Reflections on the Concept of Experience and the Role of Consciousness

Unfinished Fragments

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with comments by Vincent Kenny and George Forman

> Context • The idea to write this paper sprang up in a casual conversation that led to the question of how the word "experience" would be translated into German. Distinctions between the German "Erleben" and "Erfahren," and their intricacies with "Erkennen" and "Anerkennen," soon led to the conviction that this was a thread worth pursuing.

> Problem • Much has been written about the nature of experience, but there is little consensus, to this day, regarding the role of consciousness in the process of experiencing. Although RC acknowledges the significance of tacit or sensorimotor knowledge in the individual’s practical operating, it cannot admit it as a basis to the formation of conceptual structures that, by definition, are conscious.

> Method • Drawing from our backgrounds in epistemology and psychology, and a shared interest in Piaget’s psychogenetic approach, we investigate the origins and development of human experience, in this case the mastery of space, time, causation, and object-permanency. We focus on how “noticeable encounters” are gauged, reflected upon, and ultimately worked through, consciously or unconsciously, by the “experiencer.”

> Results • A child’s abilities to enact a certain action pattern in a given situation no more demonstrates a representation of the pattern than does recognition in the case of objects. In his studies with children, Piaget has shown that the Kantian categories of space, time object, and “causality” are co-constitutive of the child’s own motion – and its felt impact – as a means to make the world cohere. Of importance here are the concepts of “effective causality,” felicitous encounters, and agency. > Implications • Understanding the circumstances under which some “lived” events, whether self-initiated or striking as if out of nowhere, become noticeable and able affect a person’s life is a daunting task. This joint essay is no more than a conversation-starter and an invitation to further explore the intricacies between agency and causation, sensation and cognition, and, yes, motions and emotions in the making of consciousness itself.

> Key words • Psychogenesis, space-time, effective causality, empiricism, Immanuel Kant, William James, Jean Piaget.

Preface by Edith K. Ackermann

To be given a place in Ernst’s life has been a life-changing experience, and to lose Ernst leaves an unspeakable void. It was not the right time to write an obituary. With a little help from Alexander Riegler, however, I was encouraged to opt for a much simpler, and in a sense “truer” expression of gratitude to my mentor, colleague, and friend by presenting a joint essay that we had been working on – and the draft of which we completed a week before his passing.

The work is unfinished and the topic ambitious. An astute reader will immediately notice the piece-meal quality of the text and, if familiar with Ernst’s work, may spot who took a first stab at which sections. While we generally agreed on what to fit in and leave out, made it a rule to build on each other’s insights, and read each other’s prose, we ran out of time to make the text cohere, to incorporate our two expert readers’ comments, and to come to a close. Even subtitles are still placeholders for unfinished fragments.

In the light of this, one could have done one of two things: polish the text further without Ernst, or publish the text as is and offer a few annotations in a pre-and post-face. The latter option seemed the way to go in order to highlight a few issues that need further work, and add fragments of conversation that did not make it into the text. I also chose to incorporate the valuable comments of our expert readers, Vincent Kenny and George Forman, as standalone pieces. I hope this somewhat unusual format for circulating half-baked ideas will not discourage the readers from engaging with our musings, in their minds or with others.
Introduction

Both authors of this essay had the good fortune to grow up with more than one language: Edith Ackermann (EA) with German and French, and Ernst von Glasersfeld (EvG) with German, English, and Italian. An early multilingual background profoundly influences a person’s insights into how words are made to mean: first and foremost in the acquisition of language; later in the conception of knowledge and ideas of how we gain it.

Living in more than one language leads sooner or later to the realization that the concept designated by a word of one language hardly ever matches that designated by the word given as equivalent in a bilingual dictionary. There are few instances where there seems to be inter-lingual synonymy. Simple English words such as “screwdriver” or “corkscrew” may look like cases in point. Both are technical terms for commonly used tools, and the uses of the tools are identical, whether you live in Germany or Ireland. Even so, there are subtle differences. Metaphorically speaking, the English “screwdriver” drives the screw in and out, while the German Schraubenzieher draws it out. Likewise, the English “corkscrew” screws itself into the cork (and then back out again), whereas the German “Kork- or Stöpselzieher” and the French “tire-bouchon” pull the cork out (with no mention of how the “puller” got into the cork in the first place). What seems to matter instead is: get that cork out so the wine can flow! The meanings of these words may be compatible in the sense that they all fit the situations in which they are used (in this case opening a bottle) but their conceptual structure is not the same. Each specifies aspects of the instrumental act, which are omitted by its “equivalent” in another language.

