

# For in Psychology there are Experimental Methods and *Conceptual Confusion*: From Embodied Cognition to Wittgenstein on Language and Mind

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**Abstract** Embodied Cognition (EC) is a new psychological version of an old philosophical idea: human cognition is grounded in sensorimotor experience. According to EC there is not such an entity as abstract and disembodied knowledge, that is, the root of every form of human knowledge is an acting body in the world. In this chapter I will try to show that existing extensions of EC to language partly miss the point because do not fully account for the social and performative nature of language. Therefore a thorough embodied theory of language requires to consider the Wittgenstein legacy, which stresses at least two main points: (a) a coherent theory of language is not possible if not embedded in a more comprehensive description of human way of living; (b) the meaning of a word is not an internal and psychological entity but its social use, it is the *action* we do using that word/tool. In this chapter I will analyze EC literature showing that it needs to be complemented with Wittgenstein ideas on language and mind.

**Keywords** Ludwig Wittgenstein · Embodied cognition · Language · Words as tools · Sociality · Linguistic meaning · *Homo sapiens*

## 1 Wittgenstein is Back

It is curious how contemporary analytic philosophy forgot Wittgenstein's ideas on language and mind (Tripodi 2009). That could have been quite reasonable when cognitive sciences seemed to be ready to solve some ancient philosophical

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Wittgenstein, 1953, Eng. Transl. 2001, II, p. 197.

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problems, as the mind–body one: cognitive sciences are based on the radically anti-Wittgensteinian idea of “mentalese”, that is, an internal private language. From this premise no dialogue was possible between cognitive sciences and the philosopher who holds that no language exists that is not social. But now a ‘new’ psychology is raising,<sup>1</sup> the so called Embodied Cognition, which holds views somewhat similar to Wittgenstein’s ones. In particular the idea that cognition does not exist which is not context-bound, and that language is a form of action (Gallese 2009). But there are still a lot of theoretical points that Embodied Cognition shares with cognitive sciences: in particular, methodological individualism, and dualism of mind and body (or semantics and pragmatics). In this chapter I should want to show that in order to overcome these and other difficulties it is necessary to come back to Wittgenstein.

## 2 Embodied Cognition

The basic idea of EC (Garbarini and Adenzato 2004) is (a), that «cognition is inherently perceptual, sharing systems with perception at both the cognitive and the neural levels», and (b) that there are not «amodal» forms of cognitive representations, that is representations that are «inherently nonperceptual» (Barsalou 1999, p. 577). EC theory is based on a particular kind of cognitive entity, «perceptual symbol»: «subsets of perceptual states in sensory-motor systems are extracted and stored in long-term memory to function as symbols. As a result, the internal structure of these symbols is modal, and they are analogically related to the perceptual states that produced them» (*ibid.*, p. 578). «Perceptual symbols» are the building blocks of the whole human cognitive system.

According to EC theory the cognitive process begins with a «perceptual state» which contains «two components: an unconscious neural representation of physical input, and an optional conscious experience». However the notion of «neural representation» does not solve the traditional problem that every EC theory encounters, because there are many «neural representations» how many different brains. The usual answer to this problem is that «a perceptual symbol contains only a schematic aspect» of what represents (*ibid.*, p. 583); this solution does not solve the *logical* problem posed by the individuality of each «perceptual symbol» which is a «record of the neural states that underlie perception» (*ibid.*, p. 482). But this is just an assumption, because it does not explain *how* such a schematic perception can occur.

Let’s consider the linguistic version of this problem: when someone listens to a word, for example the word “apple”, surely a peculiar «neural representation» will correspond to this «physical input». The problem is that if there exist  $n$  brains there will exist  $n$  different meanings corresponding to the very same «physical input». In

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<sup>1</sup> In fact Embodied Cognition is a form of neo-Piagetianism which ignores its own origin.

this case, how can language comprehension be possible? There are not  $n$  different meanings of the English word “apple”. Language comprehension is only possible if all speakers of a language use words according to the same rule.

