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Peirce's Rhetorical Turn: Conceptualizing education as semiosis

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Abstract

The later works of Charles Sanders Peirce (1839–1913) offer an extended metaphor of mind and a rich conception of the dynamics of knowledge and learning. After a 'rhetorical turn' Peirce develops his early 'semiotics' into a more general theory of sign and sign use, while integrating his pragmatism, phenomenology, and semiotics. Therefore, in this article I bring Peirce's notion of semiosis—the sign's action—to the forefront. In doing so, I hope to disclose how Peirce's rhetorical turn not only opens up towards a richer conception of the dynamics of knowledge and learning, but also invites a shift of perspective from the psychological processes of learning to the semeiotic processes that characterizes the very dynamics of knowledge production.

Keywords: C. S. Peirce, semeiosis, semiotics, phenomenology, pragmatism, learning, philosophy of education

> ... by 'semeiosis' I mean an action, or influence ... (Peirce, 1907)

Introduction

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 and conflictual 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 on-going communal processes of inquiry aiming at 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 abductive ways of reasoning in combination with inductive and deductive inferences. *Abduction* is the principle for creative innovation in combination with inductive and deductive inferences. 'Abduction is the process of

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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 (Hoffman, 2007; Midtgarden, 2005; Paavola & Hakkarainen, 2005; 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, and thereby renew all three. After a 'rhetorical turn' he now develops his early 'semiotics' into a more general theory of signs ('semeiotics') and sign use ('semeiosis'),[1] which is equated with logic in a broad sense. Next, he divides semiotics—'the analytical study of the necessary conditions to which all signs are subject'—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, 1904a, p. 328). To Peirce, speculative rhetoric is therefore 'the highest and liveliest branch of logic' as its task is to study the semiotic production of knowledge.

Currently, there is an emerging interest in this third discipline of semiotics, and several contemporary Peirce-scholars demonstrate how Peirce's new rhetoric not only is distinctive from a classical, but also how his new rhetoric carries prospects of a new outlook on the paradoxical attributions of knowledge and learning (Bergman, 2007, 2009; Colapietro, 2007; Freadman, 2004; Kevelson, 1984; Liszka, 1996, 2000; 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 semiotic 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, 2011; Prawat, 1999; Strand, 2005a, 2005b, 2010; Stables, 2005, 2010; Semetsky, 2005, 2010; Ventimiglia, 2005). My purpose here, however, is not to elaborate on the ways in which Peirce's later philosophy carries a renewed epistemology. My modest ambition is just to disclose how Peirce's rhetorical turn seems to open up towards a richer conception of the dynamics of knowledge and learning as he establishes explicit connections between his phenomenology, pragmatism and semiotics, thereby renewing all three. In his later writings, Peirce's semiotics comes forward as a broad logic that offers an extended metaphor of mind, while focusing on the knowledge generating processes themselves. In this article, Peirce's notion of semiosis—*the sign's action*—is therefore put to the forefront.

In the first section of the article I introduce an analogy on pedagogy used by Peirce in a 1903 paper on phenomenology. Next, through a close reading of this analogy, I sketch out Peirce's perspective on the ways in which 'experience teaches'. In summing up, I point to some prospects and limitations of a Peircean perspective on education as semiosis. But first of all, let me briefly portray Peirce's new rhetoric.

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Peirce's New Rhetoric

Speculative rhetoric—'the highest and liveliest branch of logic'—is not given much space in Peirce's texts (Colapietro, 2007; Bergman, 2007; Freadman, 2004; Kevelson, 1984; Liszka, 1996, 2000; Santaella-Braga, 1999; Short, 2007). Nevertheless, as he continuously addresses the inter-subjective, dialogic aspect of knowledge constructions, all his writings are permeated with rhetorical considerations. Peirce's speculative rhetoric—together with speculative grammar and critic—is part of his semeiotic trivium, and its task is to study 'the indispensable conditions of sign's acting to determine another sign nearly equivalent of itself' (Peirce, 1904a, p. 328). The term 'speculative' is not about metaphysical speculation, but '... merely the Latin correspondence to the Greek word "theoretical," and is here intended to signify that the study is of the purely scientific kind, not a practical science, still less an art' (Peirce, 1904a, p. 328).

