

# Moving Beyond Conventional Notions of Educational Processes: The Contribution from Charles S. Peirce

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*ABSTRACT: Focus of this seminar is the ways in which Charles Sanders Peirce (1839 – 1914) – “the father of pragmatism” – enhances our understanding of educational processes. In giving an account on Peirce’s later semeiotic, while pointing to some fruitful contributions from his “speculative rhetoric”, the seminar explores how Peirce helps to illuminate the dynamics of knowledge and learning embedded in the complex symbolic economies of today. In what ways may Peirce move beyond traditional notions of educational processes?*

## INTRODUCTION

This seminar is motivated by the intriguing fact that the complex symbolic economies of today seems to put conventional notions of “mind”, “society” and “education” to a test<sup>1</sup>. Taking the current condition, which is marked by an “era of informationalism” (Castells, 2004), transnational “knowledge economies” (Bindé, 2003; World bank, 2008), and by implication an emerging “epistemification of everyday life” (Knorr Cetina, 2007; Elam & Bertilsson, 2003), it is held that the dynamics of globalised symbolic economies, altered knowledge cultures, and educational processes seems to be under-theorised (Beck & Szneider, 2006; Guile, 2008; Paavola & Hakkarainen, 2005;

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<sup>1</sup> This quite bold statement should be read on the background of my work on “The Cosmopolitan Turn” (Strand, 2010; 2011) and workplace learning (Strand, 2010; Strand & Jensen, 2011).

Strand, 2010; Strand & Jensen, 2011). Consequently, there is a common call for a reconceptualization of educational processes.

I here respond to this call by exploring some ways in which the philosophy of Charles S. Peirce – “the father of pragmatism” – helps to illuminate the dynamics of knowledge and learning embedded in the complex symbolic economies of today. My ambition is to map out how the later writings of Peirce offers an alternative metaphor of mind and cognition, and thus seems to carry a promise of a philosophy of education that moves beyond traditional notions of the dynamics of knowledge and learning.

In short, the philosophy of Charles S. Peirce - “the father of pragmatism” - enhances our understanding of educational processes. Peirce conceives knowledge as “a living historic entity”, acquired through experience, mediated through signs, clarified by the pragmatic maxim, and validated by the final consensus. To Peirce, knowledge is a verb, marked by the communal processes of constructing, reconstructing and validating beliefs. In his earlier writings, Peirce was concerned by stressing how these processes of inquiry should be guided by the pragmatic principle, the social principle, fallibilism, and abduction: The pragmatic principle points to the pragmatic maxim as a proposal for achieving clarity of meaning. The social principle recognizes “the ideal perfection of knowledge” through the final consensus. Fallibilism admits the provisional and rectifiable character of opinions and – in avoiding overconfidence in the results – points to the trustworthiness of the inferential procedures used. To Peirce, however, the pragmatic, social and fallibilistic principles are valueless if they do not include abduction, which is the principle for creative innovation. “Abduction is the process of forming an explanatory hypothesis. It is the only logical operation which introduces any new idea”. A Peircean conception of the dynamics of knowledge and learning may thus, at one analytic level, be characterized as mutual and creative commitments towards shared processes of joint learning (Strand, 2005a, 2005b).

However, in his later writings, Peirce offers a richer conception of productive learning processes, as he now establishes an explicit connection between his phenomenology, pragmatism and semiotic, thus renewing all three. He now develops his early “semiotics” into a more general theory of signs (“semeiotics”) and sign use (“semeiosis”), which is equated with logic in a broad sense. Next, semeiotics – “the analytical study of the necessary conditions to which all signs are subject” – is divided into three major divisions: *Speculative grammar* studies the production and forms of meaning; *Critic* (logic in a narrow sense) studies the ways in which the sign can relate to the object independently from what it represents, meaning logical conclusions and arguments; *Speculative rhetoric* studies the relation between sign and interpretant, the method or the production of knowledge itself: “Its most essential business is to ascertain by logical analysis, greatly facilitated by the development of the other branches of semeiotics, what are the indispensable conditions of sign’s acting to determine another sign nearly equivalent of itself” (Peirce, 1904, p. 328). To Peirce, speculative rhetoric is therefore “the highest and liveliest branch of logic” as its task is to study the processes by which understanding and knowledge is created.

