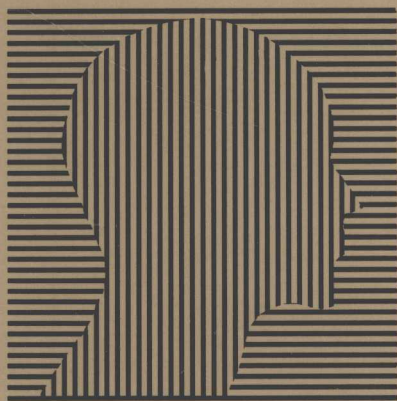


EDUCATION AND PSYCHOLOGY

PLATO, PIAGET, AND
SCIENTIFIC PSYCHOLOGY



KIERAN EGAN

EDUCATION AND PSYCHOLOGY

Plato, Piaget, and
Scientific Psychology

K I E R A N E G A N

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I have been fiddling with this manuscript for some time; parts of it have appeared in various stages of unpreparedness elsewhere. I am grateful for permission to reprint these parts of the manuscript as follows: parts of chapter 2 appeared as "Plato's Theory of Educational Development" in *Curriculum Inquiry*, vol. 11, no. 2 (1981); part of chapter 3 appeared as "What Does Piaget's Theory Describe?" in *Teachers College Record*, vol. 84, no. 2 (1982); bits of chapter 4 appeared in "On the Possibility of Theories of Educational Practice" in *Journal of Curriculum Studies*, vol. 14, no. 2 (1982); and a piece of chapter 5 was used in *The Erosion of Education* (co-authored with David Nyberg, Teachers College Press, 1981). My thanks to the editors for their permission to reprint those pieces here.

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Introduction

IT IS COMMONLY ACCEPTED THAT THERE IS A GULF BETWEEN psychological theories and educational practice and that a bridge of cautious implications is required before we can move from the former to the latter. To the casual observer it may seem a relatively simple matter to move from, say, Jean Piaget's theory of developmental stages to a set of recommendations for teaching, but those psychologists and educators who have worked most intensively on bridging the gulf between psychology and education recognize that the bridge is not at all easy to construct. But, nevertheless, it is accepted as more or less a truism that psychological theories about phenomena such as cognitive development, learning, and motivation can yield implications for educational practice. If one proceeds with due caution, it is commonly assumed, of course one can draw implications from Piaget's developmental theory that will benefit educational practice. This generally accepted truism is exemplified in the current domination of educational research by psychological theories, and in the fact that a significant proportion of all educational writing at present involves drawing implications from psychology to education.

The argument of this book is that no psychological theory has, or can have, legitimate implications for educational practice; or, to continue the metaphor of the previous paragraph, that we lack the materials to build a bridge of implications from psychological theories as they presently exist to educational practice.

In addition, it is argued that proper guidance to educational practice can be provided only by educational theories. Unless articulated

within an educational theory, knowledge generated by psychological research must remain educationally silent.

The two preceding paragraphs, intended as statements of complementary parts of the argument of this book, may seem at first glance an ill-matched pair. The former may seem a wild assertion, the latter a commonplace. An attempt to reconcile them might conclude that what is to be argued is that psychological theories do not speak directly to educational concerns and that educational theories, whatever they may be, must guide the drawing of implications from psychological theories to educational practice. Few people would be likely to find such an argument in any way disturbing, concluding that the initial statement of the book's argument was an unnecessarily dramatic way of making a relatively straightforward point, whose only promise of novelty might be merely a technical philosophical argument about the nature of educational theories.

But it is precisely the wild assertion that I hope to substantiate, as I hope to show that the associated argument is far from a commonplace. I hope to show that the notion that one can move, however cautiously, along a line of implication from psychological—or other human or social science—theories to educational practice is mistaken, and is in practice damaging to education; that the dominance psychological theories hold over educational research is responsible for the meager benefits, if not actual losses, to educational practice that have resulted from the massive educational research industry; that the influence of psychological theories on curriculum design tends toward educational vacuousness; that the influence of psychological theories on teaching practice tends to reduce teaching effectiveness; that, in general, the supposition that such theories offer a scientific contribution to the study of education exemplifies misconceptions about the nature of the educational enterprise and fails to perceive the differences between the kind of knowledge educational practice properly requires and the kind of knowledge it can generate.

