5 Learning as differentiation of experiential schemas

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Introduction

The goal of this chapter is to provide an interpretation of experiential learning that fully detaches itself from the epistemological presuppositions of empiricist and intellectualist accounts of learning. I first introduce the concept of schema as understood by Kant and I explain how it is related to the problems implied by the empiricist and intellectualist frameworks. I then interpret David Kolb's theory of learning that is based on the concept of learning cycle and represents an attempt to overcome the corresponding drawbacks of these frameworks. I show that Kolb's theory fails to achieve its goal because it is rooted in some of the fundamental epistemological presuppositions of these frameworks. Subsequently, I present a group of works from phenomenology, in particular Merleau-Ponty's, in order to show that Kolb's attempt is insufficient due to a lack of understanding of the problem expressed by Kant via the concept of schema. Finally, I outline an interpretation of experiential learning as differentiation of experiential schemas and explain how it meets the epistemological challenges outlined above.

Kant's idea of schematism

A comprehensive theory of learning from experience must tackle an ancient epistemological, that is, philosophical problem: how an experience that is relatively limited in time and space leads to a knowledge that becomes, ideally, independent of the particular situation from which it stems, and thereby acquires a general value.

Correspondingly, one of the first answers to the question of learning from experience is given by one of the founders of Western philosophical tradition, Plato. His suggestion, however, is less a solution of the above problem then its refusal. In his view, we never really learn *from* the

experience. To learn, Plato claims, is rather to 'recollect' what is intelligible and what exists independently of experience and is accessed *before* it is inserted into a sensible, bodily, historical situation (see *Meno*, Cooper and Hutchinson, 1997, pp. 880–886; *Phaedo*, ibid., pp. 63–67). For Plato then, the world that we experience cannot be the source of knowledge, because its reality is only an imitation of the original realities, the intelligible 'ideas'. From this point of view, learning consists of removing the obstruction that eclipses the true reality by means of proper inquiry. The concrete situation *from which* learning has to begin does not play any positive role here and there is therefore no room for a true experiential learning.

A position that is completely opposed to Plato's, but similarly refusing the problem, is defended for instance by the behaviourist school. From its radically empiricist perspective, the only source of knowledge is the external environmental pressure to which a subject is exposed. Such an epistemological position, however, misrepresents one the fundamental aspects of knowledge, the generality. The plurality of empirical processes or events that sum up only produce an *appearance of* generality: what we learn cannot be understood as more knowledge about one phenomenon, but merely a different sum of elements.

The learning theories based on aprioristic and empiricist epistemologies are both one-sided and have the obvious drawback that they call for each other. A theory of learning must respect that we *transcend* our situation *on the basis of* that situation, that we acquire more knowledge about something but also that we initially truly ignore some of its aspects.

A more complex answer to the problem of linkage between what we learn about and what we learn it on is offered by Kant. He believes that there is not one, but two 'sources' that correspond to concrete and general aspects of experience: receptive sensibility and spontaneous understanding. Making a strict distinction between, on the one hand, sensible intuitions, and pure concepts and forms of intuition on the other, Kant's epistemology is *hylemorphic*. In order to have an actual experience, the two sources of experience must each contribute to it: an intuitively graspable sensorial matter (*hyle*) must be organised or shaped by intelligible rules or forms (*morphe*).

The problem faced by Kant is then to explain how the general forms of understanding or 'categories', which are heterogeneous from the concrete sensible appearances (see Kant, 1999, p. 271), can be applied to them, that is, how they can be united with a qualitative, but as-yet unorganised sensorial experiential matter. Now it is quite clear, Kant points out, that 'there must be *a third thing*, which must stand in homogeneity with the category on the one hand and the appearance on the other, and makes possible the

application of the former to the latter' (ibid., p. 272; emphasis mine). The third thing that provides a solution to that problem is called by Kant the 'transcendental schematism' (see Kant, 1999, pp. 271–277).

In short, Kant's transcendental schemas are supplementary rules or procedures for interpreting conceptual rules in terms of more specific figural (spatiotemporal) forms and sensory images (see, e.g. Hanna, 2018; Matherne, 2016). Kant discusses several types of schematism according to their position on the scale between the concrete and the general. As an example of 'pure sensible' schematism Kant discusses mathematical concepts. They too have the particular characteristics of presenting a purely formal content through experientially accessible phenomena: the meaning of mathematical concepts is radically independent of the actual development of experience (which is why Kant calls them 'pure'), but they are also observable in concrete, perceptually given situations.[1] The idea of 1,000, for instance, is accessible to the intelligence as a pure form of quantity, unlike a group of 1,000 dots drawn on a paper: the latter cannot be grasped as being precisely 1,000, while the former cannot be experienced anywhere in the perceptible world. The *number* of 1,000, however, is a schema of the category of quantity, which means that it secures the procedure of linking the group of 1,000 empirical elements to the idea of 1,000, thereby securing the evidence that these elements in fact instantiate the absolutely non-empirical idea of quantity. In sum, a Kantian schema makes it possible for us to link a concrete experience of a perceptually accessible situation with a general, non-empirical idea, and vice versa. This is only possible because the schema precisely *organises* the way in which the two aspects of experience, which are understood as distinct and separate in the hylemorphic framework, relate to each other.