Currently, there is an emerging interest in this third discipline of semeiotics, and several contemporary Peirce-scholars demonstrate how Peirce’s new rhetoric not only is distinctive from a classical rhetoric, but also how Peirce’s new rhetoric carries prospects of a new outlook of the

paradoxical attributions of knowledge and learning (Bergman, 2007, 2009; Colapietro, 2007; Freadman, 2004; Kevelson, 1984; Liszka, 1996, 2000; Midtgarden, 2005; Santaella-Braga, 1999; Short, 2007; Strand, 2010). Moreover, Peirce's later writings appeal to the concerns of contemporary philosophers of education, since it seems to promise a renewed epistemology emphasizing the semeiotic *production* of knowledge (Anderson, 2005; Bergman, 2005; Chiasson, 2001, 2005; Colapietro, 2005; Garrison, 2005; Hoffman, 2006, 2007; Midtgarden, 2005; Paavola & Hakkarainen, 2005; Nöth, 2010; Pesce, 2010, 2011; Prawat, 1999; Strand, 2005a, 2005b, 2010; Stables, 2005, 2010; Semetsky, 2005, 2010; Ventimiglia, 2005). My modest ambition here, however, is just to illustrate how Peirce, in offering an alternative metaphor of mind and cognition, seems to move beyond traditional notions of educational processes.

I start by introducing an analogy on pedagogy used by Peirce in a 1903 paper on phenomenology: Through a close reading of this analogy, I sketch out Peirce's perspective on the ways in which "experience teach". Next, I outline Peirce's conception of semiosis as a metaphor of educational processes. In summing up, I sketch out a few prospects of a Peircean semiotics as a model of the dynamics of knowledge and learning.

## EXPERIENCE TEACH

Peirce values learning from experience, claiming in a 1903 essay on phenomenology that "experience is our only teacher" (Peirce, 1903, p. 153). He does not undermine learning from reasoning, but argue that "what we are taught by experience is not *justified* at all: on the contrary, the less it is like previous knowledge, the more valuable an information it is, other things being equal" (Peirce, 1911, p. 454). In stressing the value of experiences violating previous taught, playing by chance, and learning from unexpected events he even contends that

In all the works on pedagogy that ever I read, - and that have been many, big, and heavy, - I don't remember that any one has advocated a system of teaching by practical jokes, mostly cruel. That, however, described the method of our great teacher, Experience. She says,

Open your mouth and shut your eyes

And I'll give you something to make wise;

And thereupon she keeps her promise, and seems to take her pay in the fun of tormenting us (Peirce, 1903, p. 154).

Here, Peirce quotes a folklore children's rhyme, cited when giving the child a gift of sweets: "Open your mouth and shut your eyes, and I'll give you something to make wise". But mother may be "hiding a spoonful of bitter medicine behind her back". If so, the child's experience of a sudden, sharp pain or horrible taste "flies right to the knowing heart like an arrow. No mediation is necessary here" (McCarty, 2010, p. 93). So, with this analogy, Peirce juxtaposes experience to a practical joke while claiming that a practical joke, despite its cruelty, may be a good thing.

There seems to be a parallel between Peirce's claim that jokes make us wise, and Aristotle's claim that riddles convey learning. Peirce speaks about "teaching by practical jokes". Aristotle says that

“Good riddles are pleasing ... for there is learning” (Aristotle, 1991, 1412a 26). We learn from riddles, since “the very nature indeed of a riddle is this, to describe a fact in an impossible combination of words (which cannot be done with the real names for things, but can be with their metaphorical substitutes) (Aristotle, 1992, 1458a 24-29). Consequently, the riddle provides an unexpected and contradictory image, concurrently saying that “this is that” and “this is not that”. This paradox surprises, bewilders, and helps to uncover a hidden relation beyond the paradox. It is exactly this paradoxical attribution of the riddle – or practical joke – that conveys learning. Aristotle therefore says that learning “... occurs when there is a paradox and not, as he [Theodorus] says, in opposition to previous opinion; rather it is like the bogus word coinages in jests” (Aristotle 1991, 1412a 33 – 38). In short, the paradoxical attribution of a riddle first, surprises – as it describes a fact in an unexpected manner; next, it bewilders – as it contests our previous categories of thought; and third, it conveys learning – as it uncovers a relationship hidden beneath the paradox (Ricoeur, 1977). When speaking of “a system of teaching by practical jokes, mostly cruel”, Peirce thus paraphrases Aristotle’s way of equating riddles with “the bogus word coinages in jests”.

