

THE IMAGINATIVE REHEARSAL MODEL

– DEWEY, EMBODIED SIMULATION, AND THE NARRATIVE HYPOTHESIS

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ABSTRACT: In this contribution I outline some ideas on what the pragmatist model of habit ontology could offer us as regards the appreciation of the constitutive role that imagery plays for social action and cognition. Accordingly, a Deweyan understanding of habit would allow for an understanding of imagery in terms of embodied cognition rather than in representational terms. I first underline the motor character of imagery, and the role its embodiment in habit plays for the anticipation of action. Secondly, I reconstruct Dewey's notion of imaginative rehearsal in light of contemporary, competing models of intersubjectivity such as embodied simulation theory and the narrative practice hypothesis, and argue that the Deweyan model offers us a more encompassing framework which can be useful for reconciling these approaches. In this text I am mainly concerned with sketching a broad picture of the lines along which such a project could be developed. For this reason not all questions are given equal attention, and I shall concentrate mainly on the basic ideas, without going directly into the details of many of them.

1. Habit and interaction

In the pragmatist model interaction is assumed to be constitutive of the mode of being of social phenomena (Dewey 1984, 240; 1981, 153). The primacy of the notion of 'action' leads here to a habit ontology insofar as the process where actions are cast into patterns is understood as a matter of habit formation, in which standing patterns of action are formed (see Testa 2017). Such a process is built into the organic nature of embodied living beings and is sensitive to the affordances of the natural and social environment (Dewey 1983, 38). Hence, habitual patterns are both embodied in individual organisms, and also embedded in the environment which such organisms interact with.

Habitual patterns of behaviour, understood as fundamental explanans and ontological constituents of social reality, are not understood by pragmatism as internal, individual, and representational units, but are rather conceived of in externalist terms (Steiner 2013).

This does not exclude that internal mechanisms occur, but these are rather not to be modelled at their fundamental level on representational processes, and are to be conceived as ontologically derived from the sensorimotor character of embodied processes. This allows for an interactive and sensorimotor approach to cognition, based on the idea that "interaction" is the "basic category" and the "primary fact" (Dewey 1982, 129). Due to the "motor urgent force of habit" (Dewey 1983, 39), experience is for Dewey a vital, practical, and emotional matter of upward sensorimotor organization, and "cognition" has to be understood as a "derived phenomenon", secondary in its "origin".

At first sight it might appear strange that a model of social interaction based on a habit ontology may allow us to give a central role to imagery in the articulation of our experience. Still this is exactly the case if we consider that what connects habit with imagery is its "motor urgent force" (Dewey 1984, 39). Habits operate in fact as an anticipatory mechanism of possible action, insofar as they are based on past experiences of acting in certain circumstances which have given rise to patterns of actions of a certain form and structure (see Mättänen 2010). In this sense stabilized action patterns allow us to distance ourselves from what is immediately present and to see the actuality in light of possibilities of action (see Alexander 1993, 384; Dorstewitz 2008; 2016).

2. Imagery as Anticipation of Action

If we now consider the way habits operate as an anticipated future, we can begin to better appreciate first why habits can manifest a purposive structure, referred to action goals, even when they are not yet associated with intentional and conscious behaviour. Habitual patterns can implement what Dewey named 'ends-in-view', that is, ends through which a particular consequence is foreseen, already at a pre-linguistic and pre-reflective subpersonal level, that is, in the form of habitual mechanisms or automatisms. And this purposive structure is closely connected with the role of imagery.