Since schemas are linked to 'sensory images', Kant believes that they are produced by imagination, unlike all the intellectual contents that do not involve any sensorial aspects. However, Kant's description of the role of imagination in experience, and by its proxy of schematism, is ambiguous. If schematism is required as a factor mediating between the sensibility and understanding, the imagination producing the schematism should be understood as a *third* original source of experience, as some of Kant's own formulations suggest. Yet on different occasions, Kant subordinates imagination, and by its proxy the schematism, to the sensibility, or to the understanding. By doing that, he reaffirms his initial hylemorphic epistemological framework and, in fact, dismisses the idea of schema as an original aspect of experience. And Kant proceeds in this way for a good reason, for if he fully embraced the idea of schema as an original source of experience, he might need to abandon his hylemorphic framework and thus the ideas of pure forms and matter of experience. Our experience

would then only involve schemas, various instances of *formed matter*.[2] This would, in turn, require us to completely recast the interpretation of both intellectual and sensory experience because they would turn out to be two types of experience based on schemas. For this reason, the concept of schema might be compared with the idea of *Gestalt* (figure) as introduced by Gestalt psychology.[3]

Kant's primary concern is epistemological, but as we saw in the beginning, the epistemological difficulty Kant attempts to resolve by introducing the concept of schematism has fundamental importance for the problem of learning. By asking how a concrete given situation can be integrated into the framework of general knowledge and thus eventually transform it, or inversely, how a conceptual framework can shed light on a concrete situation and make us understand it better, we are already inquiring into the problem of learning.

The question is then whether there is a learning theory that would satisfactorily answer the problem of learning in a similar way that the Kantian idea of schematism answers to the problem of experience. Based on this perspective, the following two sections of this chapter will attempt to discuss two attempts to overcome the one-sidedness of the empiricist–objectivistic and intellectualist–subjectivistic theories of learning: Kolb's 'learning cycle' and Merleau-Ponty's account of experience based on the idea of experiential norms that have the function of schemas.

Kolb's learning cycle

By asserting that 'to understand learning, we must understand epistemology', David Kolb defines the problem of learning in very similar terms to those I used at the beginning of this chapter (Kolb, 2015, p. 48). His 'experiential learning theory' (2015, first published 1984) is an example of a relatively sophisticated conceptual framework that attempts to integrate the thoughts of a number of authors usually associated with learning from experience. Kolb discusses the positions of Dewey, James, Lewin, Piaget and other philosophers, psychologists, sociologists and educational theorists. He attempts to synthesise their thoughts under the heading of the concept of a 'learning cycle' or 'spiral' (see in particular Kolb, 2015, p. 51, figure 2.5; ibid., p. 186). Correspondingly, the process of experiential learning is described by Kolb as 'a four-stage cycle involving four adaptive learning modes – concrete experience, reflective observation, abstract conceptualisation, and active experimentation' (ibid., p. 66). I will now analyse Kolb's theory from an epistemological point of view in order to see whether it meets the challenge to provide an epistemological basis for a comprehensive theory of learning from experience.

The four 'modes' that are supposed to govern our relation to the world, and therefore play a key role in learning, are defined by Kolb as mutually 'opposed' (ibid., p. 66), 'distinct' (ibid.) and 'independent' from each other (ibid., p. 8). Importantly, Kolb also strongly emphasises that we must understand these modes as 'coequal' (e.g. ibid., p. 76). That is, none of them is subordinated to any other, unlike in the theories that I have discussed earlier on the examples of Plato and behaviourism. In reference to the above discussion of Kant, it can be said that Kolb's experiential modes are four 'sources' of experience that are distinct, yet all original and mutually irreducible.

Kolb more precisely groups the four experiential modes into two couples related respectively to our 'prehension' or the 'processes of grasping or taking hold of experience in the world', and to our 'transformation' of the world (ibid., p. 67). The two opposed modes of *prehension* are based either on reliance 'on the tangible, felt qualities of immediate experience' (apprehension), or on 'conceptual interpretation and symbolic representation' (comprehension) (ibid.). In turn, the two opposed modes of *transformation* of our environment are based either on 'internal reflection' or 'external manipulation' (ibid.).