Peirce, however, goes beyond Aristotle. Aristotle attributes learning to the “impossible combination of words”, but Peirce attributes learning – as he says – to “the action of experience” (Peirce, 1903, p. 154). This action comes forward as “a series of surprises”:

The phenomenon of surprise in itself is highly instructive [...] because of the emphasis it puts upon a mode of consciousness which can be detected in all perception, namely, a double consciousness at once of an ego and a non-ego, directly acting upon each other” (Peirce, 1903a, p. 154).

So, the most significant characteristic of experience is its “pedagogy of surprise”, which definitely moves beyond an experiential “didactics” (i.e. Nöth, 2010, p. 3). The action of surprise is not something external to experience. Contrary, Peirce attributes the surprise to the *contradictions inherent in experience* itself. Imagine that

Your mind was filled with an imaginary object that was expected. At the moment when it was expected the vividness of the representation is exalted, and suddenly when it should come -something quite different comes instead. I ask you whether at that instant of surprise there is not a double consciousness, on the one hand of an Ego, which is simply the expected idea suddenly broken off, on the other hand of the Non-Ego, which is the Strange Intruder, in his abrupt entrance (Peirce, 1903, p. 154).

In other words, the series of surprise, which indeed jumbles our categories of thought, happen because of a double consciousness which on the one hand is aware of the familiar and vivid representations of the expected and on the other hand of the new and unexpected ways of seeing. The surprise is not in the abrupt and unexpected experience. The surprise is rather in the *relationship* between the known and the unknown; between the familiar and the new; or between the “expected idea” and the “strange intruder”. So, the reason for the surprise is that we experience the *relation* between our familiar ways of thinking and something totally new and unexpected.

In stressing this relation, or rather the experience of it through a double consciousness, Peirce again questions the Cartesian dualism in Kant, Reid and Leibniz. Peirce says: “every philosopher who denies the doctrine of Immediate Perception, - including idealists of every stripe, - by that denial cuts off all possibility of ever cognizing a *relation*” (Peirce, 1903, p. 154, my emphasis). In other words, Peirce

seems to parallel the practical joke with Aristotle's riddle that articulates truly new things in an unexpected manner. There is also a parallel between Aristotle and Peirce in the ways in which the paradoxical attribution of the riddle – or the joke – surprises, bewilders and teach. But to Peirce, the reason for learning from this bewilderment – or “the series of surprises” as he says – is the *action* of experience: Experience is a great teacher because she acts upon our minds by a series of surprises, bewildering our categories of thought, and makes us learn. But how should we read Peirce's notion of experience?

## A PRAGMATIST NOTION OF EXPERIENCE

Peirce places *phenomenology* as the primary branch of philosophy, since philosophy “does not busy itself with gathering facts, but merely with learning what can be learned from that experience which presses in upon every one of us daily and hourly” (Peirce, 1903, p. 196). To Peirce, the object of philosophical inquiry is everyday experience: “... the very etymology of the word tells that it comes *ex perioto*, ‘out of practice’ (Peirce, 1913, MS 681:13). So, as Peirce clearly rejects a spectator-theory of knowledge, we should not speak of a Peircean “philosophy of experience”. Contrary, we are dealing with a philosophy *in* experience: “in philosophy there is no special observational art, and there is no knowledge antecedently acquired in the light of which experience is to be interpreted. The interpretation itself is experience” (Peirce, 1906, p. 388). Such “common sense” experience is never pure, never neutral. But it is of significantly importance, since experience is “the enforced element in the history of our lives” (Peirce, 1898, p. 47).

To Peirce, experience is not something presented in small pieces, bit by bit, and next glued together by the human mind (Bergman, 2009; Short, 2007): “Experience can only mean the total cognitive result of living, and includes interpretations quite as truly as it does the matter of sense” (Peirce, 1903, p. 197). Peirce thus advocates a broad notion of experience. He also rejects a sensational conception of experience. In a letter to William James, he asserts that: “... experience and *an* experiential event are ... utterly different, experience being the effect that life has produced upon habits” (Peirce, 1905, p. 203). Peirce criticizes James' way of limiting experience to sensations and their patterns, and thus overlooking the interpretational aspects: A sensation is not the same thing as an experience, since “experience is the effect that life has produced upon habits”. To Peirce, a Jamesian notion of experience is too narrow, since James ignores the reality of semeiotic habits.