An attempt to translate any word into another language inevitably leads you to see details of meaning that the ordinary speaker of the language may be unaware of. “Experience,” the word we are mainly concerned with in this essay, is a prime example.1

If someone tells you that she was pushed into a freezing swimming pool against her will, you will understand that it was an unpleasant experience. Experience, in this sense, refers to a noticeable event in the teller’s life, in this case unpleasant, that was actually lived through, and left an impression (meaning a).2 In contrast, if you hear that a physician or a mechanic has a great deal of experience, you will gather that he is considered to have the “know-how” needed for his job, a know-how that usually takes time to acquire. You will gather that he has come to know, or gained familiarity and insight into, his domain because “he has been there before,” and many times! He has both lived through and drawn lessons from a host of noticeable events (meaning b).

This distinction between a person’s experience as lived through or witnessed in the here and now and the practical wisdom gained over time has to be marked in the German language by splitting the concept of experience into two words that usually are not interchangeable: Erlebnis for (a) and Erfahrung for (b).

Erfahrung is about how the undergoing of some noticeable event, as apprehended through the senses or mind, affects us now. Erfahrung refers to the accumulation of knowledge or skill that results from direct participation in events or activities over time. Experience (a/b) and knowledge (been there, know how, know that)

Paying attention to the polysemy of the word “experience,” as indicated in German, is useful because it sheds light on the philosophers’ distinction between experience and knowledge, in this case: “been there” (exp.a), “know-how” (exp.b), and “know-that” (knowledge).3

Looking at its definitions in German, and also English and French, Piaget, himself monolingual, saw the usefulness of the exercise for (a), “know-how” (exp.b), and “know-that” (knowledge).5

A conjecture about Aristotle

Aristotle, who can be considered the father of modern science, seems to have been well aware of the distinction between knowledge and experience even if he did not write about it in these terms, at least according to translations.2 There is, in ad-

is a construct on a much higher level of abstraction than we are concerned with in this investigation of the concept of “experience.” The question “why” requires a network of reasons and consequences.

4 | Note Edith Ackermann: A closer look into experimental studies of instrumental and “de-tour” conduct, as evidenced in monkeys and human infants, would be useful here. And so would Ernst’s pioneering work with Lana. We spoke about it and decided that it would be another paper.

5 | There is a problem with referring to authors who wrote in a language that died centuries ago. As there is no one alive today who grew up with the language that Aristotle spoke and wrote, no one can be quite sure of how he should be translated. At best we have the conjectures of erudite foreigners who have spent years working at their interpretations. The largest body of stud-
dution, some indication that Aristotle was primarily concerned with the acquisition of know-how (in the sense of Erfahrung) rather than with personal experience (seen as a singular Erlebnis).

“...out of sense-perception comes to be what we call memory, and out of frequently repeated memories of the same thing develops experience; for a number of memories constitute a single experience.” (Aristotle 350 BC, Posterior Analytics II, 19, 100A, 4–6)

If, as Aristotle suggests, some form of mnemonic trace or internal reconstruction is required for an event to be “noticeable,” a singular experience cannot exist, in his view, serve as a source of know-how. Only repeated experiences can generate knowledge, and only insofar as the experiencing subject practices what Aristotle called the “art of science,” which is the inferential abstraction of cause/effect rules from a set of experiences. What Aristotle does not allow to, at least in the quoted passage, is that the build-up of “know-how” (Erfahrung) requires some form of reflection, that is, the deliberate review of perceptual re-presentations and mental operations that Locke established as the basis of knowledge.

The empiricist view of experience

Between the end of the seventeenth and the middle of the eighteenth centuries, the British empiricists worked hard to establish the idea that much of our knowledge was generated by the experiencer, rather than passively obtained from a fully structured independent reality. At the beginning of Book II of his Essay Concerning Human Understanding, Locke asks:

“Whence has it [the mind] all the materials of reason and knowledge? To this I answer, in one word, from EXPERIENCE. In that all our knowledge is founded; and from that it ultimately derives itself. Our observation employed either, about external sensible objects, or about the internal operations of our minds perceived and reflected on by ourselves, is that which supplies our understandings with all the materials of thinking.” (Locke 1959: 121–122)

While Locke believed the secondary qualities were not inherent in things themselves but were reactions of the receiver’s sensory equipment, he did attribute the primary qualities of solidity, extension, figure, motion or rest, and number, to the perceived items. He therefore must have assumed that the separation of extended things, figures, and countable units was determined by these primary qualities rather than by the perceiving mind.