As evident from Kolb's definitions, the four modes of experiencing correspond to some of the traditional Western conceptual dichotomies: the apprehension is linked to the ideas of immediate, felt, qualitative contents given in individual experience, as opposed to comprehension, which is intellectual, intersubjectively shared, formal, linked to the use of symbols, and therefore culturally and inter-personally mediated. The manipulation and reflection are respectively associated with the subject's exterior and interior, and to action and passive receptivity. Moreover, the apprehension is identified with '*subjective* personal process that cannot be known by others' except via communication based on comprehension; and inversely, comprehension with 'an *objective* social process' (ibid., p. 159; emphasis mine).

The idea of learning as a movement through stages of a cycle implies that the opposite modes of experience lead to learning when they are put into relation through a 'successive iteration' (ibid., p. 186). As Kolb puts it, the experience in general, and learning from experience in particular, are produced on the basis of an 'interaction', 'transaction', 'interrelation' or 'dialectics' between the four opposed experiential modes. I will now analyse this idea in more detail.

As I have already noted, Kolb strongly emphasises that the modes are distinct and opposed. This fact contrasts with the weakness of his explanation of the supposed interrelation between these opposites. In fact, Kolb does not even offer his own account, but refers to Kant's claim that experience is produced through combining understanding and sensibility:

The essence of the interrelationship is expressed in Kant's analysis of their interdependence: Apprehensions are the source of validation for comprehensions ('thoughts without content are empty'), and comprehensions are the source of guidance in the selection of apprehensions ('intuitions without concepts are blind').

(Ibid., p. 160; alluding to Kant, 1999, pp. 193–194)

In other words, the apprehension should 'validate' abstract structures of knowledge through a 'contact with the world in … immediate perception'; and inversely, 'comprehension is capable of selecting and reshaping apprehended experience' (Kolb, 2015, p. 160). In Kolb's view thus, the role of apprehension is to provide 'contents' of experience, whereas the role of apprehension is to 'select' and 'shape' those contents (as opposed to merely representing the contents; cf. ibid.). It ought to be noted right away, however, that Kolb's claim of an 'interdependence' between apprehension and comprehension (see ibid., pp. 160–161), contradicts his earlier claims according to which all four modes are 'distinct' (ibid., p. 66) and 'independent' (ibid., p. 81). Moreover, if we accept that apprehension and comprehension are originally interdependent, we cannot define learning as a transaction between these two dimensions, for this would mean to abolish the difference between learning and experience in general.

In order to clarify the relations and the process of dynamic exchanges between the experiential modes, Kolb also speaks of 'dialectics'. Although the concept of dialectics seems to be crucial for him, his explanation of that concept is, similarly to his account of 'interrelation', surprisingly weak. It is only later in his book that Kolb starts alluding to the 'Hegelian' dialectics (ibid., p. 155) and eventually applies a very general account of Hegel's idea to his own categories of apprehension and comprehension: the relation of these processes is supposed to be 'dialectical' because, although they 'cannot be entirely explained in terms of the other', they supposedly 'merge towards a higher truth that encompasses and transcends them' (ibid., p. 162). Unfortunately, this formulation does not provide any insight into how the merging is concretely operated by the learner. The claim that there is *de facto* merging of what has been defined as *de jure* distinct and independent is unconvincing and does not bring any better understanding. The concept of dialectics is thus no less clear than the metaphors of circle and transaction.

Significantly, Kolb's perhaps most direct attempt to describe the relation between apprehension and comprehension is not at all relevant for epistemological discussion of learning. Kolb in fact suggests the adoption of 'an attitude of partial scepticism in which the knowledge of comprehension is held provisionally to be tested against apprehensions, and vice

versa' (ibid., p. 163). This is a psychological description that might have some practical relevance, but it does not advance our understanding of learning as an epistemological problem: the scepticism and dogmatism (mentioned earlier in Kolb's text) are themselves epistemological positions that are originally defined one in opposition to another. Kolb posits these opposites as simultaneously valid, but his suggestion to practically combine them is impossible to follow, for we still do not know *where exactly to put the limits* to scepticism and dogmatism which are two positions excluding each other. As Kolb eventually notes himself, it is thus 'somewhat mysterious' how precisely the 'dialectical synthesis' of the four distinct experiential modes is achieved (ibid., p. 162).

In sum, a closer look on the epistemological grounds of Kolb's account of learning shows that the conceptual framework it relies on is burdened with contradictions and does not clarify how the elements of experience, which have been initially dissociated, should, and ever could, be linked back together. The interdependence of experiential modes is taken as a fact, although this contradicts how the conceptual framework is designed. While there is no doubt that humans, in fact, review or reassess their 'concrete' experiences in the light of 'general' (sometimes conceptual) frameworks and vice versa, Kolb's account of experience does not help us to understand why and how this is possible. One may agree with Kolb's claim that discussions based on the idea of an 'idealized learning cycle' may have some 'pragmatic utility' (ibid., p. 57) or serve as *a particular type of* instructional guideline in practical situations. It is however not clear how they could serve as an epistemologically sound framework for a *general* theory of learning from experience.