To Peirce, experience is in translations, or rather in *transactions*. Experience is never pure, never neutral. Experience comes “out of practice”, it is a “forcible modification of our ways of thinking” (Peirce, 1905, p. 370), and a “brutally produced conscious effect that contributes to a habit” (Peirce, 1907, p. 399). Thus, the influence of experience cannot be explained by mechanical action. But there is an inescapable rudeness in experience, as experience compellingly influence our ways of being in the world. Indeed, the course of life presents us with this reality: We may lie about our experience, but we can never escape it.

Peirce's phenomenology<sup>2</sup> identifies three universal categories of experience; feeling (firstness), resistance (secondness), and learning (thirdness). To Peirce

*Phenomenology* is that branch of science which is treated in Hegel's *Phenomenologie des Geistes* (a work far too inaccurate to be recommended to any but mature scholars, though perhaps the most profound ever written) in which the author seeks to make out what are the elements, or, if you please, the kind of elements, that are invariably present in whatever is, in any sense, in mind. According to the present writer, these *universal categories* are three. Since all three are invariably present, a pure idea of any one, absolutely distinct from others, is impossible; indeed, anything like a satisfactorily clear discrimination of them is a work of long and active mediation. They may be *Firstness*, *Secondness* and *Thirdness* (Peirce, 1903, p. 267).

*Firstness* is pure presence; it is what there is, regardless of anything else. It is the immediate perception of qualities, such as the qualities of feelings or sensations. It is "what stares one in the face, just as it presents itself, unreplaced by any interpretation, unsophisticated by any allowance for this or for that..." (Peirce, 1903, p. 147).

*Secondness* contains an element of struggle or reaction in our consciousness, it "fasten itself like a bulldog upon the particular feature that we are studying" (Peirce, 1903, p. 147). Secondness involves the relation of a first to a second. It is immediate perception of the pure presence, or in other words, the idea of "that which is such as it is" (Peirce, 1903, p. 160), - or of that which "flies right to the knowing heart like an arrow" (McCarty, 2010, p. 93). Since secondness entails firstness, secondness is an element of the phenomenon itself. Secondness therefore "represents two objects to us; an *ego* and a *non-ego*" (Peirce, 1903, p. 195). In this respect, secondness is a dyadic consciousness, or a double consciousness which on the one hand is aware of the familiar and vivid representations and on the other hand of the perception. To Peirce, secondness – "the category of reaction" – is "beyond all doubt an irreducible element of thought" (Peirce, 1903, p. 160). However, secondness does not entail the phenomenon of learning from experience.

*Thirdness* is learning. "Thirdness essentially involves the production of effects in the world of existence, - not by furnishing energy, but by the gradual development of Law" (Peirce, 1903, p. 271). So, in addition to the immediate, incommunicable perception of the qualities of "pure presence" (firstness) and the forceful, dyadic consciousness of "resistance" (secondness), thirdness entails "learning", or "the felt sense of personal transformation (of acquiring a new habit or at least of having one's present habits strengthened, refined, or in some other way modified)" (Colapietro, 1999, p. 23). Thirdness contains firstness and secondness, but it is by no way reducible to the two. When Peirce – in his letter to William James – defines experience as "the effect that life has produced upon habits" (Peirce, 1905, p. 203), he implicitly says that any experience has an import on our habits. Moreover, that an experience is to be recognized by the way our habits are being transformed. So, evidently, this third category of learning is vital to Peirce's pragmatist notion of experience. It is also a key to Peirce's phenomenology, which lies at the very heart of his late

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<sup>2</sup> It should here be noted that Peirce's phenomenology, which aims at identifying and isolating the universal categories of experience, differs from a continental phenomenology. When Peirce introduced his phenomenology (later named *phaneroscopy*) in his Harvard lectures of 1903, he referred to Hegel's "three stages of thought", which he labeled "Hegel's Universal Categories" (Peirce, 1903, p. 148). There is no evidence that Peirce knew of Husserl's *Logische Untersuchungen*, which had been published just two years earlier (Brent, 1988; Short, 1907).

philosophy. Moreover, this third category helps to understand Peirce's claim that "*Experience* is our great Teacher" (Peirce, 1903, p. 194). But while experiences teach, signs are the only means of learning we have.