EC theory simply does not consider the *logical* problem posed by the contrast between the individuality of «perceptual symbols» and the universality of language use; «like a perceptual symbol, a linguistic symbol is a schematic memory of a perceived event, where the perceived event is a spoken or a written word. A linguistic symbol is *not* an amodal symbol, nor does an amodal symbol *ever* develop in conjunction with it. Instead, a linguistic symbol develops just like a perceptual symbol» (*ibid.*, p. 592). What EC theory wants to rule out is the existence of amodal symbol, that is the very existence of a nonperceptual based form of cognition. But a cognitive entity only which works as an amodal entity can solve the problems we just raised. From this point of view the main problem that EC theory has to face is the nature of language: EC theory considers language as a means for expressing internal concepts: «language comprehension can be viewed as the construction of a perceptual simulation to represent the meaning of an utterance or text» (*ibid.*, p. 605). Linguistic meaning is an internal «perceptual simulation». This is a very traditional view, language is an expressive tool which convey «deep conceptual information» (Barsalou et al. 2008, p. 251). Therefore linguistic entities are mainly mere vehicles of conceptual information; in this perspective «symbolic operations» are only possible if internal «simulations» are re-activated: «attempting to perform symbolic operations on linguistic forms alone would be like manipulating symbols in an unfamiliar language, with no true comprehension» (*ibid.*).

It is quite strange that EC does not consider language as a peculiar form of bodily action *by itself*, a view that should be very sympathetic with the general assumptions of EC theory. In the following parts of this chapter I will try (a) to show how Wittgenstein legacy could deeply improve EC theory on language and mind, (b) to integrate Wittgenstein views with current EC research on language.

### 3 EC and Classical Cognitive Sciences

According to classical cognitive sciences a specific linguistic module exists which only processes linguistic input and output. On the contrary, a very important EC evidence on language is that language processing recruits cerebral *motor* system (Glenberg and Kaschak 2003; Scorolli and Borghi 2007; Sato et al. 2008). For example, when I hear a sentence as *Mary kicks the ball* the motor system of my brain, in particular that which controls the foot, is mainly activated. Action verbs used by the utterer are literally understood by the listener through the mediation of his/her foot. According to EC this means that there is no a strong separation between a cognitive module (syntax and semantics) and an executive module (pragmatics); language processing is a form of (more or less mediated) *bodily action* (Rizzolatti and Arbib 1998; Rizzolatti and Sinigaglia 2006).

This is a very important innovation compared to disembodied Cartesian view of mind typical of classical cognitive sciences. On the contrary EC stresses the connection between mind and body; there is not such a thing as a mind operating *in vacuum*. Mind is always situated, in a specific body and in a spatial–temporal context. Nevertheless EC still belongs to cognitive sciences, therefore it shares with them their basic characteristics: cognitive individualism and a persistent and even if concealed form of dualism. Let's take the first point, *cognitive individualism*. We just observed that when I hear a sentence like *Mary kicks the ball* the motor system of my own brain, in particular that which controls my foot, is mainly activated. It is not too incorrect to maintain that according to EC I understand this sentence with my foot. The point that EC theorists want to stress is clear and fair but a *very* difficult problem comes up with such a solution: my own brain is different from yours, then how can we understand each other? And what about if I am born legless? Linguistic *meaning* is the same for all speakers of a language, while individual representations are always different from those of other individuals. EC model doesn't seem to be able to cope such a problem, which is a logical problem not a psychological one.

As for dualism, EC holds that putting the notion of *action* at the very center of its own theory eliminates it, because there could not be any more a mind separated by the body. Actually dualism survives in concealed forms: for example it survives in the distinction between semantics (mind) and pragmatics (body), or between abstract and concrete concepts. The very notion of *concept* as a separate mental entity should be quite suspect for a coherent and consequent EC theorist. Where are concepts? The usual answer is: they are in the mind. It is not such a big difference if concepts are innate or acquired, the point is the very existence of a special class of *mental* entities. EC neither solves the two main problems of cognitive sciences, individualism and dualism.

