

## Introduction

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Developmental psychology seeks both to understand the nature of the child's mind at the successive stages of its development and to provide an account of the process of development. We might call these aims, respectively, synchronic and diachronic analysis.<sup>1</sup> Swiss psychologist Jean Piaget founded the discipline in its present form, and his ideas, methods, and findings have shaped work in the field for more than half a century.

Piaget's synchronic and diachronic programs were both novel relative to the agendas of the more traditional "child psychology" (Piaget & Inhelder, 1966/1969, p. viii) of his day. Regarding synchronic analysis, Piaget, unlike traditional child psychologists, was interested not simply in providing a natural history of child behavior, but in describing the mentality behind that behavior (see, e.g., Piaget 1923/1955, especially Claparède's preface). As for diachronic analysis, Piaget's long-range aim was to explain adult thought and action. Traditional child psychology did not have this goal.

Even though much of contemporary research in developmental psychology is conceived as challenging Piaget, it shares with his work these two agendas: It has the more proximal aim of identifying the knowledge or thought process that underlies children's behavior at different ages (synchronic analysis) and the larger goal of explaining how mature "end states" come about (diachronic analysis). As with Piaget, forms of adult mentation are singled out for study, and then with the modern empirical and experimental techniques that are now available, an attempt is

<sup>1</sup> Although these terms are associated with Saussure (1966), I use them merely in their everyday sense. Synchronic analysis is the analysis of some state of affairs at a given time, and diachronic analysis, the analysis of a change in state through time.

## 2 *Piaget's construction of the child's reality*

made to identify the antecedents of these forms in children's behavior. On the basis of the antecedents that are identified, inferences are drawn about the way in which the mature, end-state forms arise.

The promise of developmental psychology and of Piaget's program in particular is, then, that it will elucidate the origins and development of mental life. No single program, not even the seminal and massive effort of Piaget, can be expected to produce a complete account or an account that will be correct in all of its details. The general conception of Piaget, held by his supporters and critics alike, is, however, that he at least charted the relevant areas to be investigated, furnished valid and fruitful directions of inquiry, and uncovered certain critical empirical findings.

This book is a critique of some of the most basic concepts underlying Piaget's theory and the empirical investigations he derived from it. It analyzes six of his classic, earlier works that have shaped thinking in the field and contain a richness of data and theory unmatched in his later works.

There are significant respects in which Piaget does not, in fact, elucidate the origins or development of mental life. My most radical claim will be that there is simply no account of mind in Piaget. In most of the works I discuss, mind is replaced by a quite striking reification of the child's thought. This avoidance of mind is deeply connected with Piaget's whole way of approaching the subject of developmental psychology.

Why devote a book to a detailed analysis of Piaget's theory? One reason is that Piaget remains the most fertile, systematic, and comprehensive thinker that the field of developmental psychology has had. Few have been as bold or as searching. Despite the overt differences between Piaget's position and that of contemporary research, his way of approaching the discipline is deeply engrained, more perhaps than is recognized. Through a close analysis of Piaget's work we can reveal its limits and hence establish a basis for the formulation of genuinely alternative lines of inquiry.

A main purpose of the book, therefore, is to begin to articulate and to pursue these alternative lines of inquiry. It is in the details of working through Piaget's often obscure and convoluted argumentation that some of these alternatives—alternative questions, methods, and substantive hypotheses—become most evident. On

## Introduction

3

the whole, these alternatives are not reflected in contemporary research. They are new areas of investigation that this book is intended to open up via the discussion of Piaget.

I will not present any finished alternative theory or set of approaches. Rather, in the course of my investigation I will suggest various approaches. In some cases I will actually begin to develop an alternative account of the area under question, based on my analysis of Piaget's treatment and its shortcomings.

### PLAN OF THE BOOK

The core of the book consists of a rational reconstruction and critique of the following of Piaget's works: *The child's conception of the world* (CCW), *The language and thought of the child* (LT), *The moral judgment of the child* (MJ), *The child's conception of number* (CCN), *The child's conception of reality* (CR), and *The origins of intelligence in children* (OI). These texts were written between 1920 and 1950, although Piaget continued to write prolifically and to develop his ideas until his death in 1980, at age 84.