## EDUCATION AS SEMIOSIS

The point of departure of Peirce's semeiotics – which is the study of the action of signs and sign-systems – is the axiom that cognition, thought, and even man are semiotic in their essence: Thoughts are in signs, and like a sign, a thought refers to other thoughts and to objects in the world so that "all which is reflected upon has [a] past" (Peirce, 1868, p. 24). The most central concepts of semeiotics are "sign" and "semeiosis".

A "*sign*" is a medium and a mediator, a representation which itself is "an element of the Phenomenon" (Peirce 1903, p. 160). To illustrate, Peirce wrote in a letter to F. C. Russell: "to peel off signs and to get down to the real thing is like trying to peel an onion and get down to onion an sich" (quoted from Brent, 1988, p. 357). The mediating structure of the sign refers to the triadic relation of object-sign-interpretant, which inevitably includes the sign-relations themselves, which "are even more characteristic of signs" than the object and the interpretant.

I will say that a sign is anything, of whatsoever mode of being, which mediates between an object and an interpretant; since it is both determined by the object *relatively to the interpretant*, and determines the interpretant *in reference to the object*, in such wise as to cause the interpretant to be determined by the object through the mediation of this "sign" (Peirce, 1907, p. 410).

The most characteristic feature of Peirce's notion of a sign is its triadic structure, which identifies sign as a "medium of communication" (Peirce, 1903, p. 239) and creation. Peirce surprisingly emphasizes that signs "bring about a physical result" (Peirce, 1904, p. 326). And he repeats: "...certain is it that somehow and in some true and proper sense general ideas do produce stupendous physical effects" (ibid., p. 326). The rather naïve example he uses, is a man's intention to go to his office, in which the intention is a general idea, a sign, and the fact that the man actually moves towards the office is a physical fact. Peirce reply to the objection that it is not ideas, but peoples beliefs in ideas that has physical consequences, is that ideas are that which create pioneers, courage, develop people's character, and which allows some people to have almost a magical leadership. And he adds that ideas cannot be examined or communicated in and by themselves, but only through their physical manifestations. If not embodied, signs do not exist.

Signs are not only means of communication, but also creation. The initial process of establishing self-understanding is an example to illustrate how signs tend to represent object-relations as a source of effects, and thereby causing that very effect: A newborn baby lives in a symbiosis. The child does not distinguish between herself and the surrounding world, between her own body and her mother's. But the baby can experience deprivation from her mother's absence. The baby may perceive this feeling as something that takes place within herself. However, the baby's feeling of deprivation has no meaning before it is *interpreted* in relation to the mother's absence and the baby's self. The baby's self-understanding may thus emerge as soon the feeling the mother's separation induces in her is interpreted as a sign related to an object, i. e. the baby's relation to her mother.

Learning processes may thus – at one analytical level – be seen as sign-interpreting processes of translation (or *transactions*) aiming at making the world intelligible. Such processes include all kinds of sign relations in which each relation is part of a complicated network of interpretations: Cognitive processes are sign relations in terms of *interactive systems of actions* where each process gives birth to one or several new processes.

The relation of an antecedent to its consequence, in its confusion of signification with the interpretant, is nothing but a special case of what occurs in all action of one thing upon another, modified so as to be merely an affair of being represented instead of really being. It is the *representative action* of the sign upon its object. For whenever one thing acts upon another it determines in that other a *quality* that would not otherwise have been there (Peirce, 1904, p. 305, my emphasis).

So, to Peirce, the dynamics of knowledge and learning are in the *flows of signs* that “presses upon every one of us daily and hourly.” These flows of signs are “*semeiosis*”.

By *semeiosis* I mean, an *action*, or influence, which is, or involves, a cooperation of three subjects, such as a sign, its object, and its interpretant, this tri-relative influence not being in any way resolvable into actions between pairs (Peirce, 1907, p. 411, my emphasis).

Peirce’s notion of “*semeiosis*” highlights the power of signs to *move* agents and to *change* their habits. This involves *thirdness*:

Thirdness essentially involves the production of effects in the world of existence; - not by furnishing energy, but by the gradual development of Laws. For it can be said, without dispute, that no sign ever acts as such without producing a physical replica of interpreting sign (Peirce, 1903, p. 271).