#### 4 The «Natural History» of Rule and Meaning

Wittgenstein, in order to solve the *logical* problem of cognitive individualism, moves away from minds (together with its own private representations) to «language-games». This is not a simple terminological change. Wittgenstein wants us to think of language as a natural behavior rather than a set of explicit rules we have to learn. We have not to teach a child to play: children play, playing is part of our *biological* nature:

It is sometimes said that animals do not talk because they lack the mental capacity. And this means: “they do not think, and that is why they do not talk”. But—they simply do not talk. Or to put it better: they do not use language—if we except the most primitive forms of language.—Commanding, questioning, storytelling, chatting, are as much a part of our natural history as walking, eating, drinking, playing (Wittgenstein 1953, Eng. Transl. 2001, I, Sect. 25).

A «language game» is not the application of an internal mental rule. The basic idea of this notion is that language is not an external instrument we can or cannot use. We should consider «language games» as peculiar human behaviors, much like walking or breathing. We do not think to how to breathe; the same holds for «language-games». We ‘use’ language as we ‘use’ our own foot for walking: there is the same intimacy relation between ‘us’ and our body as between ‘our’ minds and the language we speak. We do not breathe because it is the best way to oxygenate our lungs: we breathe because the body we are breathe. Something similar holds for language: we do not speak because this is the best way for conveying informations, we speak because... we speak, because speaking it is our nature. In this sense as playing is self-rewarding, so language use is self-rewarding.

«Language-games» notion forces us to completely change the way we used to think of language: much more as a physiological behavior than an acquired set of explicit conventions. The constitutive individualism of cognitive sciences is the first victim of this approach: children can immediately begin playing because a mutual relationship *already* exists between them. There is no logical need of deciding that they are playing: *they play*, that’s all. First is the playing, the «language game», then the individual players, the individual speakers. Language is not a way for communicating human’s private thoughts, language is the common field between them:

What we are supplying are really remarks on the natural history of human beings; we are not contributing curiosities, however, but observations which no one has doubted, but which have escaped remark only because they are always before our eyes (*ibid.*, I, Sect. 415).

It is not surprising that the discovery of mirror neurons confirmed Wittgenstein’s philosophical analysis: a mirror neuron is a neuron which discharges both when the body whose it is part executes a certain action and the same body sees another body executing the very same action (Rizzolatti et al. 1996). Mirror neurons are the physiological bedrock of language (Fogassi and Ferrari 2007; Schilhab 2007; Corballis 2009), they ensure the basic «intercorporeity» (Gallese 2009, p. 493) which allows the very possibility of mutual comprehension. In «language games» conventions between speakers are of no use, because the departure point, the presumed internal states, are not shared:

how do words *refer* to sensations? - There doesn’t seem to be any problem here; don’t we talk about sensations every day, and give them names? But how is the connexion between the name and the thing named set up? This question is the same as: how does a human being learn the meaning of the names of sensations? - of the word “pain” for example. Here is one possibility: words are connected with the primitive, the natural, expressions of the sensation and used in their place. A child has hurt himself and he cries; and then adults talk to him and teach him exclamations and, later, sentences. They teach the child new pain-behaviour. “So you are saying that the world ‘pain’ really means crying?” - On the contrary: the verbal expression of pain replaces crying and does not describe it (Wittgenstein, 1953, Eng. Transl. 2001, I, Sect. 244).

The fundamental «language-game» of the expression of internal states *presupposes*, in order to get started, that a natural way exists in which human beings

live the experience of pain. An adult does not need to teach a child what to do when he bangs his head against the edge of a table. Without this spontaneous behavior, the entire “language-game” of the expression of pain simply could not begin. It is also necessary that this behavior be, somehow or other, similar in different humans, in the sense that, faced with a person who is crying in pain, for example, human beings *react* in a manner which is reciprocally recognizable:

look at a stone and imagine it having sensations.—One says to oneself: How could one so much as get the idea of ascribing a *sensation* to a *thing*? One might as well ascribe it to a number!—And now look at a wriggling fly and at once these difficulties vanish and pain seems able to get a foothold here, where before everything was, so to speak, too smooth for it. And so, too, a corpse seems to us quite inaccessible to pain.—Our attitude to what is alive and to what is dead, is not the same. All our reactions are different. [...] (*ibid.*, I, Sect. 284).

