. This is the origin of the clear political limits of such a proposal, the missed switch from individual experience to collective sharing, even though Nietzsche clearly changed the course of history, at least for a certain part of the Western world.

For Foucault, the fragmentary and incomplete nature of Nietzsche's writings represented the rapture and the shedding of the unitary system of so-called *works* founded on scientific discourses. For Blanchot, the *work* that Foucault mentions with Nietzsche, remains instead, albeit transformed, open, infinite, unfinished: Hölderlin, Nietzsche, and later Kafka and Mallarmé testify to it. Blanchot identifies an anchor in the unbridgeable gap between Hölderlin and Nietzsche's literary experience and their respective *madness*. He believes that Hölderlin paved the way for a new genre. Hölderlin announced the possibility to dissolve the artist's subjectivity, moving toward something deep that could not be reduced to *the orders of the discourse* of scientific knowledge, toward a non-dialectical *dehors* that is an originary dimension. For Foucault, the *dehors* entails moving to a *metaphysical void*. For Blanchot, the *dehors* is a space, where one can *play at differing* the meaning of the words that one uses, if they know how to do it. Such words, if put down in a certain way, help one to put themselves at a small distance from reality and the world as they are given to us.

If we return our focus to Foucault, in the span of a few years, his positions will progressively adjust and, from *Non du père* to *La pensée du dehors*, they will move closer to those of Blanchot in a clearer and more definite way. Foucault detects a *void*, an *absence*, in language, what precedes the speaking out. Between 1963/64 and later, after 1966, in *Préface à la trasgression* [23], the introduction to Bataille's work, a certain way of doing literature becomes, for Foucault, a *transgression* of the limit, without being a Dionysian experience anymore, with no relationship with madness. In *La folie, l'absence d'œuvre* of 1972 [24], Foucault pronounces the definitive death

of the *homo dialecticus* and between his death and the liberation of language we go from Nietzsche to Freud and finally Blanchot. Freud, in any case (and for Foucault in 1972) does not, in fact, consider the language of madness a *deraison*, but a *reserve of meaning*. It is not simply silence anymore, but a *doubled-up word*, folded on itself, with double meanings that go beyond the linguistic surface. According to Foucault, Freud reflects on an *esoteric language*, a code that loops back on itself. It is an *absence of work*, where one cannot be univocal. Perhaps, this is how, Freud and Foucault claim, we can disclose a certain closeness between literature and madness, thanks to these features that are essential to any linguistic code [25, 26]. But, in reality, Freud, Blanchot, Mallarmé, and Foucault align on a new front. Because if Freud discovered the hidden meanings of language, Mallarmé took the same language to an originary dimension, which is not madness anymore for both of them, but a shared and originary dimension. Thus, under the sign of a certain interpretation of language, a new union is established, not between madness and literature, but between a certain way of practicing psychoanalysis and literature. Here with Foucault we get close to Heidegger and Blanchot once again, acknowledging that language is something *originary*, a *dehors*, something that before speaking out is unrestrained, because it is an origin that we cannot dominate.

Roussel, Mallarmé, Bataille, Blanchot accompany Foucault in his *archaeologies* of language, at least for some time. But let us ask once again: why this focus on language? Certainly, Lacan's lesson, among the others, had its importance. But why Lacan? Because Foucault is interested in his psychoanalysis [27], a psychoanalysis that can look beyond the dimension of *representation*, proceeding in the direction of the *limits* of man and his being "finite." *Death, Desire, Law-Language* are the three keywords/cornerstones of Lacanian psychoanalysis. For Lacan, language is not a free expressive capacity. It is a "law" that governs man's thought and action, beyond their conscience and active mechanisms. This is where Foucault's research establishes the point of welding between literature and madness that we have been looking for. Let us read, then, Bruno Moroncini's words: "In other words, if I start reading a text by Maurice Blanchot (or Raymond Roussel, or Georges Bataille, or a poem by Mallarmé), what kind of experience am I having (in the sense of the *Erlebnis* of the phenomenological tradition, or the philosophy of life)? Am I experiencing the contents that have progressively accumulated in the subject and that are communicated to us in a nice form, or is it the experience of language as language, that is of that Language-Law that cannot be separated from Death and Desire, to which psychoanalysis leads us in its approaching the reason of the unconscious and of finitude?" [28].

Whether it acknowledges it or not, the *I speak* is inside a language that can *spread* itself infinitely. Raymond Roussel and Edgar Allan Poe know it: if you know how to play, this language can lead you to the infinite on its surface, breaking you, dispersing you, scattering you in a "naked" linguistic space. But one must pay attention, because this *infinite spreading* also concerns some discourses. These discourses, which purport to tell the truth on people and things, infinitely search for a truth, a certainty, a definition, that does not exist and has never existed, all the while counting who is in and who is out. In such cases, the *I speak* is a "crack" through which other, specific *outsides* form – the various "outsides" of the *discourses of truth*, the ones that are full of rules that *exclude*: the *prohibited*, the *partage* [29]. All these linguistic phenomena express a *will of power*. They are *dehors* the discourses that idealize Reality – like the juridical and historical ones.