When he wrote these relatively early works, Piaget had not yet elaborated the vast theoretical system that would dominate his later writings (although it began to be evident in *Number*). He was therefore more inclined to let the children he observed, rather than theory dictate the parameters of his descriptions. Also, the data are more diverse than they are in his later works. In this regard, each book includes, as primary or secondary data, spontaneous behaviors of everyday life and hence real phenomena that occur in the course of development. Finally, each deals with a basic psychological question, for example, the development of "objectivity," the nature of morality, or the origins of intelligence.

Piaget's later work does not overcome the problems that I will raise in connection with these early studies and does not, in this and other respects, go beyond them. Both to document this point and to place the present investigation in the context of Piaget's later directions, I have included a final chapter dealing with his later work. The chapter also contains a brief discussion of contemporary research.

Concerning the presentation itself, I have concentrated on Piaget's conceptual framework. In doing so, I have assumed that his

#### 4 *Piaget's construction of the child's reality*

claims are empirically accurate, and I have attempted to put the sharpest and most consistent construction on his theoretical arguments that the texts will allow.

Each of the chapters is self-contained; no prior knowledge of Piaget is necessary. Given, however, that my aim is neither to discuss the system as such nor to provide a comprehensive review of the work, I have made no attempt to present the system or the opus as a whole. For this or other background material, readers can consult any of the numerous secondary sources on Piaget (e.g., Brainerd, 1978; Flavell, 1963; Furth, 1981; Ginsburg & Opper, 1979; Gruber & Vonèche, 1982) or Piaget and Inhelder's (1966/1969) own summary.

I begin, in turn, with Piaget's three early works: *Child's conception of the world*, *Language and thought*, and *Moral judgment*. I then proceed to *Number* and finally to the two infancy books (*Construction of reality* and *Origins*). The three early works allow a progressive formulation of issues of critical concern and offer a plethora of phenomena for possible reinterpretation. *Number*, which was written later and is more typical of the greater part of Piaget's work, provides a basis for examining the generality of some of the points made through the early investigations. I treat the infancy books last, because they reach back to the most foundational issues. They also, in my view, represent the best of Piaget. I conclude with the chapter on Piaget's later works.

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## “The child's conception of the world”

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Piaget's stated aim in *The child's conception of the world* was to describe the conceptions of reality that children naturally form at different ages and to determine what the spontaneous thought tendencies were that might explain these conceptions. In his actual research Piaget formulated this question more narrowly as the issue of whether children distinguished, as adults do, between an internal, subjective world and external reality.

All of Piaget's early (psychological) works deal with one version of this question or another. In Piaget's customary phrasing, the question is whether children engage in “egocentric” thought. Piaget, as we shall see, came to use the term “egocentric” in many different senses. In the usual sense, the word refers to the notion that children neither adequately distinguish between self and world, nor take account of other people's points of view.

Egocentrism not only was important in its own right, but had immediate and far-reaching implications for the whole of children's cognitive life. According to Piaget, the ability to appreciate other points of view and to separate self from reality was necessary for an “objective” conception of the world as well as for logical thinking, successful communication, and the development of morality. Thus, an individual who was incapable of appreciating other points of view or of separating self from reality was thereby incapable of construing the world objectively, incapable of genuine deduction, effective communication, or truly moral judgment.

In his later works Piaget retracted the term “egocentric” in response to its alleged misconstrual by other psychologists; however, he retained the substantive theses underlying it (Piaget & Inhelder, 1966/1969, p. 61, n. 6). In the ensuing chapters I will follow Piaget's definitions as closely as possible. One of the main

## 6 *Piaget's construction of the child's reality*

purposes of the discussion is to bring these and related definitions to light and examine their implications.

### RECONSTRUCTION

#### I. The question

Piaget translated the question of whether children distinguish an inner and outer reality into three more specific questions: (a) Do children distinguish some things as mental and some as material? (b) Do they recognize a distinction between animate beings and inanimate things? (c) Do they distinguish some things as man-made and others as natural? If children draw any of these distinctions, then between what groups of things do they draw them, and how, exactly, do they define the difference?