Berkeley put an end to this last shred of realism by showing that the arguments Locke had used to establish the non-representational character of the secondary qualities applied just as much to the primary qualities (Berkeley 1950). And Hume added the last important insight to classical empiricism by positing that relations are not given in perception but have to be generated by the experiencer (Hume 2005).

Kant’s view of experience

In the first sentence of his introduction to the first edition of Critique of Pure Reason (1781: A 1), Kant states: “Experience is no doubt the first product to which our understanding gives rise in that it works upon the raw material of sensory impressions.”

This formulation does not yet exclude the possibility that the raw sensory material may include structural elements that the understanding mind can import readily made. This possibility, however, is explicitly eliminated in his section on “Axioms of Intuition” in the second edition of 1787:

“Experience is an empirical knowledge, that is, knowledge which determines an object through perceptions. It is, thus, a synthesis of perceptions, which itself is not contained in perception... In experience, what is more, perceptions come together only accidentally, so that no necessity of concatenation can be determined from perception.” (Kant 1787: B 218)

William James’s radical empiricism

In the twentieth century, empiricism split into two incompatible schools. The popular one, propagated by the behaviorists, tended to equate empiricism with naive realism and disregarded the role of mental operations, which the British empiricists had isolated as a second indispensable source of knowledge. It was very easy, therefore, for authors who did not read the original texts of Locke, to get a skewed impression of the empiricist orientation.

The less popular direction was largely cultivated by William James, who in the early 1900s wrote a handful of groundbreaking papers that established his views with regard to the relation between experience and reality. James clearly realized that this relation was a thorny problem and he returned to it in several of these papers, focusing mainly on the question of where, in the flow of experience, the “disjunctions” and “conjunctions” that generate discrete experiences of this kind is biblical hermeneutics, with its distinct branches: the Christian and the Judaic traditions. This split reveals a general characteristic of hermeneutic interpretation: it is guided by the interpreters’ theological orientation. The same inevitably applies to the interpretation of ancient philosophers. Here, too, the interpreter cannot get away from the beliefs and conceptions that form his or her intellectual basis. Most translators/interpreters of classical philosophy have tended towards realism.

Notes

7 | Translators of Kant have usually translated the German word Anschauung as “intuition.” This is unsatisfactory because in certain contexts the words “view,” “notion” or “idea” should be used; however, for the sake of uniformity we, too, adopt “intuition.”

8 | Cf. comment by George Forman at the end on how our anatomy and sensory apparatus is likely to constrain our navigation in space as well as perception, apprehension, and manipulation of objects.

9 | Jean Piaget is a case in point. The remarks about the British Empiricists scattered in his works leave no doubt that he was unaware of Locke’s emphasis on mental operations.

http://www.univie.ac.at/constructivism/journal/6/2/195.ackermann
items come from. In the preface to The Meaning of Truth, James states:

“...The statement of fact is that the relations between things, conjunctive as well as disjunctive, are just as much a matter of direct particular experience, neither more so or less so, than the things themselves. The generalized conclusion is that therefore the parts of experience are held together from next to next by relations that are themselves part of experience. The directly apprehended universe needs, in short, no extraneous trans-empirical connective support, but possesses in its own right a concatenated or continuous structure.” (James 1997: xvi–xvii)

The fact that James categorized the two notions as relations creates the difficulty that they are then thought of as deriving from perceptual material as much as being instituted by the perceiver. Following Hume, we are of the view that the experiencer alone can be the relating agent and, what is more, that experiential items can be related to one another in a number of ways, none of which is determined by the items themselves or, for that matter, constrained by the sequential nature of the experiential flow.

But if disjunction and continuity are not relations imposed on the flow of experience, how do they emerge and how do we become aware of them? Much of our universe in which we begin our experience, James said, was chaotic and he referred to it as the “blooming, buzzing confusion” of the infant’s sensorium (James 1962: 29). As a domain, therefore, it must be thought of as the “flow” of experience and the “stream of consciousness.” But it also is the process and the template that provide the fundamental structure of disjunctions and continuities.10

If one attentional pulse is focused on a sensory signal, the signal can be experienced as a sensory particular when it is reflected upon. If two contiguous moments of attention are focused on sensory signals and no difference is revealed, the two experiences merge as indistinguishable. When they are reflected on and seen as two moments of attention, they can be considered “the same” and therefore constitute acontinuity. If the subsequent moment of attention is focused elsewhere or not focused at all, it terminates the continuity and thus constitutes a disjunction.11

Simply put, the flow of experience and the focus of attention of the experiencer can be in and out of synch.

This separation was first proposed by Silvio Ceccato when he began to expound a theory of attention in talks and lectures at the Center for Cybernetics in the early sixties.