Kolb's attempt implies that we either explain how learning is produced from an interaction between strictly distinct modes of experience, or we must abandon the idea that they are distinct. Although he advocates the former position, Kolb in fact does not provide any explanation in which the distinctness of the modes would be taken seriously. If learning consisted in a 'transaction' between the 'concrete' and the 'general' on the one hand, and between an 'action' and 'reflection' on the other, we would be imprisoned in symmetrical operations of generalisation and application (induction and deduction), pure activity and pure observation, without any possibility for learning. If we conceive the concrete as *nothing but* concrete, it does not have any general validity; and since it cannot be linked to anything general, the concrete and the general cannot transform each other and lead to learning. As we have seen earlier, this problem leads Kant to introduce the concept of schema: if one wants to posit distinct experiential modes, one has to provide a *supplementary* factor regulating the way in which the two heterogeneous dimensions relate to each other.[4] Similarly,

if action is conceived as pure action which does not involve any observation, it is not clear how it can ever be informed by it. In general, therefore, if the moments of the 'learning cycle' are defined and truly understood as mutually exclusive, general ideas must be magically applied to absolutely new concrete cases, or inversely, deduced from them; and similarly, the action must magically spurt from nowhere, without motivation, while the observation must be zero of action. The gap between these mutually exclusive extremes is not filled by verbally announcing that there is a 'transaction' or 'dialectics' between them. Without a conceptual element similar to Kant's schematism of experience, Kolb's theory is paralysed.

It is also worth noting that a number of Kolb's own remarks and more particular discussions relativise his epistemological framework based on a rather uncritical combination of empiricist (apprehension, external action) and intellectualist claims (comprehension, internal reflexion). Kolb states, for instance, that 'thinking and reflection can continue for some time before acting and experiencing' (ibid., p. 57). If this is true (as it does seem to be), how are we to differentiate between action and reflection and manage the shift from one attitude to another which is required for learning? Similarly, if social knowledge 'cannot exist independently of the knower', as Kolb claims (ibid., p. 159), the comprehension and apprehension cannot first be defined as distinct and independent from each other. Moreover, if knowledge 'requires active learners to interact with, interpret, and elaborate' the symbols and symbolic systems in which it is deposited (ibid., p. 174), reflection cannot first be defined in opposition to action. In all these and many similar cases, Kolb's theoretical framework is not up to par with his concrete observations and, as it seems, his actual intentions. (As I explained, although he posits the modes as distinct, Kolb is himself interested principally in their *interaction*. Similarly, Kolb's inventory of learning styles (see ibid., pp. 97–151) seems to be based more on a *ratio* between the modes, not really on their distinctness and opposition.)

With the relativisation of the conceptual oppositions that stand at the basis of Kolb's theoretical framework, we come to the idea that the modes of experience he evokes do not correspond to any real elements or experience, because *all* experiences contain *all* of those modes. This observation has then fundamental implications for our definition of learning, because the latter can no longer be defined as a transaction *between* the experiential modes.

Merleau-Ponty on perceptual norms

Kolb asserts that our experience involves 'concrete', 'felt', 'immediate' experiences (2015, p. 67), 'a seamless, unpredictable flow of apprehended

sensations' (ibid., p. 69).[5] Assuming that he identified one of the modes of the 'learning cycle', he then assigns this presumed element of experience an important role in learning: when an immediate apprehension such as perception *disrupts* one's ordinary, 'habitual' experience, we make a step in the learning cycle, that is, we learn (see ibid., p. 59). However, there are good reasons to believe that to oppose perceptual experience and the habitual experience, as well as all other Kolb's experiential 'modes', is to misrepresent perception and experience in general. In order to clarify this problem, I will now examine in detail the relation between perception and the original habituality of embodied behaviour as described by Merleau-Ponty. I will then confront this phenomenological account with Kolb's theory of learning based on the distinct character of four experiential modes.

In *Phenomenology of Perception*, Merleau-Ponty showed that we need to understand our body as the 'primordial habit' because it provides the necessary guidance in our encounters with perceived environment (Merleau-Ponty, 2012, p. 93).[6] I can only perceive inasmuch as my body mobilises some of its powers that are already available to me as a 'habitual knowledge' (ibid., p. 247), an original acquisition of typical ways in which it proceeds. A sensation calls for some corporeal capacities upon which I do not decide. I see colours because my body is sensitive to them and I just 'lend' it to the spectacle: I adjust my posture, I direct my gaze towards an object and follow its contours without questioning my body's 'system of anonymous "functions"', its 'perceptual tradition' (ibid., pp. 265, 247–248). Perception, claims Merleau-Ponty, 'is not a personal act' but rather a 'prepersonal' or 'impersonal' one (ibid., pp. 224, 249; cf. Hainämaa, 2015).