Madness too inhabits this *dehors/outside* of language, but it does it in its own way, a very difficult way to interpret. Death, the dark sides, the unsaid of *discourse* have their own *I speak* that we need to be able to listen to. It is not enough to label them as "mad" because they are not. They make up an important part of us and, in the

end, are neither good, nor bad. There is, thus, let us say it once more, a sharing of a *wild territory* from different sides, a looking at it from different shores that must be kept separated: that of literature and that of mental illness [30]. In Blanchot [31] and Foucault's case, this wild dimension could, for some years, correspond to one of the findings of an *archaeology of silence*, a *silence* that once had a voice. For Blanchot, his *dehors* is not madness, but a way to distance oneself from reality and the world. It is an *outside* that is a *sign* that wanders the world and develops itself in a constant *deferral*. For Foucault, literary language is a language of literary *fiction*, which weakens the discourse of the Cartesian subject. Then there are other types of fiction, like those Bentham reflects on [32], but here we get to *Discipline and Punish* of 1976, almost ten years later and they are linguistic and symbolic fictions discussing the power relations and, perhaps, even the prison's architectural structure. In any case, the thread that goes from Blanchot to Bentham remains. In the end, almost of the 1970s, Foucault will visit Japan where he will discover a different theater, even a different *ars erotica*, that will lead him to think of another semiotics, a semiotics of the *scene*, of the *ceremony*, of the *ritual*, of *martial arts*, all of them disciplines of the body that are different from those of the West. But this is a different story for a different paper [33].

Going back to the 1960s, literature was, for Foucault, *transgression*, resistance, *contestation*, a questioning of dialectics and of those who profess it. At that time, contestation could still realize itself, not only in politics, but in a literary space going from Sade to horror novels. Literature is a *pretext*, something non-historiographical that *comes before* the text, is not an academic discourse, and does not follow a method. The book dedicated to Raymond Roussel is Foucault's "secret garden." His step toward politics is drawing near, while at the same time still far away, because, in these years, Foucault practices mostly, not really an esthetic, nor a hermeneutics, but a philosophical-literary study standing between history and *non-history*, semiotics and *noise*, which is an archeology that is useful to take a step back and oppose those who adopt a strictly scientific method, thus counting who speaks and does not speak [34].

This switch is not easy, we have already said this. Poe, Roussel, Blanchot split words. They embed them in different codes, from which the paradox can originate of a word that says what it says, while adding a *mute surplus*, that shows, almost silently, not only what it says, but also the code and codes that allow it to speak. In such a way, we move inside the *existential folds of the word*, where some words do not have a single *meaning* and what counts is not their *verbal matter*, but the *game* they play and the *transgressions* that they allow. These words do not hunt the truth, because they are not *confessions*, neither in Augustine's way, nor Rousseau's or Freud's. Here, for Foucault, we need a poet's talent, since writing, at the time of the first edition of the *Archaeology of Knowledge*, is something we *lose* ourselves in, we *step back* from, we *play* with, whereas the subject of knowledge of the same poetry must be destroyed and vanishes, since there are no authors anymore when we write and read (from Kierkegaard to some variants of the structuralism of the time). In any case, for Foucault some books are interesting, because, as you write and read them, you cannot say where they will lead you and they thus teach you what you do not know. These books are *inventions* that can transform those who write and read them. They can be real *events*.

Coming to the end of this review of Foucault's literary studies, let us insist again that a certain structuralism and the Heidegger of *Being that manifests itself in language* – as well as Nietzsche, Bataille, Canguilhem, Lacan, Levi-Strauss, certainly Blanchot – have had an impact on Foucault's research, inducing him to believe in a language that *precedes* any scientific discourse. Literature admits this *anteriority*, it traverses it, opens itself to it and lets it flow, something that, at that

time, the *Nouveau Roman* in France had been teaching for a long time. Literature grasps and practices an *originary language* and if someone expects to find their identity in this semiotic experience, then they will not. Writers, those who try to study language *formally* (the Russian formalism and more) [35], those who study the myths (Levi-Strauss), or those practicing a certain psychoanalysis (Lacan), all know it. The language that they contend with imposes to the self, not so much to keep quiet, as to retreat, if it expects to engage in discourses intending to represent the truth of something. It is a matter of stepping *outside* the discourses that make dialectics and existentialism, the same structuralism, and listening to a different way of saying things.

