The Child's Understanding of Time

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Time is anything but an immediate phenomenon to which we have easy access. To be sure, we always live *with* and *in* time. But when we ask what time really "is," we find it difficult to come up with a quick answer. It is no accident that interpretations of time constitute one of the central chapters in philosophical attempts to provide a comprehensive understanding of human existence. Time is one of the key concepts of phenomenological reflection on the conditions and possibilities of human knowledge. But it is equally clear that a teacher or student, should he or she run up against the problem of time in didactic or development psychological contexts, will not simply reach for Heidegger's *Being and Time*. Such a person may turn to psychology. If one takes a look at one of the textbooks on developmental psychology which are often used in educating teachers, one finds an exclusively scientific view of time. In this case it is Piaget's[1] interpretation of time, an interpretation oriented toward cognitive psychology which cannot conceal its roots in the tradition of rationalistic epistemology. Langeveld's (1960) interpretation of the child's commerce with and experience of time presents a radical contrast to Piaget. His point of departure is our experience of lived time as we experience it prereflectively in our everyday lives.

Children's Experience of Time in Piaget

For Piaget, the child's development of the concept of time is a special case of the general development of intelligence, exhibiting its structural-genetic properties (Piaget 1981, p. 69). Initially we have "sensomotor time," then "intuitive time," and, as genuine time, "operative time." Piaget characterizes these initial stages as the child's "intuitive" preliminary concepts. They contain only one of the structural traits of time, namely that of its successive course, but not the second, that of inclusion. The child does not recognize succession as a structure; it manifests itself to the child in the form of processes of movement of intuitive objects: two or more objects which have different speeds and which overtake one another are compared with one another (Piaget, 1981, p. 72).

For Piaget, time does not exist "in itself" for children up to the age of operative intelligence, except, as it were, in an impure form: embedded in contexts of action, in pragmatically oriented processes of movement and action (e.g. as the succession involved in an action), bound to objects (e.g. to their physionomical effect on the child: it takes larger trees to be older, long steps to be faster, etc.). Piaget is thus quite aware of the child's prereflective conduct in the world. But in contrast to phenomenologists, especially to Merleau-Ponty, he does not appreciate the role of the prereflective dimension of experience as the founding stratum for all modes of behaviour in the world. For Piaget as a developmental psychologist, experiential processes which are not yet rationally structured are a preliminary level of rational, cognitive development which can and must be surmounted.

So according to Piaget one cannot properly speak of the child's concept of time since time is not the object of the child's "characteristic

representational activity." For Piaget time belongs to "inner perception"; it is a non-intuitive, unpractical, non-spatial "schema" of the logical-cognitive structure of consciousness, it is an "intellectual construction" (Piaget 1981, p. 80, 86).[2] Time is defined by the fact that it is "valid always and everywhere" and that it "continually elapses." Its understanding involves "the concept of the constancy of the velocity of the measuring instruments" (Piaget 1981, p. 83).

Thus, for Piaget, time is objectively determined, metric time. It makes its appearance as the monotonous, uniform movement of a clock's hands from point to point or, analogously, from now to now, *independently* of events in the world and of our experiences. This intellectual construction of time can easily be made plausible to our everyday understanding. But such plausibility blurs the boundaries between the scientific construct and our everyday commerce with time. It also creates the danger that the quantitative metric understanding of time will be identified with time in general.

With regard to the difference between lived time and the scientific concept of time, it is clear that the scientific construct "time" has to fulfill a function which is purely internal to science: it is the unit of measurement for methods of investigation which are organized in terms of exactness, which are subject to the ideal of the mathematization of scientific knowledge. In contrast, the time of the clock regulates our everyday life in a very pragmatic manner; it is used as the more or less exact frame of reference according to which we structure our daily rhythm or work rhythm. Yet someone who lives solely in terms of the clock and who makes the clock the dominating standard as opposed to the concerns of everyday life is thought to be neurotic or at least a bit strange.