**Ceccato’s theory of cognitive construction**

Silvio Ceccato’s ideas of attention open a possibility for an initial, non-conceptual structuring of experience. Unlike the conventional notion that attention is a spotlight playing on structures of experience or memory, Ceccato suggested that attention could be seen as a kind of pulse of the mind. The sequence of pulses generates first of all the basis of what can later be abstracted as the “flow” of experience and the “stream of consciousness.” But it also is the process and the template that provide the fundamental structure of disjunctions and continuities.11

The fascination with the right-hand finger and the sensation from the left-hand arm is a case in point. This is one instance of what the Irish mathematician William Rowan Hamilton described as the projection of one experiential sequence upon another (cf. Hankins 1976).

The concurrence of sensations in different neural channels is an instance of what the Irish mathematician William Rowan Hamilton described as the projection of one experiential sequence upon another (cf. Hankins 1976).

The “private” experiment illuminates what can be projected in its course. In one case, the continuity established by the sequence of uniform sensory signals (from a succession of sensors in the left arm) is projected onto a sequence of different signals (from one and the same sensor in the right-hand finger): this sequence of apperceptions can be abstracted as the concept of time. In the other case, when the succession of different sensory signals is projected onto the sequence of uniform signals, the sequence of apperceptions can be abstracted as the concept of space.12

10 | Helmholz spoke of moments of attention in his Physiologie der Optik (1867: 741; Cited in James 1905: 241), but the moments were not seen as the regular pulse by the organ of attention.

11 | Ceccato talked about this view of attention at the Centro di Cibernetica in 1960. However, he did not publish an account of it until his article “Modificazioni e Innovazioni” (1964).

12 | Note Edith Ackermann: In spite of numerous trials and much good will, I have not been able to sense the dimensions of space and time as separate without adding variations to the experiment, such as: 1. Finger moves (1a) or stays stationary (1b); 2. Arm moves (2a) or stays stationary (2b); 3. The finger or arm that does the sensing is respectively one’s own (2a) or that of someone else (3b). I asked Vincent Kenny, our second reader, to offer his insights. Kenny’s comments can be found in the post-face below.
Time-space/flow-pulse: Heuristics or experiential categories?

For Kant, the categories of space and time were an indispensable precondition of any form of perception: a framework without which there simply could be no experiential world. While space and time are indispensable in all our representations, just as ruler and compass are indispensable in engineering design, we do not agree, however, with Kant's belief that these categories are a priori in the sense that they are ready to be used at the beginning of the individual's experiential career.

Hans Vaihinger, in his *Philosophie des Als Ob* was a strong advocate of the notion that space and time are useful fictions, rather than experiential categories, or pre-requisites to experiential constructions: “No one will want to say that these conceptions [space and time] are hypotheses. But they are instead very useful fictions.” (Vaihinger 1913: 270). And again: “Empty space and empty time, in which things are thought of as floating, are fictions for the purpose of measurement” (ibid: 500).

Vaihinger made the astute distinction between conjectures that are expected to be confirmed as constructs in actual experience, as opposed to those that are not expected to be found prior to experiential construction.

This is somewhat similar to what Piaget suggests in entirely different terms in his theory of cognitive development. There, space and time – as well as causality and object permanency – are gradually built-up categories that survive in development because they are eminently useful tools for the organization of experience.

To Piaget, what is more, the genesis of these categories is co-constitutive of the subject's growing recognition that “it” itself is playing a part in the monitoring of its activities. In other words, agency, as much as causation, are to be taken into account if one is to understand the origins and development of human experience. Piaget's psychogenetic approach sheds new light on the child's practical understanding and progressive mastery of her surrounds.

On the origins and development of human experience – Jean Piaget

In his revolutionary volume *La construction du réel chez l'enfant* (1937), Piaget established his view that there is no initial separation between self and world during the first weeks of an infant’s life. Nor are there a-priori categories, such as time, space, object or causation, ready to be used, or distinguished, by the infant.

“‘The external world begins in confusion with the sensations of a self that is ignorant of itself, before the two terms separate from one another in order to organize themselves reciprocally.’” (Piaget 1937: 308)

This view is akin to James's, and was presented in a seminal paper read before the British Psychological Society in 1927. In it, the young Piaget went as far as to suggest that human babies are best described as *Sorpsists that ignore themselves*.