The fact that the subject of perception is a 'general existence' corresponding to our 'incarnate and habitual being' (ibid. p., 224; Merleau-Ponty, 1970, p. 6) is connected to other important implications. First of all, as a general capacity to relate to the world, my body possess an originally *inter*-personal value. Precisely because the structures of my body are something that I share with all other humans, and even with animals to some extent, I experience other living beings as others *of my kind* (see, e.g. Husserl on 'empathy', 2013, §§42–62). Correspondingly, corporeal behavioural patterns on which perception relies, such as upright posture, and more in general all corporeal skills that are ontogenetically acquired, are inter-corporeally formed as well as transferrable. Contrary to what Kolb claims thus, perception cannot be interpreted as the 'personal knowledge of individuals' and straightforwardly opposed to 'social knowledge' (Kolb, 2015, pp. 187, 186).

Moreover, even the most elementary corporeal experience such as a perceptual sensation presupposes subject's 'prospective activity' realised by means of factual corporeal movements (Merleau-Ponty, 2012, p. 241). A sensorial 'quality', explains Merleau-Ponty, is experienced originally as 'a certain mode of movement or of behaviour' (ibid., p. 243).[7] The sensible is given to me as a solicitation for my bodily powers and 'I must find the attitude that *will* provide it with the means to become determinate' and given to its fullest (ibid., p. 222; original emphasis). I need to 'subtend' the colour with an appropriate stance and exploratory movements as I need to follow the form of an object with my hand if I want to touch it. Since the so-called 'sensible qualities', such as colours, are originally 'presented with a motor physiognomy' (ibid., p. 217) and 'intend' a particular type of grasping (ibid., p. 219), they are not reducible to directly apprehended facts that would subsist independently of all context. The perceptual and motor aspect of perception 'communicate' with each other (ibid., p. 217), and Merleau-Ponty claims even more radically that they are 'synonymous' (Merleau-Ponty, 1968, p. 255). There is no observation without active involvement, and inversely, no action is blind. We must look in order to see something, and inversely, to look is to open a field of something to be seen.

More precisely, the sensation of red for example, does not *cause* 'red motor behaviour', that is, a movement of abduction. The sensation can be produced, or inversely eclipsed, only by the colour context (cf. Merleau-Ponty, 2012, p. 217). A particular motor behaviour is therefore not produced simply by the physical phenomenon of light of a particular wavelength externally affecting a particular segment of the body as a physical object. Rather, perception is holistic: a perceived colour represents a particular *situation* into which my body is inserted, and which requires a typical act of adaptation on my part. The situation involves potentially very different physicochemical elements each time and my response to it can be composed of different elements, such as when I replace the action of one limb by another. The subject thus reacts not by associating a particular action to particular objective stimulus, but rather by responding 'with a certain type of solution to a certain form of situation' (ibid., p. 143).

What is more, sensations are correlated to bodily attitudes and motor behaviours in a precognitive way. Such as in the case of very weak or brief stimuli, the subject does not need to 'feel' a sensation of red or be explicitly aware of it in order to engage in a 'red behaviour'. Before eventually acquiring an explicit cognitive value, all sensorial qualities have 'vital significance', because they are modulations of 'a certain general arrangement by which I am adapted to the world' (ibid., pp. 219, 218). Since red and yellow, for example, induce a movement of abduction, they accordingly accentuate errors in the estimation of weight and of time

(ibid., p. 217). Sensations, such as colours, thus have normative behavioural value even prior to being consciously and intellectually assessed.

To perceive therefore *does not mean* to relate two distinct and opposed dimensions, to 'validate and test abstract concepts' in the light of 'here-and-now concrete experience' (Kolb, 2015, p. 32). A perceived object as such is a 'total configuration', or a schema, distributing and organising different perceptual values so as to originally appear as various aspects of a single object given in various circumstances (cf. Merleau-Ponty, 2012, p. 251).[8] Only because all the shades of a piece of paper are organised into one *Gestalt* in an original way, I experience them originally as phenomena of a white piece of paper, without ever encountering them as disparate sensations of 'grey', 'yellow', etc. and needing to intellectually synthesise the latter into an abstract idea of the object (cf. ibid., pp. 318–327).