Peirce’s notion of “*semeiosis*” – which he introduced in his later writings – represents an important shift in focus; - from the structure of signs towards the mediating *acting* of signs. Peirce’s notion of “*semeiosis*” thus again draws attention to his broad notion of “*experience*”, which entails *thirdness* – the phenomenological category of learning – as requisite. So, what is there to be learned from Peirce’s way of portraying the rudeness of lived experience?

## PEIRCE’S NEW RHETORIC

To philosophy of education, Peirce offers an alternative metaphor of cognition: *Semeiosis*. Peirce’s axiom that cognition, thought, and even man are semeiotic in their essence invites a semeiotic reading of educational processes. Thoughts are in the flows of signs, and like a flow of signs, a thought refers to other thoughts and to objects in a world of change: We understand the world through signs; signs are our means to think about relations and objects. Signs give access to the local/global semiosphere in which we live and work; to the historically produced knowledge repertoire of our culture; and to the fast flows of information and communication distributed through social media and virtual networks (Lotman, 1991; Strand, 2010; Vygotsky, 1978). Our understanding of the world is therefore always mediated through historically-based signs, and thus by the referential domain they elicit between our mind and our local/global semiosphere. Moreover, signs have the power to *move* agents and to *change* their habits. Consequently, education is in *semeiosis*.



While strongly rejecting semeiotic formalism, Midtgarden (2005) and Bergman (2005) both have explored the learning-theoretical potential of Peirce’s later semeiotic. Midtgarden, in reading Peirce’s speculative grammar, underlines “the virtues of the abstractness of Peirce’s conceptual strategy”, because such abstractness “secures generality in covering various kinds of learning processes”.

Bergman (2005; 2009; 2010), however, reads Peirce’s speculative rhetoric<sup>3</sup>, which highlights “the semeiotic effect that a sign determines in an interpreter”. Bergman thus recognises the value of sign actions – the semiotic effect – which may reveal the diverse, complex and hybrid aspects of knowledge production. A move from speculative grammar to speculative rhetoric thus corresponds to a move from an abstract to a practical outlook, going “back towards the rough ground of human practices in their irreducible heterogeneity” (Colapietro, 2007, p. 11)”. So, what are the prospects of Peirce’s speculative rhetoric for educational theory and research? In what ways may Peirce’s later semeiotic carry a promise of a productive theory of the dynamics of knowledge and learning that moves beyond traditional notions of educational processes?

Following Liszka (1996) the prospect of a speculative rhetoric – which according to Peirce is “the highest and most lively branch of logic” and concerns the relation between the sign and the interpretant – is the analytic study of the establishment of the formal conditions for a universe of discourse, communication and inquiry:

| Types           |                                  |                      |                               |
|-----------------|----------------------------------|----------------------|-------------------------------|
| Interpretant as | Immediate interpretant           | Dynamic interpretant | Final interpretant            |
|                 | <i>Sense</i>                     | <i>Meaning</i>       | <i>Significance</i>           |
| <b>Process</b>  | <b>A universe of discourse</b>   | <b>Communication</b> | <b>Inquiry</b>                |
| <b>Product</b>  | Common sense                     | Information          | Consensus                     |
| <b>Effect</b>   | Sensibility<br>Comprehensibility | Understanding        | Establishment of true beliefs |

From Liszka 1996, p 81

In his systematic reading of Peirce’s speculative rhetoric – which he claims “permeates Peirce’s entire corpus of work” (Lizka 1996, p. 78) – Liszka demonstrates how Peirce offers a sophisticated tool for exploring the dynamic relations of knowledge and learning in terms of a (1) universe of discourse or common sense (having *community* as a product and sensibility and comprehensibility as effects); (2) processes of communication (having *information* as a product and understanding as an effect); and (3) processes of inquiry (having *consensus* as a product and reasonableness as an effect). He relates this three domains to the three divisions of interpretants; the immediate, the dynamic, and the final interpretant. Keeping in mind that the interpretant is understood as process, product and effect,

<sup>3</sup> After his “rhetorical turn” Peirce establishes an explicit connection between his phenomenology, pragmatism and semeiotic and develops his early “semiotic” into a more general theory of signs (“semeiotic”) and sign use (“semeiosis”). He divides semeiotic into three major divisions: *Speculative grammar* studies the production and forms of meaning; *Critic* studies the ways in which the sign can relate to the object independently from what it represents, meaning logical conclusions and arguments; *Speculative rhetoric* studies the relation between sign and interpretant, or the semeiotic *production* of knowledge. Thus, Peirce’s speculative rhetoric is a fruitful point of departure when exploring the generative action of signs.