Wittgenstein writes «reactions» with regard to the pain of others and this is a highly important observation (which, besides, anticipates by many decades the discovery of mirror neurons) A reaction is not learned. It is a form of behaviour specific to the human species: “think of the recognition of *facial expressions*. Or of the description of facial expressions—which does not consist in giving the measurements of the face! Think, too, how one can imitate a man’s face without seeing one’s own in a mirror” (*ibid.*, I, Sect. 285). So, without this capacity, which is naturally shared among (normal) members of the *Homo sapiens* species, the «language-game» of the expression of internal states would not be possible:

..now, what about the language which describes my inner experience and which only I myself can understand? *How* does I use words to stand for my sensations?—As we ordinarily do? Then are my words for sensations tied up with my natural expressions of sensations? In that case my language is not a ‘private’ one. Someone else might understand it as well as I.—But suppose I didn’t have any natural expression for the sensation, but only had the sensation? And now I simply *associate* names with sensations and use these names in descriptions.—(*ibid.*, I, Sect. 256).

Let us imagine this case. A child trips and falls to the ground, and feels a certain internal sensation, without, however, this being accompanied by any natural expression. How is it possible for this child to learn to use the linguistic expression, by means of which, in his community, reference is made to that internal state? How is it literally possible for the «language-game» of the expression of internal states to begin? An adult witnesses the episode, and asks him *Does it hurt?* How will the child understand *what* the adult is talking about? It would be like wanting to teach a cat who is licking a paw hurt in a fight with another cat that what it is feeling in that paw is called, in Germany for example *Schmerz*. How can the child associate the word *Schmerz* with something that he does not even now how to express (notwithstanding it is possible to feel something that one is in no manner capable of expressing). Yet, and this is even more important, the child would not even understand the *why* of this operation. If it does not come naturally to him to express pain, why should he do it in an artificial manner? What would be the sense of this game? The relation with the other, therefore, does not come about

by means of the «language-game», rather, this presupposes a natural relation, not learned and not explicit:

“what would it be like if human beings shewed no outward signs of pain (did not groan, grimace, etc.)? Then it would be impossible to teach a child the use of the word ‘tooth-ache’.”—Well, let’s assume the child is a genius and himself invents a name for the sensation!—But then, of course, he couldn’t make himself understood when he used the word.—So does he understand the name, without being able to explain its meaning to anyone?—But what does it mean to say that he has ‘named his pain’?—How has he done this naming of pain?! And whatever he did, what was its purpose?—When one says “He gave a name to a sensation” one forgets that a great deal of stage-setting in the language is presupposed if the mere act of naming is to make sense. And when we speak of someone’s having given a name to pain, what is presupposed is the existence of the grammar of the word “pain”; it shewes the post were the new word is stationed (*ibid.*, 1, Sect. 257).

The «language-game» is not based upon an explicit convention established among its participants because a convention requires the presupposition of something that is not in dispute, and which all *preliminarily accept*. Otherwise, the discussion could not even begin. Let us suppose that we wish to establish the rule that when pain is felt the English expression *pain* is used. At the same time, it is necessary that everyone knows how to recognize the spontaneous expression of pain on the part of others. Without this natural capacity, it is impossible to be certain that when someone uses the expression *pain*, he is using it in the same manner in which others could use it; for this reason, «the expression of doubt has no place in the language-game; but if we cut out human behaviour, which is the expression of sensation, it looks as if I *might* legitimately begin to doubt afresh. My temptation to say that one might take a sensation for something other than what it is arises from this: if I assume the abrogation of the normal language-game with the expression of sensation, I need a criterion of identity for the sensation; and then the possibility of error also exists» (*ibid.*, 1, Sect. 288).

Wittgenstein naturalistic stance helps us to find a way out from the two problems EC inherits from cognitive sciences, individualism and dualism. The basic notion for understanding human language is «language-game», a behavior which is part of human «natural history» and which is naturally social. If we want to understand human language we have to look for in ethology more than in psychology.