“‘There is a total continuity between internal and external experience. Every phenomenon is perceived as charged with both physical qualities (taste, resistance, sound, color, shape, and so on) and psychic qualities (pleasure or pain, desire, sentiment, effort, efficacy, resistance, waiting, anxiety, and so on).’” (Quoted in Gruber & Vonèche 1977: 205)

The entire world appears to human infants as the prolongation of immediate feelings and kinesthetic sensations, thus giving rise to a “worldview” in which objects (people and things) have no permanence: far from the eyes (or touch), far from the mind! And, as we know, if objects have no permanence they cannot be perceived as distinct from each other, changing over time, or impacting one another. In such a fluid universe, Piaget continues, space is reduced to immediate and dislocated contact zones, associated with fleeting sensations (*tableaux mouvants*) that dissipate as soon as the baby’s attention shifts, and time is mostly marked by inner pulses and impulses.

13 | The word “experience” as used here reads more like a projection of the psychologist than a “felt occurrence” by the infant.

14 | Gruber and Vonèche translated “causalité par efficace” as “efficacious causality,” which is different from “efficient causality.” Piaget later used “magico-phenomenist” instead of efficacious: magical because there is no apparent link between the child’s action and their supposed effects, *phenomenist* because any event (phenomenon) can be linked with any other (cf. Piaget 1937: 229).

15 | The term “feel responsible” could be translated here by “feel a sense of agency.”

“‘At its point of origin, time is solely intermingled with the impressions of psychological duration inherent in attitudes of expectation, effort, and satisfaction, in short with the activity of the child herself.’” (Piaget 1952: 363)

Piaget used the term “efficacious causality” to characterize these early liaisons between (an infant’s) physical sensations, or rudimentary feelings, and outside occurrences, without there being any obvious distinction between the two. Such liaisons, what is more, often find their source in chance encounters, and are then repeated and refined through circular reaction whenever “experienced” as pleasurable – and avoided or discontinued when gauged unpleasant or discomforting. The word “experienced” is right on the mark here, since the infant is granted the abilities to recognize, if not understand, that “it” somehow plays a part in the come-back or disappearance of respectively felicitous or unpleasant occurrences:

“Psychologically speaking it is likely that these early liaisons go together with feelings of efficacy. […] The facial expressions of babies leave almost no room for doubt that they feel responsible for certain events and very happy about it indeed. Let us turn to the facts themselves. The first causal experience a baby has is what Baldwin has called ‘circular reaction’: The child does something by chance, takes pleasure in the result, and does it over and over again as if he wants to reproduce the same result (it matters little if the urge to repeat is the cause or result of the act reproduced). For example, near the end of the second month and during the third a baby begins to slip her thumb into her mouth no longer by chance but deliberately and sucks it for long periods of time.” (Quoted in Gruber & Vonèche 1977: 206)
And Piaget continues,

“if we could make babies talk, as William James does with his crab, we would make it say: ‘This thing here I see moving and the irresistible feeling that just filled the entire universe are one and the same thing.'" (ibid: 207)

**Expanding the experiential field: Here-and-now to then-and-there**

Piaget’s clinical interviews with developing children convinced him that the concepts of time and space arise gradually from how the child senses and makes sense of her own motion relative to the motion of objects in her surroundings.

Important in this context is Piaget’s concept of “objective groups,” a theoretical construct that accounts for how, around the age of 2, the pre-representational child treats the consistency of “responses” of several perceptual items that have been connected through motion, either of their own or caused by the subject. Piaget cites Leon Brunswic’s lucid expression, “To conceive space, requires first of all that one furnishes it with things” (Brunswic 1912), which he formulates in his own terms:

> The fifth stage marks an essential progress in the construction of the spatial field: it is the acquisition of the notion of objects’ displacement relative to the others; in other words, the elaboration of “objective” groups of displacement within a homogeneous environment.” (Piaget 1937: 160)

These constellations of perceptual objects are seen as “objective” only in so far as they can move relative to one another in somewhat consistent fashion.

> Space therefore is not at all the perception of a container, a container of bodies as such. And if, in some sense, space becomes a container, it is to the extent that the relations that constitute the objectification of the bodies themselves succeed in coordinating one another until they form a coherent entity.” (Piaget 1937: 87)

At its endpoint, the sensorimotor construction of time presupposes a practical universe that is spatially organized (where events are located (placed), just as the construction of space presupposes a practical universe where events can be ordered (displaced). Both in turn presuppose the permanence of moving objects and the conservation of their trajectories (order of displacements, grouping displacements).

In other words, without a sense of space and time there is no conception of change or stable states, and without efficacious causality and object permanence there is no way to locate and order objects and movements within a spatio-temporal framework. These dimensions co-evolve as a result of the construction of reversible operations (i.e., projecting ourselves in space-time. The very nature and objectification of the bodies themselves succeed in coordinating one another until they form a coherent entity.