Lizka thus argues that speculative rhetoric offers a sophisticated tool for exploring the dynamics of knowledge and learning in terms of a universe of discourse, processes of communication, and processes of inquiry<sup>4</sup>.

*Productive* learning processes therefore involve the influence of a normative<sup>5</sup> element that guides the ways in which knowledge grows<sup>6</sup>. Peirce's conception of *experience* is a key to understand this element, and thus how he conceives productive learning processes as concurrently semeiotic *and* pragmatic:

We all admit that Experience is our great Teacher; and Dame Experience practices a pedagogic method which springs from her own affable and complacent nature. Her favourite way of teaching is by means of practical jokes, - the more cruel the better. To describe it more exactly, Experience invariably teaches by means of *surprises* (Peirce, 1903, p. 194).

So, "it is by surprise that experience teaches us all she deigns to teach us" (Peirce, 1903, p. 154). The surprise is in the relation between the expected and the unexpected, which evokes a "double consciousness" of, on the one hand, our familiar ways of thinking and, on the other hand, something totally new. This "double consciousness" is productive, since it generates a "genuine doubt" that disturbs earlier ways of seeing the world (Peirce, 1905, p. 348). Accordingly, "thought plays a part" in a Peircean conception of experience (Peirce, 1903, p. 269):

An "Experience" is a brutally produced conscious effect that contributes to a habit, self-controlled, yet so satisfying, on deliberation, as to be destructible by no positive exercise of internal vigor [sic.]. I use the word "self-controlled" for "controlled by the thinker's self"... (Peirce, 1908, p. 435).

Experience is a *conscious effect* that creates a self-controlled habit. In experience, conscious thought plays a part. Since "ideas do grow in the process", semeiosis is not merely a matter of sign-translations:

The pragmaticist insists that this is not at all, and offers to back his assertion by proof. He grants that the continual increase of the embodiment of the idea-potentiality is the *summum bonum*. But he undertakes to prove by the minute examination of logic that signs which should be merely parts of an endless viaduct of the transmission of idea-potentiality, without any conveyance of it into anything but

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<sup>4</sup> Pesce (2010) demonstrates a way of adopting such an outlook in an empirical study on educational processes.

<sup>5</sup> Peirce maintains that "A Logic [semeiotics] which does not recognize its relation to Ethics must be fatally unsound in its Methodetic [the branch of semeiotic, also named Rhetoric, that studies the semeiotic production of knowledge], if not in its Critic" (Peirce, 1903, p. 272).

<sup>6</sup> Already in his early writings, Peirce reveals his discursive conception of "truth" and "reality" (Apel, 1995; Hausmann, 1995): "The opinion to be fated to be ultimately agreed to by all who investigate, is what we mean by the truth, and the object represented in this opinion is the real. This is the way I would explain reality" (EP 2:139). Private experiences, syllogisms, or conclusions thus have to be re-examined socially: Beliefs have to be justified in a process in which your beliefs rectify mine, and others rectify ours. Next, the more people involved in these joint processes of validation, and the longer time we spend on this common effort, the greater the possibility of arriving at a reasonable interpretation. Such communal processes of inquiry are generated by a "critical common sense", rooted in pragmatism, and aim at a discursive making of true beliefs through the final consensus.

symbols, namely into *action* or *habit of action*, would not be sign at all, since they would not, little or much, fulfill the function of signs; and further, that without *embodiment* in something else than symbols, the principles of logic show there never could be the least growth in idea-potentiality (Peirce, 1906, p. 388, my emphasis).