## 5 What is a Word?

The same logical relation holds between an hammer and a nail I want to stick into a wall, and the utterance *I love you* said to the woman I want to marry. In both cases what I have to do requires the necessary mediation of a tool, a physical one in the first case, a linguistic one in the second case. A tool that I have to use according to the social norms that regulate it: as I have to grab the hammer by its wooden handle, so I have to use the linguistic tool *I love you* respecting its use

rules and appropriate contexts of use. A tool is not an entity whose use could be arbitrarily established by anyone. A tool is a *normative* entity: « think of the tools in a tool-box: there is a hammer, pliers, a saw, a screw-driver, a rule, a glue-pot, nails and screws.—The functions of words are as diverse as the functions of these objects. (And in both cases there are similarities.)» (*ibid.*, I, Sect. 11).

This not so much a new definition of *linguistic meaning* as a completely different way to conceive language as a way of living: according to Wittgenstein language is neither a cognitive instrument (a way of thinking) nor a means for communicating (a way to express thoughts): it is the peculiar way of *living* of human beings. As birds fly and fishes swim we talk each other. It is still a very unusual way of defining language, but a way that should be very liked by EC theorists. Wittgenstein definition is an *anthropological* one rather than a linguistic or cognitive one: «I shall [...] call the whole, consisting of language and the actions into which it is woven, a “language-game”» (*ibid.*, I, Sect. 7). There is no way, in Wittgenstein analysis, of dividing language from what humans do with it. In this sense language is the peculiarly human way of acting in the world: «here the term «language-game» is meant to bring into prominence the fact that the *speaking* of language is part of an activity, or of a life-form» (*ibid.*, I, Sect. 23). The traditional view separates language as set of expressions from the set of things or thoughts these expressions denote. After Wittgenstein such a separation does not hold any more and the implicit dualism of semantics (mind) and pragmatics (body) fails. For this reason defining language as a means of communicating is so misleading, because it is an unaware reproduction of classical dualism.

The traditional view holds that for each word a corresponding thing or thought has to exist, otherwise the word would be meaningless: as one of the main EC theorists asserts «linguistic system» does not «contain [...] its own semantics» (Barsalou et al. 2008, p. 250). This is, as we have previously seen, the explicit EC model of language. But such a model simply does not apply to actual uses of language:

let us first discuss *this* point of the argument: that a word has no meaning if nothing corresponds to it.— It is important to note that the word “meaning” is being used illicitly if it is used to signify the thing that ‘corresponds’ to the word. That is to confound the meaning of a name with the *bearer* of the name. When Mr. N.N. dies one says that the bearer of the name dies, not that the meaning dies. And it would be nonsensical to say that, for if the name ceased to have meaning it would make no sense to say “Mr. N.N. is dead” (Wittgenstein, 1953, Eng. Transl. 2001, I, Sect. 40).

A word simply it is not significant because a thing it is attached to it; the dualistic relation of reference does not explain the meaning of a word. The whole semantic value of a linguistic entity coincides with its *anthropological* value, that is, its use into a community: «every sign *by itself* seems dead. *What gives it life?*— In use it is *alive*. Is life breathed into it there?—Or is the *use* its life?» (*ibid.* I, Sect. 432). Wittgenstein proposes a radical de-psychologization of the notion of meaning, that is, he proposes to consider meaning as not separable by what we do when we use language in everyday life: «for there isn’t anything hidden—don’t we see the whole sentence? The function must come out in operating with the word.



[(Meaning-body.)]» (*ibid.* I, Sect. 559). There is no more meaning on one side (the mental or psychological one), and use on the other, and other similar couples as signal and content, inner and outer, semantics and pragmatics: there is *only* «meaning-body», that is, *language in action*. As we have previously seen this is a view of language that is more similar to an ethological than a to psychological one. From this premise Wittgenstein arrives at a strong conclusion: «for a large class of cases—though not for all—in which we employ the word “meaning” it can be defined thus: the meaning of a word is its use in the language. And the *meaning* of a name is sometimes explained by pointing to its *bearer*» (*ibid.* I, Sect. 43). This is not a new conception of semantics rather the elimination of the very notion of meaning as an autonomous entity: from now on there is no more place for the independent existence of semantics as a distinct component of human cognitive architecture. A view that should be very attractive to EC theorists, because stresses the importance of perception and mainly *action* in explaining language. But EC theorists define themselves as part of the large family of cognitive sciences, and they do not find them at easy in accepting a theory that somewhat eliminates the very existence of their professional field.