Each of these questions corresponds to a particular type of egocentric thought that might arise. Piaget called the first type realism: roughly, the view that phenomena commonly considered to be mental (e.g., dreams, thoughts) are physical realities. The second type was animism: the attribution of consciousness and other animate properties to things that are (to civilized adults) inanimate. The third type was artificialism: the notion that all things are made in the same way that humans fabricate things.

I note in passing that Piaget is vague and somewhat inconsistent when he refers to children's "distinguishing" or not distinguishing between the internal and the external, the material and the mental, and so on. At times he seems to mean that a given distinction is or is not present in actual perception. At other times he seems to mean that a particular distinction is absent from, or is in some cases denied by, a child's conscious or implicit beliefs. On still other occasions he seems to mean only that a child's explicit explanation for a given phenomenon ignores a distinction that adults would make if they were explaining the same phenomenon with reference to the same kinds of properties. The data bear most directly on this last meaning. In the following reconstruction I will try to remain as faithful as possible to Piaget's usages and will allow such ambiguities and inconsistencies as arise to stand. I will discuss those ambiguities and inconsistencies that are pertinent to my analysis in the critique section.

## 2. Method

Piaget interviewed children about particular phenomena and asked them questions designed to elicit their views about whether the phenomena were "real" (material, external) or not "real," animate or inanimate, man-made or natural. Both to avoid suggesting these oppositions directly and to make the interviews comprehensible to the children, Piaget asked two kinds of questions. First, he asked the children general questions, making no mention of any alternative solutions. For example, when interviewing the children for possible artificialist explanations, he asked them simply, "How did the sun begin?" Second, he asked the children about specific properties that he regarded as representative of the category in question but not as constitutive of it. The children were not asked, for instance, whether they thought dreams were real, but whether they thought they could touch them.

For the study of realism Piaget questioned the children about three phenomena: thought, names, and dreams. He asked, for example, "Can you see thought?" "If we could open a person's head without his dying, could you touch his thought?" "Where do your dreams come from?" "Where is your dream while you are dreaming it?"

The animism interviews centered around two attributes of things: whether they were conscious and whether they were alive. Regarding consciousness, Piaget asked the children if the various items he mentioned could feel the effects of a particular action: "If I pierced the table with a pin, would the table feel anything, or nothing?" "If wood were burning, would it feel it?" "Do the clouds feel the wind?" Regarding the concept of life, the children were asked if various things were alive. These things included plants, animals, humans, inanimate objects that appeared to move spontaneously (e.g., clouds, the wind), immobile objects, and mechanical objects.

The questions concerning artificialism focused on the origins of things and on the explanation for their attributes: "How did the sun begin?" "Why is the sky blue?" "Why is it dark at night?" "Why is this stone [taken from a stream] round?"

In all three cases the questions followed a format that Piaget called the "clinical interview." The questions were tailored to the children's apparent level of understanding, the children's answers

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## 8 *Piaget's construction of the child's reality*

were probed by further guiding questions and countersuggestions, and, most important to Piaget, the children were asked to justify their answers.

### 3. Results

Piaget found evidence of realism, animism, and artificialism in the interviews and a gradual supplanting of these replies, among older children, by answers of a more objective and physical-determinist type.

In the case of realism, thought, names, and dreams were all described by the youngest children as external, material entities. Names were described as emanating from the things they represent, for example, and dreams from the light or dark. Piaget described the sequence of ensuing answers as a series of "differentiations." First the children came to distinguish between each of the three phenomena (thought, names, dreams) and their referents (the thing thought of, dreamed of, or named). Next each phenomenon was properly identified as internal rather than as external. Thought, for example, was in the head but was a physical thing. Finally, the phenomena were distinguished as immaterial and, in the case of names, arbitrary. Whereas younger children thought that fire was called "fire" because the word "fire" was hot, for instance, older children knew that the word "fire" had no physical properties and was assigned to the real entity, fire, only by convention.