Imagination has traditionally been understood as a reproduction in absentia, that is, as forming a representation of something that is not actually present. But if viewed through the lens of habit formation, imagery has a motor character rather than a representational nature, since it consists of a mechanism of the anticipation of action implemented by neural, functional and phenomenological structures controlling overt action¹. Once we realize that habits are basically anticipatory mechanisms, we can begin to see that they are instances of consummation (Dewey 1989, chap. 3), that is, that they intrinsically involve a form of standing readjustment to experience, of more or less creative rearrangement of our action patterns. And in this sense the appreciation of the intrinsic role that imaginative reproduction plays within the pragmatist conception may contribute to the overcoming of the identification of habits with dead, fixed routines, which has been prevalent in the recent tradition of both philosophy and cognitive sciences (for a critical survey of this identification in different areas of philosophical thought and empirical research, see Camdic 1986; Kilpinen 2012; Seger and Spiering 2011; Barandian and Di Paolo 2014; Bernacer and Murillo 2014). The formation, the maintenance, and the transformation of habits, as well as the reconstruction of frustrated action patterns, all require that some degree of imaginative anticipation and rearrangement of experience be at play.

The motor character of imagery is also underlined by Dewey when he analyses the notion of 'imagination' in itself. For instance, in his 1896 essay on "Imagination and Expression", "motor imagery" is the crucial notion Dewey develops in order to understand what

imagination is. In this sense he writes that "imagery of all kinds has a tendency to overflow in the motor channels", "a tendency to reproduce through action and experience" (Dewey 1972, 194). In this light Dewey, while for instance analysing the activity of drawing, sharply criticizes the representational model of imagery which opposes the representational content – the idea, the material to be conveyed – and the mode of expression – the mode of conveyance, the bodily format of the natural physical and psychical process of expression. The "motor expression" is assumed by Dewey to be not just a contextual or enabling condition, but rather a constitutive element of the representational content, of the idea to be expressed². And it is in this context that Dewey writes that "thought is thought only in and through action" (Dewey 1972, 195). In this sense, Dewey locates his account of imagery within the context of the motor control of action rather than that of representational visual cognition, and it is in this sense that he anticipates contemporary embodied and enactive approaches to imagery, which understand imagery as a form of action rather than as a form of representational inscription (for the latter, see for instance Thomas 1999; 2014; Bartolomeo *et. al.* 2013).

One can easily see that the appreciation of the sensorimotor and expressive character of imagery does not reify it as a separate cognitive faculty – as if sensation, imagination and thought were self-standing cognitive processes – but rather understands it as a moment, a function which is more or less manifest in every instance of experience. Moreover, Dewey also underlines the role that habituation plays in the working of imagery when he writes that "the so-called mechanical phase is necessary to the integrity of the spiritual" (1972, 195). Even the imaginative function is a form of more or less plastic stability, a motor cognitive

¹ Counterfactual reasoning is in this sense not a matter of possible worlds, but rather a matter of imaginary variations of the conditions of experience controlled by abductive patterns and which plays a constitutive role for our everyday perception and thinking. Whereas the logical formula of induction for Peirce "expresses the physiological process of formation of habit" (Peirce 1931-58, 2. 643), the formula of abduction expresses the forward looking dimension of habit and its constitutive role for experience.

² See Dewey 1972, 195: "We cannot speak of an idea *and* its expression; the expression is more than a mode of conveying an already formed idea; it is part and parcel of its formation." See also *ibid*: "thought is thought only in and through action".

disposition, and the sort of habitual patterns we embody influences the grain of the sort of imagination we can develop. If we now remind ourselves of the interactive and embedded structure of habitual embodiment, we can realize that imagination in this general sense is not just a cephalocentric and internal representational activity but is itself fundamentally shaped and constrained by the bodily format and the externalist social structure of habit formation.

In the pragmatist, Deweyan model, experience as a whole can be understood (to different degrees) as a process of “embodied imaginative transition” (for this expression see Cuffari 2011, 539). If this holds, then I think that the tendency of some interpreters to think that Dewey “restricts imagination to conscious experience” (Fesmire 2003, 83), and accordingly to identify imagery with reflective imaginative rehearsal, should be criticized. When Dewey writes that “all *conscious* experience has of necessity some degree of imaginative quality” (Dewey 2008, 276), he is not at all excluding that some degree of imaginative quality can be proper to unconscious experience. On the contrary, the idea that habits act as an anticipation of the future means that they are imbued with imagery. And since in the pragmatist understanding of habits there is a continuous transition from subpersonal and personal, pre-reflective and reflective, unconscious and conscious activity, the same holds for the forms of imaginative reproduction they are infused with. Imaginative reproduction, then, should not be restricted to only conscious forms: the pragmatist model allows rather for the idea that imagery takes place already at the subpersonal and unconscious level³. Of course this does