Merleau-Ponty furthermore explains that our experience is originally schematised, that is, organised into meaningful wholes, because it correlates with the original organic unity of the body (see, e.g. ibid., p. 241). Not incidentally, Merleau-Ponty describes the unity of the body with help from the notion of the 'body schema', which he adopts from neurology and opposes both to sensorial 'image' of the body and its intellectual representation (cf. in particular ibid., pp. 239–244, 2011, pp. 126–165; for a more recent account, see Gallagher, 2005). The mutual organisation of bodily parts, which determines the range of actions on the basis of which the body relates to its environment, is reflected in the organisation of the perceived objects. This fact is clearly visible in situations forcing the subject to reorganise his/her body schema and thus accommodate his/her perceptual 'norms'. Merleau-Ponty's interpretation of some corporeal pathologies or experiments related to our perception of spatial orientation and depth suggest that a particular perception is not dependent merely on a subject's attitude and the structure of the spectacle, but more complexly on how the subject anchors his actions in the environment and how the latter supports the former, be it only virtually. Similarly, a particular colour of an object only appears as 'determined in relation to a [perceptual] level that is variable' according to how our body actively interacts with the environment (Merleau-Ponty, 2012, p. 324).

In sum, even the most elementary perceptual experiences are not of individual cases, but of situations. As such, they have an original systematic value and serve as reference norms for other experiences. In other words, perceived objects '*direct* our gaze rather than arresting it' (ibid., p. 323; original emphasis). As footholds for the movement of my exploration and linkage of perceptual elements, the perceptual norms are themselves established in relation to the capacities of my body to explore, and vary correspondingly as to how these capacities evolve or deteriorate.

Experiential norms and learning

Merleau-Ponty's account of perception has by itself important implications for our understanding of learning. Some of these implications were outlined by Merleau-Ponty himself, some others by the commentators of his works, in particular in connection to his interpretation of corporeal habits.[9] Most importantly in our context, Merleau-Ponty's conceptual framework reveals an experiential structure that is identifiable beyond embodied experiences and which seems to be absent from all hylemorphic accounts. As Merleau-Ponty's examples discussed above suggest, the epistemological function of experiential 'norms' is to organise experiential contents at different points of time and space, but unlike Kant's *a priori* forms, they are also open to transformations depending on the structure of those contents. This is where learning comes into play. A closer look at this point should help us to clarify in what respect Merleau-Ponty's epistemology offers correction to Kolb's idea of learning cycle.

As both Talero (2006, p. 201) and Howell (2015, p. 327) point out drawing on Merleau-Ponty, one's capacity to experience new situations is not based on the fact that they would simply *contradict* one's habits, as in Kolb's view. On the contrary, it is precisely one's habitual existence and the pre-established experiential norms that originally open up possibilities of some situations to be encountered, including those in fact never experienced. As I walk down the street and turn into an alley that I have never been in before, my capacities to identify vertical orientation, keep myself upright and maintain balance as I continue to walk are perfectly sufficient even though this situation is factually 'new' to me. It is only when I attempt to walk on a tightrope, for example, that my past standards of orientation and maintaining an upright stance are challenged.

First of all, then, the account of perception based on the concept of norms reveals that the apparent immediacy of sensual apprehension, which is cherished by empiricist philosophers and referred to by many theorists of 'experiential' learning, is an effect that is produced only in certain limits. That is, only insomuch as the appearing phenomenon is precisely *compliant* with the pre-established norms of habitual actions and the fundamental mediating role of the norm is precluded (cf. Howell, 2015, p. 326). Empiricist philosophers developed their concept of sensation without taking into account precisely those situations in which the effect of immediacy is challenged, that is, in which the perceived situation necessitates a re-establishment of our referential norms and pushes us to a new type of stance, attitude, movement or behaviour. Paradoxically thus, learning theories referring to 'purely sensorial' experience, such as Kolb's one, are based on an account of sensory experience *from which all learning*

situations are methodically excluded. It is then no surprise that they relegate learning to a relation with 'abstract' ideas.

By contrast, Merleau-Ponty's epistemology bring us to the idea that experiential learning has to be understood in relation to how a situation as a whole reorganises normative standards based on which we experience them in the first place, no matter how 'abstract' or 'concrete' the experience is. By consequence, it becomes clear that the distinction between concrete and abstract experience does not match the difference between the singularity of the situation (which is *where* we learn from) and the general meaning of the situation (which is *what* we learn). This difference must be identified as the difference between a global schema or norm and a more specifically organised, or differentiated, schema.

For instance, the situation of tightrope walking is a variant of the situation of upright standing and walking on the ground. If I improve my skill by gradually incorporating other more subtle elements of my motor capacities into the new situation, not only do I henceforth experience tightropes as walkable, but I also perceive *all* elements of my environment as potential references to the activity-type 'tightrope walking', as solicitations and footholds for it. My experiential schemas are reorganised and my norms of how to relate to elements of my environment are re-established, which is an event having nothing to do with generalisation. The process of learning bodily skills corresponds to more finely differentiating among the structures of situations rather than of learning to integrate discrete bits of sensory information into an abstract unity (cf. Howell, 2015, pp. 332–333; Marratto, 2012, p. 69).