Since Peirce's speculative rhetoric is broadly defined as 'the doctrine of the general conditions of the reference of symbols and other signs to the Interpretants which they determine', his rhetoric may be seen as a continuation of Aristotle's rhetoric (Liszka, 2000; Strand, 2010). However, it should be stressed that Peirce also moves beyond Aristotle, because Aristotle's rhetoric can be characterized as an independent argumentation technique that includes all types of practical deliberations, while Peirce's rhetoric is a normative logic of science. In a short essay from 1904—'Ideas, Strays and Stolen, about Scientific Writing'—Peirce refers to his speculative rhetoric. This essay was probably meant to be published in *Popular Science Monthly*, and can be considered as a part of an ongoing debate about 'the best vocabulary for one or another branch of knowledge, and the best types of titles for scientific papers' (Peirce, 1904a, p. 325). In this essay, Peirce argues against a narrow interpretation of rhetoric which is only about 'agitating the surface of the scientific deep'. He believes that 'our conception of rhetoric has to be generalized,' since rhetoric until now has offered '... little guidance in forming opinions' (Peirce, 1904a, p. 327). Peirce wants to liberate rhetoric from its earlier limitations of merely belonging to oratory argumentations, as it is high time to recognize rhetoric as an important contribution to the logic of science:

> A universal art of rhetoric, which shall be the secret of rendering signs effective, including under the term 'sign' every picture, diagram, natural cry, pointing finger, wink, knot in one's handkerchief, memory, dream, fancy, concept, indication, token, symptom, letter, numeral, word, sentence, chapter, book, library, and in short whatever, be it in the physical universe, be it in the world of thought, that, whatever embodying an idea of any kind (and permit us throughout to use this word to cover purposes and feelings), or being connected with some existing object, or referring to future events through a general rule, causes something else, its interpreting sign, to be determined to a corresponding relation to the same idea, existing thing, or law. Whether there can be such a universal art or not, there ought, at any rate to be (and indeed there is, if students do not wonderfully deceive themselves) a science to which should be referable the fundamental principles of everything like rhetoric—a speculative rhetoric, the science of the essential conditions under which a sign

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> may determine an interpretant sign of itself and of whatever it signifies, or may, as a sign, bring about a physical result. (Peirce, 1904a, p. 326)

Surprisingly, Peirce emphasizes that signs 'bring about a physical result'. He repeats: '... certain is it that somehow and in some true and proper sense general ideas do produce stupendous physical effects' (Peirce, 1904a, p. 326). And he adds that ideas cannot be examined or communicated in and by themselves, but only through their 'physical effects', or manifestations. Consequently, Peirce does not only emphasize the rhetorical evidence, but also the rhetorical production of knowledge. In this way, his speculative rhetoric is clearly distinctive from 'ordinary rhetoric', and should be read as a kind of pragmatic epistemology (Bergman, 2005, 2007; Colapietro, 2007; Liszka, 1996, 2000; Short, 2007).

In his arguments against a narrow view of rhetoric as only an art of argumentation, Peirce points out how his new rhetoric analyzes the reproduction of signs, or 'the transmission of meaning by signs from mind to mind'. Such a sign reproduction is 'common enough', but nevertheless 'as mysterious as the reciprocal action of mind and matter' (Peirce, 1904a, p. 328). Processes of communication can never create a new sign: '... the utmost possible is that a sign already existing should be filled out and corrected' (Peirce, 1904a, p. 328). In this way, Peirce underlines how ordinary rhetoric can never offer tools or techniques for creating new ideas, for analyzing creative knowledge production, or the ways in which new ideas emerge. With his speculative rhetoric, Peirce draws attention to 'the semeiotic effect the sign determines in an interpreter—be it of the character of emotion, effort, cognition, or habit' (Bergman, 2005, p. 225). Thus, the promise of a Peircean speculative rhetoric is how it highlights the power of signs to move agents and to change their habits. So, let us take a closer look at this creative power of signs.

Experience Teaches

Peirce values learning from experience, claiming in a 1903 essay on phenomenology that 'experience is our only teacher' (Peirce, 1903a, p. 153). He does not undermine learning from reasoning, but argues 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 how experiences are violating the previously taught, playing by chance, and thereby promoting learning from unexpected events, Peirce 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, 1903a, p. 154)

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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' (McCarthy, 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, moves beyond Aristotle. Aristotle attributes learning to the 'impossible combination of words', but Peirce attributes learning—as he says—to 'the action of experience' (Peirce, 1903a, 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. On the 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, 1903a, p. 154).

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In other words, the series of surprises, which indeed jumbles our categories of thought, happens 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, 1903a, 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, 1903b, p. 196). To Peirce, the object of philosophical inquiry is everyday experience: '... the very etymology of the word tells that it comes *ex perito*, "out of practice"' (Peirce, 1913, MS 681, p. 13). So, as Peirce clearly rejects a spectator-theory of knowledge, we should not speak of a Peircean 'philosophy of experience'. On the 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).