And:

> “Time in itself is the simple feeling of unrolling and of successive pointers inherent in the states of consciousness.” (Piaget 1937: 285).

Human infants’ initial sense of time, we have seen, emerges from their abilities to maintain or release tensions associated with expectations, effort, and satisfaction of basic needs, such as hunger, comfort etc. (Piaget 1952). It is only with the apparition of the first evocative memories and the first anticipations of things to come that diachronic thinking (or thinking in time) sets in. As they reach their second birthday, most children have acquired a fairly solid knowledge-in-action about time, space, object permanence, agency, and causality.

We cannot emphasize strongly enough that all these categories are intricately related, and co-constitutive of a child’s expanding experiential field, of which time is an intrinsic part (Ackermann 2004).

Piaget’s “object groups” and practical “groups of displacements” (both of which appear at the end of the sensorimotor stage) seem to be at once enablers of, and arising from infants’ practical mastery of relations such as affirmation, negation, and practical reversibility: a clear indication that their integration cannot be attributed to the reading of experience alone.

In other words, the child’s progressive and co-constitutive genesis of space, time, causation, agency, and object permanency (all of which are key to the organism’s survival) itself requires some form of a priori mechanism by which the growing child can compensate for surface perturbation. The difference, as we see it, is that Piaget’s a-priori are functional, evolutionary, and rooted in biology (the science of the living) whereas Kant’s are categorical, a-temporal, and rooted in philosophy (the philosophy of science).

**The problem of consciousness**

The most vexing question in this theoretical development is whether – and to what extent – attentional pulses, as defined by Ceccato, or practical intelligence, as seen...
by Piaget, involve the experiencer’s awareness. The fact that under hypnosis people can remember things of which they were totally unaware before leaves little doubt that there are forms of unconscious conceptual structuring. As it is unconscious, we cannot examine it ourselves except via its results in retrospect.

In his conversations with Jean-Claude Bringuier, Piaget recounts an experience that throws some light on the workings of consciousness.

**Bringuier:** Where does consciousness begin in the animal kingdom?

**Piaget:** Ah, that cannot be resolved. There is no criterion… I imagine that there are degrees of consciousness on every level… but degrees. One can be conscious of an act and not integrate it; I would call this elementary consciousness. I am not at all a visual person. For example, on a walk, I pull my watch out of my pocket and may actually say to myself what time it is. If I have actually said it, I remember what the time was. If I did not speak and it was entirely visual…

**Bringuier:** … you forget it!

**Piaget:** One minute later I again pull out the watch and recognize that it is still the same time. Hence I was conscious the first time but totally forgot it, because it had not been integrated. I had to be conscious at the moment when I visually consulted my watch but because there was no integration, the consciousness disappeared the moment I no longer saw it; had I pronounced something like ‘five after two’ I would have remembered it.”

One could suggest that what is remembered in the unconscious is a piece of unstructured experience plus the experiential context in which it occurred. Under hypnosis, the context is sufficient to guide at least a partial structuring. We propose this as tentative explanation.

Problems with the explanation of consciousness arise in many other corners of the cognitive domain and we tend to agree with what Piaget said. His account of the experience with the watch shows that seeing, with what Piaget said. His account of the experience with the watch shows that viewing a room without “seeing” windows, curtains, pictures, or furniture beyond the items that are necessary for the development of the dream’s story. None of the dream’s contents can be called an experience until it has been “integrated” by the attentional process of remembering at the time of waking up.

Consciousness, it seems, is not an all or nothing phenomenon. Developmentally, it is a gradual acquisition and hand in hand with it goes the construction of “object permanence.” The first thing is the constitution of patterns that make possible the recognition of coordinations of sensory data as the repetition of earlier coordinations. These patterns could be called “recognition matrices,” and they come into operation only when the specific sensory signals are actually available. After repeated use, they acquire sufficient independence to be called up as re-presentations irrespective of the availability of the involved sensory material. At that point they form the necessary condition of the conception of object permanence.

This is the step that was disregarded in the hundreds of experiments with infants and animals, made to show that Piaget was wrong and that object permanence was a much earlier acquisition than he believed. What the experiments demonstrated was that the subjects were able to recognize certain items, but they in no way showed the presence of relevant re-presentations.

Once there are several permanent objects in a child’s mind, they can be related to one another in the network of space and time and thus form the beginning of what we later consider our experiential reality.