In the rationalistic framework of developmental psychology, the concept of time which is oriented toward the concerns of science is the measure which must be applied to the child's developing understanding of time. This concept of time, which also dominates the social sciences which are oriented in terms of the natural sciences, is a rather specialized concept.[3] Straus puts it: "The objective time which is symbolized by the image of the line is not an original datum of lived experience. It is a product of reflective thought, a concept for the sciences of nature" (1956, p. 21). With what right then does Piaget take the physical concept of time to be the concept of time in general? Is Piaget not assuming that the child's intellectual development leads with logical (developmental) necessity to the mode of consciousness of the natural scientist? In addition, when Piaget takes up the intuitive and subjective preliminary forms of the concept of time, he does not thematize that "original datum of lived experience" prior to all scientific concerns of which Straus speaks. Past, present, future, boredom, age, youth, historical events and manifestations, dignified old buildings, and so forth—all of these more subjective or more objective modes of appearing and crystallizations of time in *our* experiences and lived experience are not even mentioned by Piaget. On the contrary, his investigations in developmental psychology are from the very beginning put into a very specific interpretive framework. For example, the children must estimate, perform manipulations of objects in given

temporal intervals; in short, within the limits of their possibilities children are required to carry out "natural scientific" experiments. The degree to which and the way in which they are capable of describing and evaluating the results of their actions counts as the measure for the evaluation of their degree of intellectual development.

No one would deny that one of the tasks of developmental psychology is the clarification of the genetic and logical presuppositions of scientific thought and action. But the attempt to illuminate the structural phenomena of human existence (those of the child as well as those of the adult) solely from a point of view oriented toward science bears witness to an absolutizing of the scientific view of the world, a motif that runs through Piaget's entire thought (Piaget, 1974). Just how loaded with presuppositions this view is may be demonstrated by means of a reconstruction of the physicalistic concept of time. The scientific construct, time as number, is constituted in direct opposition to the non-scientific sensation of time.

If this rupture between scientific and non-scientific experience is not made explicit, but rather covered over by "plausible" moves like that of the ostensible identity of metric with scientific time, then this can have serious educational, especially didactic, consequences. Here we can only briefly refer to phenomenologically oriented educational theorists who have attempted to make productive this unavoidable break between the everyday and the scientific interpretation of phenomena with regard to the didactic problem of teaching science. Physicalistic experiences and knowledge do not perfect natural understandings of nature (Redeker, 1979). And lawful, natural regularities do not lie (as it were on the surface of things for the methodologically unschooled eye) waiting to be read off of things by the one who is prepared to stare at them long enough. Physical knowledge or theories which are documented in terms of experiments are not proven true by these experiments; the ground of their truth is to be found in the general theoretical reflection which provides the constitutive horizon for every individual experience in experimentation. It is precisely this circumstance, namely the constructive, the non-inductive character of physical knowledge, which must be made intelligible to the child. And the same thing holds for the physicalistic concept of time, which Piaget assumes as a possible characteristic of the cognitive development of children. Possible "intuitive preliminary levels" of which he speaks create the illusion of a continuity of the lived experience of time and the concept of time which fails to do justice to the latter.

We find a similar problematic in the didactics of mathematics (cf. Glatfeld/Schröder 1970; Meyer-Drawe 1979). To be sure, mathematics cannot dispense with bodily-sensuous experiences: even geometrical spaces and figures must be perceived. In addition, conceptions of space play a role in these perceptions—concepts of space, which are projective and non-Euclidean are being perceived perspectivally and experienced as having an intrinsic and characteristic atmosphere or mood. These pre-scientific experiences constitute the experiential background of children which must be taken into account didactically when students are confronted with the scientific view of the world. Mathematical space is

essentially other than perceptual space. It is neither bright nor dark, neither practical nor unpractical. By the same token, the geometrical figure drawn on the blackboard is merely the point of departure for a thought that uses it as the "onerous crutch" for its intellectual operations; it embodies only one of a series of arbitrary, individual examples of a universal geometrical rule which is itself independent of sensuous concretion. This specifically scientific view cannot be developed smoothly and continuously from pre-scientific experiences, such as by means of abstractive procedures. What is required is a change of point of view which makes visible the *constructivist* manner in which science approaches our world.

Time in Langeveld

How can one approach time, other than in terms of the scientific or everyday point of view? For Langeveld, time is not primarily a cognitive structure, but rather a structure of the lifeworld. Time is embedded in experiences and lived experiences in such a manner that it is not explicitly recognized as such. Children as well as adults live *in* it and *with* it. Time runs through their biography and orders their communal living. Langeveld elaborates this in the following manner:

> In an "old" Dutch novel... a little boy cries after having fallen into the water, shivering, but already safe on solid ground: "But I am so scared that it is too late!!" When he is assured that it is not too late, since he has been saved from drowning, he continues to sob that he is so scared that it is too late. An understanding soul finally simply asks "What is it too late for?" The six-year-old answers: "I am so scared that it is now too late for lunch." And with that he breaks into sobs all over again. He is hungry.
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> This very realistic anecdote demonstrates what so-called "time" is for a child: lived desire for coming things. Lived foresight, not abstracto, but rather completely in concreto: I am afraid that I will be late for lunch. I need a solid meal, since "water weakens." But this anecdote demonstrates a second aspect, namely the child's attempt to fit himself into the temporal schema which is erected by adults: "We eat at one o'clock." Thus, the primary analogon for time is a lived directedness toward that which is coming. This has precious little to do with the clock. But in the course of so-called education adults gradually but inexorably lay this "measuring tape" of time on the "eating tape" of the child. With the continual aid of adults, the life of the small child must adapt itself to our temporal schemes; and—a most important third fact—at a rather early stage the child stands with the adult in the situation of being bound by time. (Langeveld 1964, p. 44f.)

Thus, time is "lived time" in a multitude of forms, not all of which are of "internal" origin. It can be "imposed" and have a normative power: for example, the time of the adults as an ordering framework. This is time as a form for regulating daily work, in which there is given a "too late" or "too fast"; and if you don't pay attention to it, there follow sanctions. This imposed time has to be learned by the child with effort and in a manner that is typical for the child's perception. Langeveld exemplifies it in his illustrative manner. He shows how the child experiences the institution "school" through imposed time:

> The clock of the adults says: "It is five minutes past nine!" The child looks at the clock reproachfully. As a child you can grimace at the clock because the latter is

> no longer an indifferent object. The clock is telling you that things are going wrong. He says: "You are going to be late." Suddenly the life of the present turns thin and pauperish; the child is at wits' end. He is now in the fourth dimension of "being late." Will we get punishment? Time stretches, stretches, stretches until the school principal, the god of time, says, "All right then—go to your class. We'll try it once more." Suddenly we are back in ordinary life; the experience of the present opens up to the horizon again; the strangeness of the class which had begun to work already is quickly overcome and we are industrious and well-behaved. The morning goes by fast. The clock cooperates, the hands don't get stuck on the face of the clock. It is continuously "so late already," that is, "it is later already than I thought it would be." Apparently there is not only an experience of anticipation, an experience of the present, and experiential relationships of different kinds with the past, there is also existence of a tempo of time—or, similarly but seen from a different vantage point: there is an experience of duration. (1960, p. 48)

The situative: it is sometimes too early for a specific activity or action, sometimes too late; time "sticks" as it were on the things in that they are viewed as being "old" and simultaneously as precious, to be handled with respect and great care.[4] In addition to these "objectivations" of time, it articulates itself as a subjective structure: as the tension of expectations, as the "inner clock," by means of which our needs manifest themselves, as the "attuned" (*gestimmte*) time of boredom, of melancholy, etc. The reader will surely have no difficulty in coming up with further characteristics. In doing so, he will notice just how little time can be reduced to clock time, to metric time, just how little even the clock time of everyday life can be reduced to the "objective" concept of time in Piaget's sense.

How does Langeveld develop his phenomenology of time? To grasp and describe these phenomena of "lived" (*gelebter*) and "experienced" (*erlebter*) time[5] in an appropriate manner he makes use of (a) the portrayal of exemplary and typical situations and incidents in which time plays a role, and (b) subsequent interpretation to generalize this experience, by inquiring into the sense of this phenomenon for the life of the child and for the sense of our existence in general. This method of exemplification, of the intuitive and living representation of pre-given structures which function in our experiences and lived experiences in an unthematic manner, is not merely an element of philosophical or pedagogical belles-lettres. It is a method which is adequate for its "objects," as is the demand that the reader recapitulate this exemplification *for himself*, that the reader confirm, supplement and possibly correct it via recourse to *his own experiences*. This is a *reflexive* procedure. It approaches the structural processes of the lifeworld from a distance, e.g. from memory, from the exact observation and description of processes, and then by examining the structural content of such experiences intersubjectively in dialogue with others. This method is thus anything but a mere duplication of processes, but it is also anything but a reconstruction according to pre-given standards of knowledge. In a sense, by methodically taking the *contexts* of their appearance into account—we saw that Langeveld begins his interpretation of time with a portrayal of a situation, without any recourse to an abstract definition—I leave them where they make their appearance, in reality, in their *concreteness*. Exemplifying the structures of the lifeworld, I philosophize in terms of experience and I am not simply submerged in it.