Peirce advocates a broad notion of experience: 'Experience can only mean the total cognitive result of living, and includes interpretations quite as truly as it does the matter of sense' (Peirce, 1903b, p. 197). In doing so, he clearly rejects nominalism. Experience is not something presented in small pieces, bit by bit, then glued together by the human mind (Bergman, 2009; Short, 2007).

However, Peirce 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, thus overlooking or ignoring the interpretational aspects: a sensation is not the

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same thing as an experience, since experience is the effect of life. To Peirce, experience comes 'out of practice', but it is also highlighted as a 'forcible modification of our ways of thinking' and a 'brutally produced conscious effect that contributes to a habit' (Peirce, 1907, p. 399). Experience is in translations, or rather in transactions. Moreover, there is an inescapable rudeness in experience, as experience compellingly influences our ways of being in the world. As James ignores this reality of semiosis, a Jamesian notion of experience is clearly too narrow.

Peirce's phenomenology[2] 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, 1903c, p. 267)

Firstness is pure presence; it is what there is, regardless of anything else. It is the immediate 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, 1903a, p. 147).

Secondness contains an element of struggle or reaction in our consciousness, it will 'fasten itself like a bulldog upon the particular feature that we are studying' (Peirce, 1903a, 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, 1903d, p. 160),—or of that which 'flies right to the knowing heart like an arrow' (McCarthy, 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, 1903c, 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, 1903d, 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, 1903c, 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.

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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 his phenomenology, which lies at the very heart of his late philosophy. Moreover, this third category helps to understand Peirce's claim that 'Experience is our great Teacher' (Peirce, 1903c, p. 194). But while experiences teach, signs are the only means of learning we have.

Semiosis

The point of departure of Peirce's semiotics—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. The most central concepts of semiotics are 'sign' and 'semiosis'.

A 'sign' is a medium and a mediator, a representation which itself is 'an element of the Phenomenon' (Peirce, 1903d, 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 itself' (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 and creation. To reiterate the quotation above: A sign 'is both determined by the object relatively to the interpretant, and determines the interpretant in reference to the object' ... thus causing 'the interpretant to be determined by the object through the mediation of this 'sign' (Peirce, 1907, p. 410). Peirce surprisingly emphasizes that signs 'bring about a physical result' (Peirce, 1904a, p. 326). And he repeats: '... certain is it that somehow and in some true and proper sense general ideas do produce stupendous physical effects' (Peirce, 1904a, p. 326). The rather naïve example he uses in his 1904 essay on rhetoric, 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's reply to the objection that it is not ideas, but people's beliefs in ideas that has physical consequences is that ideas cannot be examined or communicated in and by themselves, but only through their physical effects, or manifestations. And he adds that ideas are that which create pioneers, courage, develop people's character, and which allows some people to have almost magical leadership qualities. So again: a sign causes an interpretant 'to be determined by its object'.

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The initial process of establishing self-understanding is an example to illustrate how signs tend to represent object-relations as a source of effects, 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 as the feeling the separation from her mother 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, 1904b, p. 305, my emphasis)

So, to Peirce, the dynamics of knowledge and learning are in the flows of signs that press 'upon every one of us daily and hourly.' These flows of signs are 'semiosis'.[3]

> 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 thri-relative influence not being in any way resolvable into actions between pairs. (Peirce, 1907, p. 411, my emphasis)

Peirce's notion of 'semiosis' 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, 1903c, p. 271)

It thus becomes clear how Peirce's notion of 'semiosis'—which he introduced in his later writings—represents an important shift in focus. This is a shift from a focus on the structure of signs towards a focus upon the mediating and creating *acting* of signs. It should be noted, however, that the acting of sign-processes is distinct from the mechanical 'action of a brute force':

> All dynamical action, or action of brute force, physical or psychical, either takes place between two subjects,—whether they react equally upon each other, or

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> one is agent and the other patient, entirely or partially,—or at any rate is a resultant of such actions between pairs. But by 'semiosis' I mean, on the contrary, an action, or an influence, which is, or involves, a cooperation of three subjects, such as sign, its object, and its interpretant, this tri-relative influence not being in any way resolvable into actions between pairs. (Peirce, 1907, p. 411)

The difference between dynamic (dyadic) and semiotic (triadic) actions is crucial (Bergman, 2009; Short, 2007). Dyadic or dynamic actions concern a pair of objects; for example how an event can—by brute force—produce a second event, which next may produce a third event. The fact that the second or third event is about to be produced has in no way any influence on the way the production will happen. This is a characteristic of the dynamic action: it is mechanical and each step involves a pair of objects only.