## 6 From EC to Music

Wittgenstein proposes a radical changing in our way of conceiving language. According to him language is neither a means of communicating nor a cognitive tool (Mirolli and Parisi 2009). It is obviously true that language is both of them but its very nature is neither the first nor the latter one. Wittgenstein tries to see to language with a fresh look, getting rid of the traditional categories through which we used to conceive it. In particular Wittgenstein doesn't want to see language through the glasses of communication. If we stop thinking to language as an expressive tool we are forced to find completely new categories to conceive it. EC is on the road of such a change, but its cognitivist inheritance prevents it to fully realize it.

Mirror neurons discovery pave the way for this completely different approach to the comprehension of language. In many non human animals mirror neurons system allows the establishing of mutual relations between them. The idea is that language is the human transformation of such a system which establishes a species-specific sharable space between us: language is based on a «intercorporeity» system, a «mandatory, pre-rational, non-introspectionist functional mechanism» which permits to each of us of establishing a relation with others, a common space that «is therefore not necessarily the result of a willed and conscious cognitive effort, aimed at interpreting the intentions hidden in the overt—and supposedly intentionally opaque—behavior of others, but rather a basic functional mechanism of our brain» (Gallese 2009, p. 493).

If language is not a means of communicating, the dualism of mind and body, semantics and pragmatics, content and vehicle vanishes. Words are no more

intended as mere signals rather as *gestures*, that is, a *unitary* entity (like the Saussure's sign). From this point of view the classical distinction between the so called concrete and abstract concepts also could be abandoned. According to the received view a concept is abstract whether it is not connected to some previous embodied experience; it is concrete in the other case. This is a distinction that is only acceptable if words are conceived as mere meaningless vehicles of some extrinsic semantic content. This is the usual EC's idea on language: «attempting to perform symbolic operations on linguistic forms alone would be like manipulating symbols in an unfamiliar language, with no true comprehension» (Barsalou et al. 2008, p. 251). This is the major theoretical limit of EC: by itself a word is just a *empty* envelope for conceptual meaning. But if *all* words are intended as bodily tools, as particular way of acting in the world, then there is no more theoretical reason to distinguish between abstract and concrete concepts. Each linguistic act is a meaningful gesture:

it is like looking into the cabin of a locomotive. We see handles all looking more or less alike. (Naturally, since they are all supposed to be handled.) But one is the handle of a crank which can be moved continuously (it regulates the opening of a valve); another is the handle of a switch, which has only two effective positions, it is either off or on; a third is the handle of a brake-lever, the harder one pulls on it, the harder it brakes; a fourth, the handle of a pump: it has an effect only so long as it is moved to and fro (Wittgenstein, 1953, Eng. Transl. 2001, I, Sect. 12).

As there is no intrinsic reason to distinguish between abstract and concrete tools, the same holds for gesture-words: there are tools that directly affects the world, and there are tools that require a longer path to reach their goal. In this perspective language becomes a form of social action: «to imagine a language means to imagine a life-form» (*ibid.*, I, Sect. 19). Understanding a language does not require referring to a particular psychology or semantics, rather *to live* in a certain way. This is not equivalent to sustain that we should prefer pragmatics over semantics, but that we should give up in separating human mind from its behavior. The very distinction between semantics and pragmatics it is nothing more that a semiotics variant of the classical metaphysical distinction between mind (soul) and body. Wittgenstein pushes us to come out from this tradition, when he compares the process of language comprehension to that of music comprehension:

understanding a sentence is much more akin to understanding a theme in music than one may think. What I mean is that understanding a sentence lies nearer than one thinks to what is ordinarily called understanding a musical theme. Why is just *this* the pattern of variation in loudness and tempo? One would like to say “Because I know what it's all about.” But what is it all about? I should not be able to say. In order to ‘explain’ I could only compare it with something else which has the same rhythm (I mean the same pattern). (One says “Don't you see, this is as if a conclusion were being drawn” or “This is as it were a parenthesis”, etc. How does one justify such comparisons?—There are very different kinds of justifications here.) (*ibid.*, I, Sect. 527).

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