In what sense is the method of exemplification commensurate with its "objects," the structures of the lifeworld? It does justice to their unique "logic," their characteristic *operative* sense. The logical status of the sense of my temporal experiences is that of a general and above all *significant* structure, a pre-predicative significance which is not the result of a conceptual processing of my experiences. Reflecting on them, I come upon situations, events, and experiences in which time plays a role. I eludicate time as the general structure of these experiences by means of concrete examples which make manifest the inherent sense of the experiences themselves (cf. Buck 1969, p. 116). In other words, I could have used other examples or cases, but the understanding of time remains bound up with the representation of its *concreteness*. Even after this process of reflective clarification, time remains anything but an intellectual construction; it remains a structure which functions concretely in my experiences, a structure which is more at my disposal than are the experiences themselves (Langeveld/Danner 1981, p. 15f.).

Langeveld's first example makes emphatically clear the manners in which time eludes the arbitrary grasp of the subject. It is an ordering structure which is "imposed" on the child at a very early age, and not a purely private inner matter.[6] I come up against functioning structures of the lifeworld prior to all reflection, just as I turn reflectively to language as one who is already a speaking subject. The structures of the lifeworld have a *pre-personal*, pre-subjective character. They permeate my existence without any active complicity on my part. To be sure, I can actively take them up and develop them, just as I can differentiate, instrumentalize, and methodically make use of my corporeal-sensuous constitution, i.e. my physiologically conditioned possibilities of perception and action; but they always remain the foundation of these attempts to give them a personal form. In short, personality is always founded. It is made possible by pre-personal structures and is not the beginning of significant processes (Meyer-Drawe, 1980, p. 455ff.).

There is one more thing which the example of time makes clear. Time as a general structure which functions in lived experiences is hardly to be adequately grasped in *concepts*. Just as one understands the meaning of perception, sensation (red, green, cold, warmth, etc.), on the basis of concrete experiences, without conceptual clarity or univocal conceptual determination, one understands time by continually living in it and in terms of it. Examples are thus required at that point at which the significance of something is not precisely determinable, where the meaning refers beyond itself to praxis: in the experiences of human being-in-the-world, or in speaking, in which I use language before I reflect upon it. Perception, sensation, etc., are phenomenological descriptions of conceptions, not of concepts. Their semantic content is grounded in prepredicative, unthematic, experiential processes (Vollzügen). Conceptions are "operative" concepts (Buck 1969, p. 125). They are immediately referred to situations, embedded in man's everyday attitudes toward the world. "They are themselves modes of commerce with the things, and in this context recognizing something signifies primarily: coming to terms with it... they *are* a praxis, namely 'practiced capabilities' " (Buck 1969, p. 126). As such, conceptions are embedded in concrete contexts; they

embody an essential *practical* orientation. A specific explication of the world in terms of my interests and intentions, and in terms of the structures of my language, takes place in them.

Examples manifest an implicit didactic structure. They illustrate by explicitly recapitulating "that which occurs operatively as a conception" (Buck, 1969, p. 143). They place a specific event before our eyes with the intention of teaching us something. Thus, the portrayal of the lived experience is a description which recapitulates operative structures of experience. It serves to distinguish the intuitive plausibility of the *conception* of time from the scientific construction. It instructs the scientist concerning the sense of reality appropriate to his constructions when he speaks of time. Examples thus make their appearance in the situation of coming to terms with one another; this is decisive for the manner in which examples are to be understood (Buck, 1969, p. 132).

From the phenomenological point of view, examples direct our attention to the functioning life of experience in which I find myself or into which I can reflectively transpose myself. The reference to first person here does not signify that it is merely a question of my own, purely individual, lived experience to which I alone have access. It signifies rather for the reader or those who participate in a communicative situation that he or she too can verify the plausibility of the example in terms of his or her own experience by taking up the thrust of the example. Thus, examples refer the reader to something familiar, something which already lies within the reader's capabilities, but which has been overlooked up to now because the specific modalities of the experiential process have remained unthematic. Thus, the example has a reflexive structure; it aims at the subjectivity of the reader/hearer, a subjectivity which in the context of instruction is intersubjectively accessible by means of instruction (Buck, 1969, p. 32f.).

The structure and conceptions of the lifeworld are those which stand within the competence of everyone since they are realized by each individual for himself. They transcend the individuality of the realization to which they call our attention. With the aid of such examples, we become more conversant with ourselves. The example serves the process of coming to terms with oneself, a self-understanding which is mediated by the understanding of other. *Examples are phenomenological tools for the dialogical clarification of functioning, unthematic structures.* Their persuasive power lies in the fact that the experiences they portray are comprehensible to the hearer precisely because they implicitly appeal to the background of his own unthematic experience.