Semiosis, or triadic actions, by contrast, involve a 'thri-relative influence' of sign, object, and interpretant. Thus, it is an intelligent, triadic action involving cognition. Here's an example:

> Jones pokes Smith in the back so as to call attention to himself, for the purpose of asking for a loan. The attention—an interpretant of the poke—is therefore elicited as a means to an end. But it is not the sign—the poke—that elicits its interpretant as a means. It was Jones, the poker, who poked for that purpose. The poke, itself, compels attention mechanically. Our possessing the mechanism by which attention can thus be directed exists and operates for a purpose. Furthermore, its operation is not utterly mechanical: for example, we can ignore the insist poking by a child when more important business is on hand. Regardless of whether Jones poked on purpose, Smith has a purpose in taking notice. And it is only thus that we can account for Smith's reaction as being not merely an effect of the poke but an interpretant of the poke, attention being directed not to the poke especially but to its cause. (Short, 2007, p. 171)

This example illustrates how Peirce holds 'the triadic production of the interpretant essential to a "sign"' (Peirce, 1907, p. 411). The interpretant is that 'something', which the sign determines in the interpreter. And this 'something', to Peirce, 'includes feelings; for there must, at least, be a sense of comprehending the meaning of the sign'. However, 'if it includes more than mere feeling, it must evoke some kind of effort. It may include something besides, which, for the present, may be vaguely called "thought"' (Peirce, 1907, p. 409). In other words, the triadic actions of signs involve feeling, effort and thought. Or, to be less vague; feelings, efforts and thoughts are in semiosis. Consequently, the vital difference between mechanical and semiotic actions are the ways in which semiosis engages feelings, effort and 'thought'. Again, Peirce's notion of semiosis 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 semiosis?

Towards A Semiotic Model Of Learning

To philosophy of education, Peirce offers an alternative metaphor of cognition: Semiosis. Peirce's axiom that cognition, thought, and even man are semiotic in their essence invites

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a semiotic 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 and virtual signs, and thus by the referential domain they elicit between our mind and our local/global semiosphere (c.f. Lotman, 1991). Moreover, signs have the power to move agents and to change their habits. Consequently, learning is a semiotic process. Productive learning processes, however, involve the influence of a normative[4] element that guides the ways in which knowledge grows. Peirce's conception of experience is a key to understanding this element, and thus how he conceives productive learning processes as concurrently semiotic 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, 1903c, p. 194)

So, 'it is by surprise that experience teaches us all she deigns to teach us' (Peirce, 1903a, 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. Accordingly, 'thought plays a part' in a Peircean conception of experience (Peirce, 1903c, 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. 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 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)

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To Peirce, this expansion of '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). So again, self-control is essential, 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 subject to self-control and pragmatic examination.

Prospects and Limitations of a Perceian Outlook

In summing up, it should be noted that this article has only touched upon a few aspects of Peirce's later philosophy: To throw light on how Peirce's later philosophy opens up towards a semiotic outlook on educational processes, his notion of experience has 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. Nevertheless, the elaboration above should help to give an impression of how Peirce, in his later writings, portrays lived experience in relation to the dynamics of knowledge and learning.

Peirce's semiotic is a broad logic, offering an alternative metaphor of mind and emphasizing 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 characterize the productions of meaning 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, which could not be separated from his phenomenology and pragmatism. Peirce himself portrayed his semiotics 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. Needless to say, Peirce's philosophy should thus not be read as a theory of signs or a method of studying them, but rather as a highly sophisticated philosophical perspective

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on semiosis—the action of signs. Peirce's philosophy does not offer a theory of experiential learning, a didactics of experiential pedagogy, or an 'edusemiotics' 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 education as semiosis.

Notes

1. In order to facilitate the reading, I here replace 'semeiotics' with 'semiotics' and use the term 'semiosis' instead of Peirce's term 'semeiosis'.
2. 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, 1903a, 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, 2007).
3. Please note that I here use the term 'semiosis' instead of Peirce's term 'semeiosis'.
4. Peirce maintains that 'A Logic [semeiotics] which does not recognize its relation to Ethics must be fatally unsound in its Methodeutic [the branch of semeiotic, also named Rhetoric, that studies the semeiotic production of knowledge], if not in its Critic' (Peirce, 1903c, p. 272).

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