not mean that everything that happens at the subpersonal and unconscious level possesses an imaginative quality. But the motor character which characterizes both habit and imagery means that at least motor acts which are connected with reciprocal interaction cannot be understood without referring to the role that imagery plays within them.

The overall form of imagery as a quality of habitual experience is that of a mechanism of anticipation of action. In order to understand the interactive structure of imagery, it is important to note that imagery as anticipation of action has two main aspects. On the one hand imagination involves a form of i) sympathy or empathy, understood by Dewey in his *Ethics* as “entering by imagination into the situation of the other” (Dewey 1978, 150). Hence the anticipatory structure of habit is defined in its intersubjective form exactly by the role of imagery: habitual anticipatory imagery is the mechanism that sustains that capacity to put oneself in the place of the other that for both Dewey and Mead is constitutive of sociality (see Mead 1967, 325). Secondly, as we have seen, imagery as anticipation of action is ii) a mechanism of tapping a situation’s possibilities (Fesmire 2003, 65). But it is important here to realize that this tapping for possibilities of action does not only occur when we reflectively consider alternative possibilities, as is the case for instance with moral deliberation. In fact some degree of imagery is always present in action, and even when we act out of automatism, we unconsciously imaginatively anticipate counterfactual possibilities of action.

³ Some may hold, as a referee points out, that imagery or imagination is a process that by definition needs to be consciously realized. But even in the more commonsensical use, where imagination is understood as representation *in absentia*, I do not need to be aware of the fact that I have imagined something to be the case in order for me to have imagined that. I might discover it retrospectively, but this might never happen. If we now come to our more specific use of the notion of imagery as involved in the anticipation of action, one can see that this need not be a process I am aware of while it is

happening, since the mechanism of anticipation is needed not only at the level of deliberative processes where I reflectively consider different courses of action, but also at the level of sensorimotor tasks connected with our pre-reflective perceptual engagement with the world. Moreover, the idea of unconscious imagery has an important tradition in philosophical thought also outside the pragmatist tradition. For instance, Kant’s transcendental or productive imagination is understood as an activity which operates by definition at an unconscious level. Kendall Walton distinguishes between spontaneous and deliberative imagining, where the first occurs without the subject’s conscious direction (1990).

3. Two forms of Imaginative Rehearsal

For the above mentioned reasons I think we can be more faithful to the pragmatist model if we say that this allows us to make an analytical distinction between a) imaginative anticipation as operative in overt action, and b) imaginative anticipation as operative in vicarious action. In a sense these are both manifestations of some sort of imaginative rehearsal, since they both involve some sort of capacity of entering into the situation of the other, and some sort of tapping for possibilities of action. The notion of dramatic rehearsal is here a good metaphor which captures the sensorimotor character of imagery in action, i.e. the fact that this process involves a form of enactment and embodiment of the motor possibilities which are anticipated through the vehicle of habits. The notion of dramatic rehearsal is also a good metaphor for expressing the interpersonal structure of imagery, the fact that anticipation of action always happens in a context where we are performing with others into whose situation we need to enter.