A similar pattern of answers appeared in the animism interviews. Initially, the children agreed that a bench would feel something if it were burned, that a cloud knew it was moving, that a button could feel something when it was being pulled off, and so on. A series of intermediate answers could again be distinguished, each kind of answer signifying to Piaget a "differentiation" of the notions expressed by the preceding type of answer: Consciousness (whether things could "feel," etc.) was attributed first to anything that was in any way active (e.g., a burning bush, as well as a rushing brook), then only to things that could move (the sun or a bicycle but not a table or a stone), then only to things that appeared to move of their own accord (the sun, but not a bicycle), and finally only to animals. The concept of "life" followed a comparable progression.



*"The child's conception of the world"*

9

The children's answers in the artificialism interviews exhibited a progressive detachment of physical causation from human agency, or models of it. First, all things were either fashioned by humans (or God) or arose through a process analogous to human activity. Intermediate answers contained a mixture of natural and artificialist explanations. The sun and moon were created by a condensation of clouds (collision of the stars, etc.), for instance; however, the clouds arose from the roofs of houses or the smoke of men's pipes (the stars were fires lit in the sky, etc.). Finally, the children understood that human agency has nothing to do with the origins of natural objects and either invented a physical explanation or refused to speculate.

Piaget admitted that many of the children's answers seemed forced and likely to have arisen only through the children's lack of knowledge of the topics under consideration. It was precisely his intent, however, to present the children with unfamiliar phenomena for which they would have to invent explanations and descriptions. Children's underlying tendencies of thought, he believed, were best revealed through children's attempt to comprehend the unknown or the partly known. Particularly where he could establish that particular inventions were widespread, resisted counter-suggestion, and persisted into more mature responses, Piaget believed there was evidence of these underlying tendencies.

#### 4. Piaget's discussion

In the following account of Piaget's discussion, I will cover only his analysis of realism and animism and omit any further systematic consideration of artificialism.

In his analysis of both realism and animism Piaget tried, on the one hand, to give a theoretical account of the interview results and, on the other, to extend this account to spontaneous patterns of behavior and thought exhibited by children outside the interviews. I begin with the analysis of realism.

##### 4.1. Realism

According to Piaget's theoretical account of realism, children are realists because they fail to distinguish between self and world. Insofar as they draw this distinction, they cease to be realists. The

10 *Piaget's construction of the child's reality*

spontaneous phenomenon to which Piaget extended this theoretical account was children's magical practices. I treat the theoretical account first.

*Self and world.* If children view their mental processes, such as thinking, as existing outside themselves, then, Piaget reasoned, the boundary they draw between themselves and the external world in general must not be as clear as the boundary that adults draw. To document the generality of self-world nondifferentiation, Piaget attempted to illustrate additional confusions that children make between their inner life and the outside world.

Indicative of this confusion, Piaget believed, was what he described as children's tendency to treat their own point of view, which we know is subjective and internal, as "absolute" and as part of the external data. He cites as an example of this tendency children's notion, which he documents with spontaneous anecdotes and further interviews, that the sun, moon, and clouds follow them down the street. As we know, it is only from their point of view that the sun appears to be following them. It would not appear to be doing so from other people's perspectives. Another instance of inner-outer confusion was the claim that babies experience their own subjective sensations, such as pain, as if they existed all around them rather than solely within themselves.

Piaget takes as a major theoretical implication of this conflation of self and world the idea that consciousness of a self or of the internal or personal nature of subjective states does not result from direct intuition. It requires an intellectual construction. That intellectual construction, in turn, results from the gradual "dissociation" or "breaking up" (CCW, p. 127) of the child's primitive consciousness, in which self and world are not differentiated. Conversely, the idea of reality also "presupposes a progressive splitting-up of [this] protoplasmic consciousness into two complementary universes—the objective universe and the subjective" (CCPC, p. 242).

It is worth backing up and attempting to reconstruct exactly how Piaget arrives at this major theoretical conclusion. The argument seems to have three steps:

1. It is a property of human thought that one's concepts and prejudices intrude on the "world" one experiences. Thus, truly objec-