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Piaget, Jean
*To Understand Is To Invent*

The art of education is like the art of medicine: it is an art that cannot be practiced without special "gifts," but one that assumes exact and experimental knowledge relating to the human beings on whom it is exercised. This is not anatomical and physical knowledge . . . but psychological . . . and the solution to questions on the active school or on the formation of the mind depend on it in the most direct fashion.

This book by Piaget, renowned figure in the field of cognitive development, has been written specifically for the general reader. It consists of two texts written for UNESCO. One, "A Structural Foundation for Tomorrow's Education," is part of a series of studies prepared for the International Commission on the Development of Education. The other, "The Right to Education in the Present World," appears in *The Rights of the Mind* collection published by UNESCO.

In the first section, Piaget sets forth conditions of what he sees as actual problems of recent trends in education, and, further, reflects on thoughts for the future. He writes of attempts to reform pre-school education; reactionary changes at the primary level, leading to the strengthening and channeling of cognitive activities; experimental mathematics and science programs; and of the need for more interdisciplinary research in every field at secondary and university levels. He categorizes the results of psychological research in recent years in three "tendencies:"

1. Pursuance of empirical associationism, assigning an exterior origin to all knowledge, deriving it from experience, or representation of experience, controlled by adults;
2. Return to belief in factors of innateness and internal development, resulting in training innate reason as the main function of education; and
3. Affirmation of intelligence as a continuous surpassing of successive stages, placing all educational stress on spontaneous aspects of the learner's activity.

This third tendency is descriptive of Piaget's own theories and "recognizes
neither external preformations (empiricism) nor immanent preformations (innateness . . .)"

Piaget comments that to implement the implications of research into desirable educational prospects for future needs of society requires a complete revision of the methods and aims of education. There need to be new relations between human and natural sciences—a general lowering of barriers between the two—allowing for "the opening of a generous number of side doors which would allow university as well as secondary school students to pass freely from one section to another." Though many have talked of interdisciplinary needs, the inertia of established systems has tended to create a multi-disciplinary situation in education at all levels. However, in his experiments at Geneva, Piaget has found it educationally possible, and profitable, to organize and utilize mobile interdisciplinary groups in (a) a close union of training and research, and (b) team research which was supervised not by a single professor, but by representatives of neighboring fields working together. He believes it imperative that these combinations remain operative if "the fatal role of the schools is to be reduced."

Piaget prefaces the second section of this volume with an acknowledgement that he is by no means a professional educator, "but rather a psychologist led by his research to study the problems of the formation of man." Here, he addresses himself to five obligations of society and social goals of education: every person has the right to education; education shall be free; parents have a prior right to choose the kind of education that shall be given to their children; education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms; and, education shall promote understanding, tolerance, and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.

Concerning the first obligation, Piaget's view of education is not a restricted vista of a simple contribution superimposed on top of individual development, regulated in some inborn way, or by the family; but as part of a whole, a great responsibility of the school to assist the individual to develop normally, in accord with all the potential he possesses. Moreover, he believes schools should assume the obligation of not destroying or spoiling possibilities an individual may have that might benefit society, of not allowing the loss or smothering of other important abilities.

Piaget admits the complexity and seriousness of the problems brought out by the declaration: "education shall be free . . ." He groups them around three principles:

1. Assuring continuance of school attendance independent of economic conditions of the family;
2. Reconciling adequate general culture with a professional specialization; and
3. Assuring the student a full and complete physical, intellectual, and
ethical formation, while orienting him toward his own aptitudes.

He suggests that grants in aid for secondary and higher education not be limited just to specially gifted students. They should not be considered acts of generosity on the state's part, but, rather, society's responses to one of its specific obligations. Reitering his belief that the various activities of man form an indissoluble whole, he maintains that education must consolidate the different practical, technical, scientific, and artistic aspects of social intercourse. For fullest satisfaction during teaching and learning, he promotes the practice of consistent, continual close association between pedagogical and psychological analysis.

This author believes the prior right of parents "to choose the kind of education that shall be given to their children" is valid because, in all known societies, the family, despite its apparent structural transformations, still remains a basic cog in the social structure. He supports and encourages methods leading to closer relationships between school affairs and the life and concerns of parents.

In the section of the book concerned with education for the full development of the personality the writer makes an eloquent, earnest plea for free exercise of personal reasoning power. Full development in areas of both logic and ethics depends upon the whole group of emotional, ethical, or social relationships that make up school life. Growth in unilaterial respect, a strong, independent ego, and reciprocity, mutual respect for the rights and freedoms of others, can develop only in a learning atmosphere of freedom for investigation and the "lived" experience. Outside of this, "any acquisition of human values is only an illusion."

In the realm of international education for "understanding, tolerance, and friendship," the lack of models of perfection makes the task difficult and delicate. International social reality constitutes something relatively new and very hard to understand. Nations and their leaders are still struggling to find and to test proper intellectual tools and ethical attitudes to use in solving their mutual problems. Piaget sees uncertainties of international life as being affected by the same two characteristics that influence individual growth — egocentric judgments and conflicts of reciprocity, with similar solutions being required, i.e., active methods and research in common on an international level. Difficulties which characterize problems of international relationships are those which characterize the human spirit in general. Human understanding must precede human invention of solutions "for the maintenance of peace."

The educational importance of mutual respect and of the methods founded on the spontaneous social organization of the children among themselves is precisely to permit them to work out a discipline where the necessity is discovered in action itself, instead of being received ready-made before being able to be understood. And this is why the active methods give an equally invaluable service in ethical
education as in the education of the mind. They intend to lead the child to construct for himself the tools that will transform him from the inside—that is, in a real sense and not only on the surface.