If we now consider the analytical distinction of the two forms of imagery I have introduced, one can see that only the second one, that is imaginative anticipation as operative in vicarious action, is what Dewey understood as the form of imaginative rehearsal that is proper to moral deliberation. I will label this as 'reflective imaginative rehearsal' in order to distinguish it from the other form we have analysed and to which the structure of dramatic imaginative rehearsal can also be attributed as happening at a pre-reflective level. Deliberation as reflective imaginative rehearsal is characterized by Dewey as a case where imaginative anticipation, instead of being operative in overt action, results rather in a form of a "vicarious" way of acting (Dewey 2008, 200), where overt, "direct action" is temporarily inhibited and delayed. Reflective imaginative rehearsal still has a motor character, only that here action is diverted, "activity is turned from execution into intra-organic channels" (Dewey 1983,

133). And it is important to remind ourselves that the blocking of overt action that occurs here is directly related to the process of habit formation, and namely, to a situation where prior habits enter into conflict with new impulses to action and are somehow impeded to manifest in direct action.

Reflection is thus understood as some sort of introverted, off-line, indirect activity. As Dewey writes "this very inhibition gives habit a chance at manifestation in thought", "projecting itself into the screen of imagination" (Dewey 1983, 133). Reflective deliberation is thus understood as a case where "habit traverses its imaginary path" (1983, 134), that is, manifests itself as reflected habit: as a habit that, while entering into conflict with other habits and being suspended in its urgent and automatic motor character, becomes conscious. And the choice which eventually concludes the deliberative process is thus understood as the moment where the impeded energy is released and some combination of habit "finds a way fully open" to overt, on-line, direct action.

4. Simulation Theory, Narrative Hypothesis, and the Imaginative Rehearsal Model

One could be tempted here to read Dewey's dramatic rehearsal as being close to some sort of simulation theory⁴. Imaginative rehearsal would then result in an *as if* experience, where alternative courses of conduct are internally simulated by being projected on the imaginative screen. Instead of being overtly performed, the inhibited action would be screened in a mental trial, which would consist of a vicarious, anticipatory way of acting, a sort of efference copy of the direct action (see for instance Grush 2004). But one has to note here that, even though Dewey sometimes uses some sort of internalist representational lexicon in order to

⁴ For a contemporary interpretation of basic imagining on the basis of a simulation theory, see for instance Currie and Ravenscroft (2013), who interpret imagining as perceptual reenactment.

characterize dramatic rehearsal – as for instance when he speaks of the screen of imagination – on the other hand the very idea of dramatic rehearsal also underlines the deeply embodied and enactive aspect of imagery. Moreover, reflective imaginative rehearsal is an aspect of conscious deliberation and its structure should not be attributed to imagination as a whole. Reflective imaginative rehearsal is rather an exercise of imagery that we develop at a later stage in life and against the background of ongoing forms of pre-reflective imaginative anticipation. Deliberation as reflective imaginative rehearsal is then some sort of specialized occurrence of imagery that intervenes when habitual automatic patterns become frustrated and need to be reconstructed. For this reason, even if we were to think that deliberation involves some form of internal simulation, this would not mean that simulation should be understood as the general model for the operation of interactional imagery, but could rather be understood as a specialized embodied routine which intervenes in some specific cases where habitual patterns are disrupted and default embodied imagery in action is suspended.

When Dewey writes that deliberation is “dramatic and active rather than mathematic and impersonal” (1978, 293), he is clearly stating that, to his mind, the process by which in deliberation we reflectively consider various courses of action, should not be modelled as a case of rational calculation. While opposing this utilitarianist understanding of deliberation, Dewey also underlines the interpersonal structure of intrapersonal deliberation, that is the fact that individual agents that reflect on their conduct anticipate within themselves the point of view of other agents. Even when this takes the form of an intrapersonal monological activity, the latter is nevertheless shaped by and responsive to social external interpersonal constraints. Moreover, the qualification of imagery as dramatic rehearsal, with its concern with characters, plot and scenarios (Caspary 2000, 113-115) underlines also the story-structured and

narrative form of imagination that we need in order to enter into the situation of others and to interpret their actions as motivated by reasons. It is not by chance that Dewey in his early essay “*Imagination and Expression*” sees what he’ll later label as imaginative rehearsal as already present in the pretend play of the child (“he acts an idea *out* before he really takes it *in*”, Dewey 1978, 197). Even according to Mead the genetic role that pretend play occupies as for the emergence of the capacity of role taking seems to involve a model which is coalescent with that of imaginative rehearsal (see *The Social Self*, Mead 1913, on the “dramatic” aspect of the self as a “character”, and also on the dramatic character of reflective moral reflection).

