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SPECIFICITY IN THE SUBJECT MATTER AND IN THE LEARNER'S RESPONSE

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Professor Weinert has opened an extensive debate: we agree with him that "the impact of instructional quality of achievement outcomes is not a minor issue for educational research" ... But this, indeed, is not an easy task!

Let us first point out that the inadequacy of current views on intellectual capacities, learning, instruction and development would have remained unnoticed (and remained objects of pure ideological speculation) had there not been such rigorous and detailed empirical studies as those conducted by F.E. Winert and his co-workers, as well as those studies by researchers and administrators cautious to check that the educational effort is reaching its goals. Weinert calls for the breaking down of some of the artificial borders between research areas in order to deepen our understanding of the instructional endeavour and its consequences.

We will try here to contribute to this debate, highlighting a few of the (numerous) issues raised by Weinert, by indicating possible points of comparability between his conclusions arrived at within an educational and "macro-level" perspective and ours derived from current research on the "micro-level" of the psychological functioning of the child in testing and learning situations.

Weinert shows, among other things, that no clear-cut causal relationships (but no causal independence either) can be proven between the classicially defined variables related to intellectual capabilities, learning, school instruction, cognitive development and expertise. Paradoxically - as this finding was the least predictable from the point of view of current psychological theory - it is the most tightly controlled type of instruction which proves to be the most likely to result in highest achievement gains in assessment studies. But this type of instruction also shows the greatest decline in student moviation - and this finding is likewise paradoxical. Weinert also reports that "the impact of the single instruction variables on learning outcomes, as a rule, turns out to be weak, inconsistent and context-determined". All these elements point to the weakness of our models of teaching and of motivational and intellectual development in schools.

Very similar results have been found recently in micro-level analyses within the area of genetic social psychology of cognition. We will report a few of them here as they seem to corroborate Weinert's findings. This is particularly striking as they emerge from studies using quite different methodologies (experimental design rather than large surveys).

Psychologists have repeatedly failed in their attempts to design culture-free tests: even in Piagetian tests that Piaget considered as means to test fundamental logical capacities in the child, some type of correlation between the child's performances and his social and scholastic experience has always been found. But up to now, no clear causal model has ever been successfully proposed to account for this impact of education and socialisation on psychological performances thus calling for a closer look at the mediating processes. Systematic analyses of the components of social interactions which result in the growth of cognitive capacities (e.g. operatory level) have identified a large number of variables. And these even have compounded effects in certain circumstances. All this makes it difficult to assert, as a rule, the impact of any single variable. For example:

1. The extent to which children benefit from experimental treatment, (and, as a consequence, the stability of pre-test individual differences), depends on their having the necessary specific *pre-requisites* (e.g., in order to profit from a social interaction session involving the sharing of sweets (conservation of number), non-conserving children must at least be able to make term-to-term comparisons and to numerate them).

2. Previous personal experience affects the child's understanding of the questions asked by the tester. For example, six year old children from working class backgrounds tend to respond incorrectly more often to Piagetian questions asked in a classical experimental situation than their upper class schoolmates, but this is no longer the case when these children are given experimental experience before the test.

3. The wording of the test questions used to assess intellectual ability is known to affect the child's responses. But even the "staging" of the task has its importance (e.g. Donaldson's famous experiment using a naughty teddy bear whose disruptive behaviour seems to help children produce conserving responses in the conservation of number task). But the effect of the "staging" of the task can have different ipacts on different populations. For example, girls failed more often than boys in a conservation of liquids task in which they had to share juice between two dolls rather than between themselves and the experimenter, due perhaps to their perception of dolls as being primarily play things rather than objects of logical reasoning.

4. Subjects seem to concentrate part of their energy on trying to make sense of what is expected of them in this particular situation. When asked a question, they search for cues (including social cues) in order to decide what kind of answer to produce. For example, in maths tests, children usually produce answers using all the numbers they have been presented with, even if some are irrelevant to the problem! In conservation tests, intermediate subjects have been found to have a higher incidence of eye gaze directed at the experimenter, suggesting that these subjects are actively searching for cues to the expected response. The more specific training the child has received for a given task <u>and</u> for the type of social relationship in which the response is elicitated, the more likely he/she will perform well on it. Of course, this does not mean that the child will enjoy performing in such circumstances!

In psychology, "reality" has often been taken for granted: for instance, in most experiments, when comparing subjects' performance on a given task, it is usually assumed that the task is the same for all subjects. In fact, this is an underestimation of the role of the *subject's interpretation* of the meaning of the task as well as of the experimenter's intentions as indicated by his questions.

What is general in "general knowledge"? For a psychologist, it is not at all easy to deal with this question empirically as testing (e.g., assessments in school surveys) is always carried out in <u>specific</u>

situations within specific social relationships with specific tasks and questions. It would be very difficult to prove that the sampling of these situations, questions and relational modalities is large enough to be claimed as "general". And if there were such a case, the inter-situation differences would be worthy of study.

What is specific about "specific knowledge"? Answering this question is also a difficult (but stimulating) endeavour. For example, in comparing physics and history, one can observe that in these two subjects, not only is the information tof be learnt different, but that the type of reasoning and meta-cognition on which they rely differ as well. The historicity of an event or the reality of a fact is not established in the same way in these two disciplines: the sources of information, the inference processes, etc., are quite distinct. Seemingly common concepts such as "time" and "space" have fundamentally different meanings (e.g. only in physics are these two terms likely to be considered equivalent).

This "specificity" is not only related to subject matter but also to cultural contexts. To continue with our last example, it is well known that the sense of "time" varies from culture to culture. We could not then expect subjects to develop the same understanding of "time" regardless of their cultural experience. What is the role of school instruction in this area? We would like to formulate the hypothesis that for "time" (as for many fundamental categories of thought) the school provides pupils with a very specific type of experience.