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PSYCHOLOGICAL APPROACHES INVESTIGATING
DEFICIENCIES IN LEARNING

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A BROAD systematic attack on the problem of special educational deficiencies needs the intense application of concepts and methods which general, experimental, and genetic psychology have developed, and which have been utilized only to a small degree. This problem of the analysis of learning deficiencies involves several interrelated aspects. I would like to discuss briefly some of the more important of these aspects, leaving aside, however, the purely environmental factors.

(1) *The aspect of hierarchic organization of functions.* Normal activity is an integration of hierarchically organized functions, i.e., the functions vary between two extremes in their psychophysiological nature: at one pole are the most "peripheral" functions, at the other the most "central." Logically, a comprehensive analysis should start with the periphery and progress toward more and more central functions. In cases of reading disability at the most peripheral pole we test the physical conditions of the eye, the ear, and the muscles involved. We proceed to the examination of somewhat higher functions, e.g. visual and auditory acuity, discrimination of visual, visuo-motor, auditory and speech patterns, and others.

An analysis of still more central activity involves particularly the cognitive aspects of perception. Disturbances at this functional level, known as agnosia, alexia, amusia, can be adequately evaluated only after the more peripheral functions have been examined. If an individual is unable to recognize simple objects or simple melodic motifs we can be sure of the central character of such agnosia only after having discarded the possibility of a disturbance on a more peripheral level, such as poor form perception or pitch discrimination.

Formation of conceptual relationship, abstract reasoning and their deficiencies are apparently of a still more central nature. Agnosia, though a central disturbance with respect to a deficiency in form perception, is still peripheral with respect to an impairment of abstract concept formation. There again, a diagnosis of a disturbance on this level has to be made with reference to functions of a more peripheral order.

In a recent very significant investigation evidence has been presented showing that a concept formation test involving the sorting of simple objects might be differential as to the effects of certain types of brain lesion. This evidence, however, would have been more convincing if a statement concerning

the presence or absence of agnosia in each single case had been added. A disturbance in the conceptual function of ordering *per se* could be validly stated only if one has demonstrated that the failure is not due simply to a disability in the recognition of objects, that is, to visual agnosia.

(2) *The aspect of mental function versus achievement.* This aspect concerns another direction in which analysis might proceed. Much confusion exists in psychological literature with regard to the concepts of achievement and mental process. The diagnostic approach may advantageously start with the—psychologically speaking—superficial layer of educational achievement, the various signs of disability in the actual performance, proceeding closer and closer toward the functional impairments which underlie this or that particular educational difficulty. In certain educational fields—such as reading—the necessity of such a clinical approach is more clearly recognized than in others, such as arithmetic. In works on testing and remedial teaching the term “diagnosis” is frequently applied to the analysis at the superficial level of achievement alone. Whether the child has difficulty in “carrying over” or “borrowing” in problems of addition and subtraction is important to know; but it tells us little about the causative factors of the disability. Progress in the adequate analysis of educational disabilities has been impeded by a widespread fallacy. This fallacy consists in mistaking the effect of impaired functions appearing at the achievement level for the deficiency itself. To this confusion is added the confusion between cause and effect

arising from incomplete analysis. To illustrate: inadequate eye movements are probably only the consequence of the difficulties the child may have in reading but may have no causal significance in themselves, as so often believed.

(3) *The aspect of development.* The learning of any school subject proceeds in definite developmental steps, each of these steps demanding certain capabilities. The analysis and the evaluation of the impairment has to be done with reference to the genetic levels of functioning. For example, there are certain steps observable in the learning of arithmetic. Basically, the operations with numbers start with body activity, with the use of the fingers in particular. Disturbances in the ability of feeling the positions of the fingers may lead to an impairment of most primitive number operations. At a higher level the child must be capable of visualizing numbers in terms of concrete configurations. Impairment in the function of visual perception may impede the child's progress at this level. At a still higher step, retardation in abstract thinking is likely to interfere with the formation of abstract number concepts.

(4) *The aspect of clinical types of mental deficiency.* There is no need today—as there was in earlier times—to emphasize the variation in clinical forms hidden behind the seemingly unitary conception of “mental deficiency.” However, there is still too little thought given to the possibility that learning processes and learning disabilities may vary, depending on mental traits characteristically different in different types of mental deficiency. To

illustrate, research at the Wayne County Training School has shown that children whose mental retardation is due to brain-injury exhibit general forms of deficiencies in sensory-motor, perceptual, and thought organization. The assumption seems justified that deficiencies of this sort must impede the learning processes in a way peculiar to the type of mental deficiency. In other words, the impairment leading to educational disabilities may be part of a syndrome characteristic of a certain clinical type of mental deficiency.

In conclusion it should be emphasized that the problem of the analysis and diagnosis of educational disabilities is to a great extent in a very early stage. A routine psychological examination using standardized tests is, therefore, often unsatisfactory. Much has to be left to the flexibility and ingenuity of the examiner. Progress in this field will depend largely upon a relatively new type of clinical psychologist who is able to combine the clinical viewpoint with a wide range of methods strictly experimental.