**Tacit knowledge**

There are two further questions that, we believe, may shed some light on the role of consciousness in experience: (1) In what ways, if any, can a baby’s or chimpanzee’s practical intelligence be said to be the result of experience if it is neither conscious nor reflected upon (no re-presentations before and no after-the-fact reconstructions); (2) Alternatively, just because a baby or animal exhibits consistent, dynamic, reversible, and flexible action-patterns in situ, should it be credited with some form of abstracted pattern or map? In which case one may wonder: who is doing the “abstracting,” the researcher or her subjects?

Consistent flexible action patterns are the power of champions in nearly all kinds of sport. High skill in athletics, skiing, driving racing cars, and soccer, derives from a process in which slowly learned intricate action patters are gradually removed from conscious control. This is necessary because these patterns have to be enacted much faster than conscious attention could manage. This kind of unconscious know-how has been referred to as “tacit knowledge,” which Michael Polanyi characterized by the phrase “we can know more than we can tell” (Polanyi 1967: 4). These action patterns can be called up, as it were, globally, and the actor is aware of enacting them, but not of the individual steps they contain.

We close this stroll through the jungle that surrounds the concept of experience with a quotation from George Kelly that provides a lucid and eminently helpful perspective on our subject, and in a brilliant way merges the two meanings from which we started our enquiry. For Kelly, the principal objective of psychological processes is the anticipation of events and from this

**It follows that the successive revelation of events invites the person to place new constructions upon them whenever something unexpected happens. Otherwise one’s anticipations would become less and less realistic. The succession of events in the course of time continually subjects a person’s construction system to a validation process. The constructions one places upon events are working hypotheses, which are about to be put to the test of experience. As one’s anticipations or hypotheses are successively revised...**
in the light of the unfolding sequence of events, the construction system undergoes a progressive evolution. The person reconstrues. This is experience.” (Kelly 1963: 72)

Summary

The idea to write this paper sprang up in a casual conversation that led to the question of how the word “experience” would be translated into German. The fact that it corresponds to two non-interchangeable German words led to the conviction that “experience” indeed designated two different concepts. It soon became clear that this was an intricate problem worth pursuing. Much has been written about the nature of experience, but there seems to be no general consensus concerning the role of consciousness in the process of experiencing. This question is important for the constructivist model, because although this model does not exclude the notion of tacit or sensorimotor knowledge in the individual’s practical operating, it cannot admit it as an element in the experiencer’s conceptual structures, which, by definition, are conscious. At this point the observer of the child faces the same problem as in the case of the concept of object permanence. The fact that the child enacts a certain action pattern in a given situation no more demonstrates a representation of the pattern than does recognition in the case of objects. The availability of such re-presentations cannot be demonstrated before the onset of language.

The meaning of the word “experience” that we have labeled (b), which roughly refers to expertise gained in the execution of practical activities, is not particularly interesting with regard to consciousness, because “know-how” floats like an iceberg in that area, and only a small part of it is conscious in the form of rules of thumb that have been abstracted from the “automatic” actions.

Meaning (a), “something that has been lived through” implies a memory that became and remained conscious at least for a certain length of time.

The British empiricists, though differing on several points, agreed that what the human subject experienced was not a representation of an objective world, but the conglomerate of what the senses produced and the active subject’s mental operations. Hume provided the insight that relations, obviously because they required the movement of attention from one element to another, were due to operations of the perceiver rather than features of perceptual material.

Kant had no doubt that experience was the source of knowledge, but he believed that space and time were not elements of

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the experiential material but were a priori conditions of the subject’s ability to experience, James, the founder of “radical empiricism,” has written copiously about experience and the question of consciousness (James 1976, 1997). But his position is not clear to us. We suspect that it is not unlike the view that Piaget expressed in different parts of his works, suggesting that consciousness was not an “all or nothing” concept, but developed gradually in the child’s cognitive world. Our research with children (Ackermann 2004, 1991; Glasersfeld 1981, 1991), has confirmed this view. Hence we believe that feelings, impressions, and other psychological events that have no definite location in the experience’s spacet ime scaffolding and are not accessible to re-presentation, cannot be revisited, and therefore cannot reasonably be considered parts of conscious experience. Retrieveable re-presentations cannot be formed without a location in the network of space and time from where they can be called up. This network, as a rule, is not developed by children before the age of about eighteen months.

The theory of operational semantics, developed by Silvio Cecatto on the basis of Bridgman’s method of operational definitions, introduced the idea of an attentional pulse as the origin of conceptual structures. This opened a way to imagine a non-perceptual construction of space and time grounded on nothing but the sequential succession of moments of attention (cf. “private experiment” above).