Similarly, when children learn to differentiate between colours, they do not start to deductively subsume colours, given in the form of distinctly felt positive sensations or 'contents', under pre-existing general concepts of colours (deposited in language, for example). Neither do they, of course, just inductively construct the latter on the basis of the former. A neophyte's colour space is not initially filled with unconnected distinct sensations, but rather undifferentiated and only globally organised. The process through which neophytes start to differentiate colours then correlates with the development of their motor skills even before a proper understanding of language and 'abstract' thinking comes into play (Merleau-Ponty, 2012, p. 32; cf. Marratto, 2012, pp. 66–67). As Merleau-Ponty writes, learning to see colours is 'the institution of a new dimension of experience', an opening of a whole field of possible experiences on the basis of an 'acquisition of a certain style of vision, a new use of one's own body' (Merleau-Ponty, 2012, pp. 32, 154–155). Child development should be understood as a 'reworking and renewal of the body schema' (ibid., 143), a 'progressive and discontinuous structuration (*Gestaltung, Neugestaltung*) of behaviour' (Merleau-Ponty, 1963, p. 177).

The subsequent categorisation of colours in language surely affects our perception in a top-down direction. However, this process can itself be understood only in a framework that clarifies our ability to reorganise perception through differentiation in the first place (cf. Merleau-Ponty, 2012, p. 154). In other words, the abstract conceptual super-structure may contribute to the reorganisation of our situation, but we cannot say that it assures this process originally and exclusively (cf. Woelert, 2011). Not only are hylemorphic explanations problematic here because they require one to introduce another factor linking the two dimensions together and thus lead to an infinite regress, more importantly, they do not accurately describe the structure of the dynamic dependence between experienced situations and our exploratory-behavioural activities.

Moreover, as Wertheimer's (1959) studies show, the process of differentiation of situation is to be found in domains beyond corporeal learning. Those pupils who only mechanically apply general mathematical rule to new cases are limited in their success rate by the conformity of the new cases to the cases used to demonstrate the rule. Inversely, a concrete case cannot enrich a general rule if it is not viewed as a variant of that rule in the first place. In contrast to that, those pupils who learned to solve the task to count the surface of a parallelogram *in all cases*, acquired the skill to restructure the initial situation (a given parallelogram) by changing the relationship between the situation as a whole, and its parts, for example by introducing auxiliary lines in the parallelogram (see ibid., pp. 13–58; cf. Merleau-Ponty, 2010, p. 55).[10] In other words, those who truly learned to solve this mathematical task became able to respond with a particular type of solution to a particular type of problem regardless of which concrete elements of the problem and of the solution were factually involved. This success lies beyond generalising and applying, because it requires becoming able to actively change the structure of a situation by reorganising it, that is, to transform one whole into another. What is learned is thus neither concrete nor general, it is rather a schema that organises the mutual relationships between what can be abstractly described as a general rule and concrete occurrences.

In general, the above considerations imply that we do not encounter 'new' situations blindly and 'unpredictably' as empiricist accounts suggest, but always as *variants* of our current norms of how to organise experiences which open a field of possible experiences. Inversely, 'here and now' situations never lead to learning *as individual experiences*, but only inasmuch as they are *normative*, that is, inasmuch as they represent some *type* of situation. In other words, we do not learn from particular contents of experience as opposed to an abstract form, concept or idea, but only from some contents inasmuch it instantiates a particularly organised whole.

Correspondingly, not all situations experienced 'first hand' lead to learning, but only those that relate to my current behavioural standards in the first place, and in addition have the quality of directing my exploratory capacities, such as my gaze, so as to require from us to use them differently. To learn then means to refine how we experientially organise *situations* by developing different types of *behaviours* by means of which we actively take a stand in regard to these situations.

The interpretation of learning as differentiation of experiential schemas moreover clarifies why learning is not 'seamless', linear and cumulative. Learning leads to non-linear revisions of our experience which have a retrospective effect (cf. Howell, 2015, pp. 332–333) and also prospectively open an infinite field of future experiences.[11] Learning does not consist in internalising a general rule of behaviour and then applying it to a particular case, or inversely in cumulatively producing the former from the latter by generalisation, or in a combination of both. It involves events of *global* reorganisation and it is only as such that knowledge thereby acquired is *universally transferable* and can be truly called learning.

Conclusion

A comprehensive theory of learning from experience requires us to simultaneously account for the facts that we learn on the basis of our concrete situation and that we learn something transferable to other situations. We have seen how Kant takes notice of these two aspects of experience by distinguishing an intuitively graspable matter and intelligible form of experience. As a consequence, however, he is forced to introduce the schematism, a principle guiding us in the process of relating the two aspects of experience that were distinguished.