This is how we can again create an *opening* (Heidegger), allowing the same language to spread itself infinitely, certainly in a *void* of words, for those expecting to say the truth. In this void, the signs come together, but they are also kept apart, because it is like they are *dispersed*, without a space that would let man and woman fold on themselves to seek their own truth. The language, that Blanchot experiments with, takes things to their limit, because it is a *self-contestation*, a *void* of Consciousness, inside the *noise* of language, where words go after one another indefinitely, overcoming the same literary fiction. Raymond Roussel had allowed Foucault in 1957 to break with phenomenology. Foucault will then read Blanchot, Bataille, and finally Nietzsche, in an almost exclusively literary procedure with a *sui generis* philosophical outcome [1]. For him, language will then be a *non-place*, made of uncontrollable similarities, a neutral space where nothing can root, no one speaks, where all has already been said in a different and often ungraspable way. It is not easy to claim all this: it stands on the border of madness' territory.

In 1983, Foucault will declare that there exists a *writing of the self*, which has been practiced, following a certain old, pre-Christian morality. This *writing of the self* does not coincide with an *obligation of truth* that runs the risk of going on forever exhaustingly and without a real *care of the self*. Then, in Greece and Rome, we had journal entries, notes of quotations, soul searching, and correspondences, treatises, in a relationship with friends and teachers. But here we are beyond literature. It is 1981–1982 and these are the lectures on *L'herméneutique du sujet*, where Foucault reflects on a possible *new ethical site* that has, in fact, been possible. A site, where man can transform himself, test himself, can take *care of himself* without being a subject who wants to know the truth, without establishing differences and placing *outside* and inside a madhouse, a prison, at the margin of society, those who have a different *sense* of things that does not coincide with the *order of the discourse* of power.

4. Conclusions

This brief reconstruction of the important and complex themes of madness and literature in the philosophy of Michel Foucault shows that, in Foucault's analysis, they are neighboring territories. Both of them lay outside the prevailing *order of discourse*, experiencing the *non-sense* of the words that they pronounce, enunciate, and live. Finally, each plays its own game. Or, to better explain, if those who create literature may perhaps want to *play* with words, those who are put in a madhouse do not play anymore. Probably, they really are ill, but it can also happen that they have been labeled *anormaux* by those who have the power to do it and, then, reduced to silence and forbidden to *wander* (Nietzsche) the streets of the cities and the towns, or the country, that were once their home. Both madness and literature are *dehors/outside*. They are exposed to an *outside*, which is the outside that they live, because they found themselves excluded from the games – left *out* of them – or

chose to keep *away* from them. Next to these two *outsides*, are the many *outsides* of the discourses of Power and of those who purport to tell the truth, which are *outsides* to those who pronounce and those who promulgate them, and to whoever is left outside of this network of power from which they have been excluded.

Let us repeat it once again: madness and literature occupy neighboring territories in Michel Foucault's philosophy and it is not right to overlap them. The madness of Nietzsche and van Gogh, the suicide of Roussel are painful. They are not a game, but real illnesses, or, in one case, the outcome of a possible form of depression. They must be clearly separated from the pages, or the paintings, which each of the three has, respectively, put together. Before falling ill or taking his life, Nietzsche, van Gogh, and Roussel, experienced philosophy, painting, and literature and their possible *non-senses*. The two different *outsides* that we have attempted to outline in Foucault's works go together in their lives, but only in succession. Foucault urges us to listen to and read their words, to look at some paintings, because *another world is possible*, whereas the one in which we live is made of discourses that purport to tell the truth for everyone. These *true discourses*, taken to their extreme consequences, can go into *infinity*, until they twist on themselves in the experiences of Nazism, the lagers, the atomic bombs released on two harmless Japanese cities. Here too, no one plays anymore, but reduces to death and silence those who do not believe their truth, their discourses, some *orders of discourse* imposed by a Power that, in history, coincides with an *event*, which corresponds with a *roll of the dice* that cannot be calculated in advance and that can appear again under new guises, which are themselves sudden and immeasurable, just as terrible, *mad*, *outside* our scope and the scope of our life.


Author details

Filippo Silvestri

Dipartimento di Scienze della Formazione, Psicologia, Comunicazione, Università degli Studi di Bari Aldo Moro, Italy

*Address all correspondence to: filippo.silvestri@uniba.it

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Do brains create material reality in thinking processes or is it the other way around, with things shaping the mind? Where is the location of meaning-making? How do neural networks become established by means of multimodal pattern replications, and how are they involved in conceptualization? How are resonance textures within cellular entities extended in the body and the mind by means of mirroring processes?

In which ways do they correlate to consciousness and self-consciousness? Is it possible to explain out-of-awareness unconscious processes? What holds together the relationship between experiential reality, bodily processes like memory, reason, or imagination, and sign-systems and simulation structures like metaphor and metonymy visible in human language? This volume attempts to answer some of these questions.

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