To Peirce, this growth in “idea-potentiality” is a vital mark of the productive dynamics of knowledge and learning. However, such growth – or productive learning processes – can never happen without first, the *acting* of signs and next, the *embodiment* of sign-processes. So, a Peircean notion of learning moves beyond mere sign-translations. To understand Peirce’s way of modeling productive learning processes, we should also look to his pragmatism, which is “a method of ascertaining the meanings, not of all ideas, but only of what I call “intellectual concepts,” that is to say, of those upon the structure of which arguments concerning objective fact may hinge” (Peirce, 1907, p. 401). In other words: The pragmatic principle points to how practical considerations are vital, in the sense that “beliefs are the principles upon which we are willing to act” (EP 2:33)<sup>7</sup>. As such, knowledge and beliefs are not only based on former experiences and beliefs, but also on future expectations. Thus, the pragmatic maxim should by no way be read as a “condition for counting anything as true”, since our beliefs “may be ever so clear without being true” (EP 2:139). To beliefs to be true, they have to be rectified and validated socially: “So the social principle is rooted intrinsically in logic” (EP 2:81). So again, self-control seems crucial, since

without it, or at least without that of which it is symptomatic, the resolves and exercises of the inner world could not affect the real determinations and habits of the outer world. I say that this belongs to the outer world because they are not mere fantasies but are real agencies (Peirce, 1907, p. 419).

In sum, to Peirce, the dynamics of knowledge and learning are in signs. However, for these dynamics to be productive, sign processes have to be embodied. Next, the conscious effects of such processes should be subjects to self-control and pragmatic examination.

## PROSPECTS AND LIMITATIONS OF A PEIRCEAN OUTLOOK

In summing up, it should be noted that I have only touched upon a few aspects of Peirce’s later philosophy: To throw lights on Peirce’s conception of how “experience teach”, the phenomenological categories have been central. Accordingly, the ways in which Peirce – after the turn of the century – integrates his phenomenology, semeiotics and pragmatism in order to portray how “knowledge grows” have been sketched out. But needless to say, I regret that there has not been room for portraying – for example – the ways in which Peirce stresses the import of common sense; “the social principle”; and creativity to productive learning processes<sup>8</sup>. Nevertheless, the elaboration above

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<sup>7</sup> The pragmatic proposal for achieving clarity of meaning thus lies at the heart of Peirce’s semeiotic. However, due to repetitive misinterpretations of his pragmatic maxim, Peirce finds it pertinent to stress that it is the *conceivable* consequences that helps to make our ideas clear. For example when underlining that “the real meaning of a purely theoretical statement or word [...] does precisely lie in the conceivability, quite regardless of the practicability, of such applications” (EP 2:425). Our conceptions and beliefs, then, become clear and meaningful by virtue of an anticipated future.

<sup>8</sup> I regret that I have not have elaborated on ways in which Peirce stresses the value of discontinuous educational processes (i.e. Anderson, 2005; Hausman, 1991; Houser, 2010; Strand, 2005; 2010). Houser (2010) uses the term “semiotic moment”

should help to identify how Peirce offers an alternative metaphor of cognition and how he places lived experience at the heart of the dynamics of knowledge and learning.

Peirce's semeiotic is a broad logic, offering an alternative metaphor of mind and emphasising the knowledge generating processes themselves. To philosophy of education, Peirce's later philosophy thus invites a shift in perspective from the psychological processes of learning towards the semeiotic processes that characterises the processes of meaning productions and the growth of knowledge itself. It should be said that Peirce's semeiotics is distinct from other schools of semiotics, in that this is a highly sophisticated and abstract philosophical perspective on the dynamics of knowledge and learning, impossible to separate from his phenomenology and pragmatism. Peirce himself portrayed his semeiotics as a "general science," based on a "doctrine" of signs, and divided into three major branches of meta-theoretical studies on "the necessary conditions to which all signs are subject": Speculative grammar, speculative critic, and speculative rhetoric. Peirce's philosophy of signs should thus not be read as a theory of signs or a method of studying them, but rather as a highly sophisticated philosophical perspective on signs and semeiosis. Peirce's philosophy does not offer a theory of experiential learning, a didactics of experiential pedagogy, or an "edusemeiotics" of teaching. Nevertheless, as Peirce's perspective on experience and the pedagogy of surprise lies at the heart of his later philosophy, the later writings of Peirce invite a sophisticated framework for further philosophical deliberations on the semeiotic growth of knowledge.

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of a moment characterised by the fusion of experience, semiosis and abduction. A "semiotic moment" marks the beginning or starting point for something radically new.

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