Reflective imaginative rehearsal can thus be understood as an extension, and sometimes an introversion – but remember that deliberation is not intrinsically monological and can also be pursued as a conjoint interpersonal action – of the form of imaginative rehearsal which is already operative at a pre-reflective and pre-intentional level. Here the model of imaginative rehearsal can be seen as a pragmatist precursor of the narrative practice hypothesis. The latter has been proposed (Hutto and Gallagher 2008) as an alternative to theory-theory and simulation theory explanations of folk psychology. According to the narrative hypothesis, our capacity to understand others, and in particular to understand reasons for action would not require us to be endowed from scratch with an intentionalist theory of mind nor that we operate some simulational procedure. According to the narrative practice hypothesis, we normally achieve our folk-psychological understanding of others by engaging from childhood in story-telling practices.

It is important to note that narrative practice does not stand alone. On this account our capacity to understand others would consist in an extension of those mechanisms of protological perceptually based recreative imaging that already belonged to our hominid forerunners (Hutto 2008, 79), and of those early forms

embodied pretend play that require children to occupy characters and personas that are different to their own, and that are implemented by the exposure of the children to their parents' story-telling. As one can see, the narrative practice hypothesis, in order to be put in motion, presupposes a sort of imaginative activity to be already operative. And I think that here the notion of imaginative rehearsal offered by pragmatism – understood as traversing a continuum from prereflective and reflective imaginative rehearsal – can be read as some sort of more encompassing model, which somehow bridges the gap between embodied simulation theories (Gallese 2005; Gallese and Sinigaglia 2011) and the narrative hypothesis.

In embodied simulation theory mechanisms of embodied simulation are supposed to already be operative at a subpersonal, functional, and physiological level – whereas the notion of narrative practice is a personal level, phenomenological concept. Supporters of the narrative practice have argued (against embodied simulation) that the notion of simulation is itself a personal level concept (Gallagher 2007) and cannot be properly applied at the subpersonal level of the mirror system; whereas supporters of embodied simulation have argued that the narrative hypothesis confines action's understanding at the level of high level linguistic practice and does not account for lower levels of action's understanding and for their subpersonal, functional and neural underpinnings (Sinigaglia 2009). Here the pragmatist model is an interesting one, since imagery, when understood as a habitual, embodied process, is a notion that is likely to be applied both at the subpersonal and at the personal, at the implicit and at the explicit level – and hence is less exposed than the notion of simulation to the criticism of being applicable only at the personal level. Moreover, the notion of imagery is more encompassing than the high-ranging notion of narrative practice, since it encompasses not only high level, linguistic competences, but it also includes lower level, subpersonal mechanisms such as

those involved in embodied simulation theory. Finally, the pragmatist notion of motor imagery offers an approach to basic imagining which can account in a non-representational way for the embodied intersubjective mechanism of the anticipation of action implemented by the mirror system, while being compatible with the enactivist approach to imagining supported by the narrative practice hypothesis⁵. Hence embodied imaginative rehearsal could be the basis for a unitary paradigm which accounts in a continuous way for our habit based ways of understanding others in action.

5. Imagery and Decision Making

Let me finally observe that the analytic distinction I have broached between pre-reflective imagery in action and reflective imagery as postponed action, can be seen as manifesting (under the aspect of the imaginative function) the dual character of interaction – as being both active and passive, spontaneous and receptive, unconscious and conscious. If we do not reify this dual phenomenon but understand it as a perspectival and relative manifestation of the continuum of action anticipation in experience, then we are in a position to see that the overcoming of the strong dualism between routine and intelligent action also involves a re-evaluation of the role that imagery plays at every stage of the decision making process. And this can be better appreciated if we realize that even recent literature is increasingly re-evaluating the role that habitual behaviour plays at different levels of decision making⁶.