Similarly to Kant, Kolb introduces the idea of four distinct experiential modes: concrete apprehension, abstract comprehension, action and observation. Consequently, Kolb defines learning as an interaction between these modes. However, he does not see the necessity of a principle similar to Kant's schematism and thus fails to explain concretely how the interaction is realised. Kolb's epistemological framework thus remains too abstract and the aspects of experiences that were separated by him are not accurately related. The idea of learning as a movement through a learning cycle lacks epistemological justification.

In order to demonstrate the excessively abstract character of Kolb's description of the experiential modes, we have examined Merleau-Ponty's phenomenological description of perception. Perception properly described does not fit to Kolb's concept of 'apprehension:' it is not a subjective event taking place in an individual experience and having the form of a direct contact with a reality given as an immediate fact. Rather, all perception is *mediated* by the *pre-personal* capacities of my body to *act* and this complex has a *general* value of a starting position for actions realised at different points of time and space, and potentially even by different individuals. An analysis of the example of perception confirms that all the elements that Kolb distinguishes as aspects of the 'learning cycle' are always structured by all the other elements.

Learning therefore cannot be defined as a transaction *between* distinct experiential modes separately providing concrete, abstract, observational and action-related experiences. A given situation has the potential to lead to learning not because it is now experienced 'first hand' as something that has never been experienced and therefore augments the field defined by an 'abstract' idea; rather, we learn something from a situation because it requires a systematic reorganisation of the schematic function on the basis of which it was accessed in the first place, because it requires an act of differentiation of our schemas. This account of learning also corresponds well to the fact that learning is not a cumulative, additive act, but a global redistribution of values of a situation. From this point of view, we are better situated to describe retrospective and prospective effects of learning, and the fact that it must be defined as leading to a universally transferrable experience.

Notes

1 Although Kant and various philosophers of mathematics have different opinions on this matter, algebraic and geometrical proofs are in fact realized by means of writing and drawing as instruments of evidencing (see Giaquinto, 2007 or Manoscu, 2008 on recent theories of 'instrumental practice' in mathematics). Plato denies this fact even though his own description of mathematical learning involves drawing (see *Meno*, Cooper and Hutchinson, 1997, pp. 880–886).

2 This is the opinion expressed for example by Peirce (Hartshorne and Weiss 1931, p. 15) and supported by Merleau-Ponty, who claims that the matter and form of experience 'must not be given an originary value' because they are merely 'the results of analysis' operated by the hylemorphic epistemology (2012, p. 251).

3 However, as, for example, Merleau-Ponty pointed out (2012, p. 241 note 61; 1963, pp. 129–137), Gestalt psychology loses the epistemological value of the *Gestalt* by interpreting it as a part of the physical world. Analogically, although the concept of schema has appeared in psychology and cognitive sciences (see Piaget, 1952; Ghosh and Gilboa, 2014), it was employed one-sidedly as a mere supplement of an intellectualist epistemological stance.

4 Strictly speaking, the Kantian approach leads to infinite regress because it requires one to introduce a supplementary mediating factor *at each next level* (cf. Champagne, 2018). Kant is himself touching on this problem when, apart

from the most general, transcendental schematism, he introduces also more concrete schemas of pure sensible and empirical concepts.

5 It is also significant that Kolb systematically refers to William James and other empiricist philosophers who accept the idea of a 'pure' sensorial experience (cf., e.g. Kolb, 2015, pp. 59, 70).

6 See Merleau-Ponty's discussion of 'motor habits' (2012, pp. 143–148) and 'perceptual habits' (ibid., pp. 153–155).

7 Merleau-Ponty refers to empirical research of his time (2012, pp. 216–221; commenting on this topic, Howell, 2015, p. 330, points to a more recent study, Schauss 1985). The original motor dimension of perception has been variously described also by Husserl (1997, pp. 131–170), Gibson (2014) or more recently enactivists (e.g. Noë, 2004; Sheets-Johnstone, 2011).

8 Cf. how for example Matherne (2016) justifies the use of the Kantian concept of schema in the context of Merleau-Ponty's account of perception.

9 Cf. Dreyfus (2002); He and Jespersen (2017); Howell (2015); Marratto (2012, pp. 66–77); Moya (2014); Talero (2006); Standal and Moe (2011); Standal (2016, pp. 40–45); Stolz (2015).

10 Further, cf. Merleau-Ponty (2010, pp. 50–57, 1973, pp. 115–129, 2012, pp. 403–415). Mathematical learning as a process of structuration of our pre-mathematical schemas has been recently theorized by the didactics expert Hejný (2011; Hejný, Slezáková and Jirotková, 2013).

11 Merleau-Ponty generalizes his interpretation of perception in terms of experiential norms to supra-perceptual domains with the help of the concept of 'institution' which makes these temporal aspects clearly visible (cf. 1970, pp. 39–45, 1973, pp. 115–129, 2002, 2010, 2012, pp. 403–415; for my own commentary on this topic, see Halák and Klouda, 2018, pp. 384–392).

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