One final characteristic is typical for the understanding of examples, a characteristic which in a certain sense justifies Merleau-Ponty's understanding of "exemplification" as the "decomposition" of facticity (Merleau-Ponty, 1966, p. 87): *examples are tools of reflection.* To come to an understanding of processes with their help signifies keeping one's eye on the direction or thrust of the process, the theme which the example picks out. The example recapitulates the operative structure as it were at a distance: one becomes reflectively attentive to one's own experience. One rehearses an action reflectively, thus suspending the immediacy of the

performance (Buck, 1969, p. 135ff.). This opens up the possibility of my *catching* myself performing an action concerning which I can then subsequently achieve a reflective clarification. The action itself is not critically destroyed retrospectively as is the case when I cancel a prejudice which I discover; rather, it is *explicated*. Thus, the *recognition* of the fact that such processes and performances are constitutive of reality is decisive for an adequate understanding of processes in the lifeworld, decisive also for the general thrust of the examples selected. The empiricist denies this relation to reality, confining these processes to the pre-history of theorizing, to the intuitive faculty of a private subject, a faculty which can be investigated psychologically, but which from the point of view of the logic of science is completely deficient. The rationalist too misses the sense of such processes, granting recognition only to that which appears in the bright light of reflective consciousness. Within the phenomenological perspective of the understanding of examples, general structures can be clarified in the variation of intuition, in the contrasting play of various examples, but without running the danger of hypostatizing them. But since, as we have already noted, reflective consciousness can take possession neither of its beginning nor its end, always remaining situated and since the structures of the lifeworld only manifest themselves in concrete processes and performances, all experience, including reflective experience, is *perspectival*. It opens up possibilities, but it closes off other possbilities in so doing. Thus, the explication of structures is an essentially open process; it can never be brought to a close. It participates in the fact of reason, a reason which *realizes* itself in the contingency of historical and social situations.

Notes

1. Compare the critical analyses of Piaget's development psychology from a phenomenological point of view: Neil Bolton, "Piaget and Pre-Reflexive Experience" (pp. 28-41) and Wolfe Mays, "Piaget: Formal and Non-Formal Elements in the Child's Conception of Causality" (pp. 42-79), both in B. Curtis and W. Mays (eds.): *Phenomenology and Education. Self-Consciousness and its Development*. (London, 1978).
2. With this "localization" of time in thought processes, Piaget seems to remain within the tradition of transcendental-subjective epistemology. For Kant too, time is purely and solely a matter for consciousness, a "necessary representation which is the ground of all intuitions" without being given in them empirically (cf. Kant 1968, p. 87ff.).
3. With regard to the usual understanding of space and time, cf. E. Ströker (1977, p. 42): "The relationship between space and time is generally restricted to the fact that one relates space, taken as a collection of points alongside one another, to a now, a 'point' of time. In other direction, space is considered to belong to time in the sense that the 'flow' of time as a one-dimensional structure can be represented as a straight line, i.e. as a spatial continuum."
4. For a characterization of this concept of time, cf.: Straus (1965, p. 21). Time articulates itself in the "originary diversity of experiences," in the "fluctuation of meaning and . . . directions of the sense" of our life. It mirrors human development as that of a subject which does not merely register events, but actively intervenes in them. Ströker (1977, p. 44f.) says: "We are aware of time as flowing; all events, all change as well as all duration occurs 'in' it." In time "the subject knows itself too, beginning and ending its corporeal existence. as such, time is not primarily

given as a change of contents of consciousness, but rather as an occurence in the world. Things happen in time, come to pass, run their course; in time there is duration, permanence,beginning and end." "The originally given time is oriented, finite and perspectival, just like oriented space."

5. With regard to the distinction between "lived" (gelebt) and "experienced" (erlebt), cf. Ströker (1977, p. 18, Ftn. 1): Space and time are "prereflexively" there, lived in the performance of all corporeal and intellectual activities, but without thereby being an object for consciousness. They are always "lived" prior to being "experienced."
6. "Imposed" (auferlegt) is a term from the phenomenology of sociality. Forms of social sense, e.g. typifications, which are not constituted by the individual subject itself, are "imposed." Cf. Schütz' book on relevance (1971, p. 50 ff.).

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