⁵As Hutto acknowledges (2015), cognitive activities such as imagination, where what is thought about is not present or non-existent, may pose a threat to the enactivist non-representational approach to cognition, at least if one assumes that thinking about what is absent is merely a contentful mental representation of that thing. What the pragmatist perspective offers here is, as I have argued, an account of this imaging in absence which is not modeled on representations, but rather on the motor character of basic imagery.

⁶ See for instance Wagner & Northoff (2014), who in a recent article based on empirical research in psychology

But how does this impact on the role that imagery plays within such a process?

Let's take for instance Selten's criticism of game theory through his bounded rational decision making model (1978). Selten distinguishes three hierarchical levels of decision making, that is, routine, imagination, and reasoning. The three levels involve a stepwise increase in cognitive effort: individuals first use procedures that incur low cognitive cost, and move on to more costly procedures only if there is no simpler solution (Sarieh 2010). At the level of routine decisions, these are based on past experiences with similar situations and are made without any conscious effort. At the level of imagination, outcomes of new scenarios are imagined by using the routine knowledge to make guesses. At the level of reasoning the decision maker makes conscious use of present and past information and uses logical reasoning to draw a conclusion (and this is the only level of decision making admitted and permitted by standard game theory). According to Selten, for every given situation decision, there is a pre-decision, where the decision maker first uses a routine level decision process in order to choose which level of decision making to employ, and a final decision, that is a metadecision – itself made on the routine level – where the suggested choices are selected. The distinction between pre-decision and final decision accounts here for the fact that people can always reach a routine decision, but not always follow the solution offered by the higher rational level even if they know it to be the best one. Hence, contrary to the rational agent theory, in bounded rationality the agent does not always choose to perform the action with the optimal expected outcome.

One can see that on the one hand the hierarchical structure of such a model presupposes a dualism

and the neurosciences, conclude that the role of habits cuts across the decision making process, since "habits can be considered to reflect not only a balance between internally and externally guided decision-making, but also a balance between diachronic and synchronic timescales that are involved in the relevant decision-making processes".

between habit understood as routine (lower level), and goal oriented rational action (upper level), which are put on the two extremes of the scale. And routine is here understood to be a lower level than imagination on the assumption that it would not allow the person to put themselves in the other person's shoes. On the other hand, the fact that pre-decisions and final decisions are taken at the routine level – which involves no conscious deliberation – somehow gives an encompassing role to habitual processes. But in Selten the fact that pre-decision is set at the level of routine is a sort of *ad hoc* assumption and there is no theoretical justification for this, if not for the fact that in this way Selten's model avoids the risk, faced by many rational choice models, of introducing too high a degree of complexity and cognitive costs.

As we have seen, in Selten's model imagination is put in the middle as a third term between routine and rationality. Now, Selten's model lets us appreciate that habits are involved in decision making. One could say that, from a pragmatist perspective, it is exactly this habit based character of decision making which constitutes the bounded character of rationality. On the other hand, it seems that in order to give a comprehensive account of this fact, one needs to rethink even the higher degrees of decision making – imagination and rationality – as themselves being habit based. Here pragmatist habit ontology could offer us a model that overcomes the dualism between habitual and intelligent action. Moreover, Dewey's take on imagination as motor imagery understands imagery not as a separate cognitive faculty, but rather as a function and a qualitative aspect which permeates both routine and reflective reasoning understood as manifestations of different degrees of habitual mindedness. If motor imagery is in this aspect a mechanism of anticipation of possibilities of action, then the two forms of imaginative rehearsal I have analytically distinguished, that is imagery in action and imagery as vicarious action, are both to be considered as involved in and constitutive of

the whole process of decision making and not just of its intermediate level. And decision making, being intertwined at all its levels with habitual patterns and bounded by them, will then be a process that happens at both unconscious and conscious, pre-reflective and reflective levels.

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