We agree with Kant that there cannot be an experiential reality without the scaffolding of space and time, but this scaffolding need not be an a priori endowment. Operationalism shows a way it can be constructed by operations of the functioning mind as what Vaihinger called a “heuristic fiction.”

In contrast, Piaget (1937) was able to detail in his revolutionary study of the child’s construction of reality how the notions of “space” and “time” are developed together with those of “object” and “causality” from the child’s experience of its own motion and that of percepts. We ended this investigation with a quotation from George Kelly, who simply and elegantly overcomes the difficulty of the two interpretations of “experience” that triggered our research.

Post-face by Edith K. Ackermann

“An experience is something that personally affects your life” (John Dewey 1934: 336)

To Dewey, as to Kant and Piaget, scientific theories are not true descriptions of an objective reality but instruments that prove useful in apprehending and ordering the world. This satisfies the minimum RC requirement that, indeed, the world is neither perceived nor represented as it is. Instead, it is apprehended and made intelligible through our actions and the evaluation of resulting consequences, relative to some internally set values. The problem remains: under what circumstances can an organism’s self-correcting abilities and evaluation criteria – set values, logical necessities, or anatomical constraints – be said to be experiential and not just triggered as a result of some internal mechanism operating in the background, on the organism’s behalf, without its noticing.

I asked Ernst: What to make of Freud’s notion of the unconscious?

**EvG:** Freud studied an individual’s associations to uncover what she or he had repressed. And Hume said that associations arise from temporal or spatial proximity in experience. That’s plausible, but many things that are contiguous in experience are not associated. If we assume that associations are triggered by unconscious emotional states, we could say that emotional stress runs as a sense of growing meaning conserved and accumulating toward an end that is felt as accomplishment of a process.” (ibid: 39)

It is out of scope here to further dwell, except to say that there is still plenty of room within RC to pursue our unfinished musings on the intricacies between lived and felt, conceived and perceived, imagined and reasoned and, yes, embodied and represented.

I asked one of our readers, George Forman, to elaborate on a comment he made in the section on Kant about the anatomical and environmental constraints on human knowledge and experience – which I reformulated in my own terms. I asked: Can you comment on Lakoff and Johnson’s idea that “we think the ways we think because we cry, angry because we strike, afraid because we tremble...” (James 1981: 1065f)

The significance of this view, according to James, is that our emotions are tied in with their bodily expressions. What, he asks, would grief be without its tears, its sobs, its suffocation of the heart, its pang in the breastbone? Not an emotion, he answers, for a purely disembodied human emotion is a nonentity (James 1981: 1068). Much in alignment with James, Dewey states:

“**We jump immediately when we are scared, as we blush on an instant as we are ashamed. But fright and shamed modesty are not in this case emotional states. Of themselves they are but automatic reflexes [...] The jump of fright becomes emotional fear when there is found or thought to exist a threatening object that must be dealt with or escaped from. The blush becomes the emotion of shame when a person connects, in thought, an action he has performed with an unfavourable reaction to himself of some other person.**”

(Dewey 1934: 42)

To Dewey, the art of living (through experience) restores a balance between the poles of aimlessness and mechanical efficiency. “It mobilizes those courses of action in which through successive deeds there runs a sense of growing meaning conserved and accumulating toward an end that is felt as accomplishment of a process.” (ibid: 39)

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Comment by George Forman: Anatomical and environmental constraints

Piaget would ask Kant to include action with objects as a source of constraints. These constraints result from universal invariants such as visual occlusion, gravity, and anatomical structures that yield repetitive, reversible and reciprocal movements.

While Piaget acknowledges a neurologically based sensitivity to "closure" (the integration of movements into a system of reciprocal implications), the generalization of this sensitivity to form concepts requires what one could call a "structured environment," as opposed to a completely synthetic a priori.16

For example, Forman (1982) traced the changing strategies infants use to create symmetry with blocks and discovered that children were 80% more likely to bang identical blocks at the midline than same-sized but differently-shaped blocks. The children later began to release identical blocks side by side, gradually producing more complex forms of symmetry by age three. One could argue that the search for identity and later construction of equivalence was constrained by the bilateral symmetry of the human body. Anatomical symmetry in action serves to organize objects into increasingly complex forms of equivalence.

In a similar vein, other researchers argue that certain language structures are shaped by the fact that we live in a "marked" gravitational field (Clark 1973). If humans were aquatic, floating in a medium of zero gravitational field (Clark 1973). If humans were aquatic, floating in a medium of zero gravitational field...
for their comments. Ernst would have found a way to integrate them. His passing forces us to imagine how, without him. My deepest gratitude goes to Ernst for having let me in on this joint adventure. It has been a joyful and inspiring experience.

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