A frontal attack on a truism presents strategic problems. One such is how to reduce or eradicate a polemical tone. Regret at the uncritical application of psychological theories in education is of course a sentiment widely shared. It is harder to make the more radical case that any application of such theories in education is uncritical, without appearing somewhat cranky. The argument, after all, is not just with some more or less casually held opposing position, but rather with what amounts to a presupposition; a presupposition embodied in even the organizational structure of institutions

that study to improve education. By implication the argument claims that the very term “educational psychology” involves a fundamental confusion, and that practitioners of educational psychology *en masse* are not helping but are damaging the practice of education. And that a similar destructive contribution to education is being made by those psychologists who urge educators to seek implications for practice in psychological theories.

Even outlining the argument makes it seem a polemic. But obviously psychology and education are not at war, and I am not a combatant on one side against the other. Nor am I in any way arguing against the propriety of psychological theories as such, nor against the kind of knowledge psychology seeks to secure—though I will discuss some objections to the program of “scientific psychology.” Rather my concern is with education, and I hope to show that it is not a sprawling, inchoate field of study in which some things studied by psychologists form one part; some things studied by sociologists form another; and some things studied by anthropologists, philosophers, and so on, form other parts.

The argument against the present role of psychological theories in education is intended to clarify the distinction between what they offer to education and what in fact education needs. Thus I hope to clarify the nature of educationally useful theories. The book pursues this purpose by a simple dialectical movement. It begins, in chapter 1, with a search for the kinds of things educators need to know in order to best do their job, distinguishing these things from what psychological theories tell us. This will produce a sketch of some characteristics of educational theories. With this tentative set of distinctions between educational and psychological theories, the book continues, in chapters 2 and 3, to identify and examine an example of each. In chapter 4, it returns to the distinctions sketched in the first chapter to refine and further clarify them in light of the two examples. For the examples I have chosen theories that have as much in common as possible, in order better to see their differences.

In chapter 1, I will reflect on distinctions between psychological and educational theories. Some of the distinctions have been noted before, but I am not aware of the whole range being noted, nor of their combination into the general argument of this book. I refer occasionally in this chapter to Piaget’s theory, assuming that readers will have some knowledge of it.

Plato’s developmental theory is described and discussed in chapter 2. The usual accounts of Plato’s ideas on education have not isolated his developmental theory, even though he constantly dis-

cusses education according to a developmental scheme and provides an explicit general model for organizing the complex process. All of Western philosophy has been described as merely footnotes to Plato. Much the same might be said about all educational thinking. Even people who have never read the *Republic* or the *Laws* carry some of his ideas at second or third or fourth remove in their minds and into their practice.

The discussion of Piaget's theory is, I have tried to ensure, informed by a concept of education which allows a precise sense of why the theory has no implications for educational practice, and which allows a useful critical discussion of the ample literature on Piagetian teaching strategies and curricula. I have chosen to concentrate on Piaget's theory because of its current prominence in education, and the general assumption that it has many implications for education.

Chapter 5 generalizes the argument against Piaget's theory to other psychological theories used in supposedly educational research. In this chapter I try to show why the common analogy—psychology:education::physics:engineering—is false and seriously misleading. This chapter focuses on research on teaching effectiveness; on attempts to articulate a theory of instruction; on behavioral objectives; on social learning theory; and on a few other topics currently prominent in educational psychology. I try to show why none of this research properly has or can have any implications for education.

A book whose argument leads to characterizing the appropriate form of educational theories may seem somewhat distant from the day-to-day business of teaching large groups of children in classrooms. But in a practical enterprise like education the most practical thing one can have is an appropriate theory—a common observation, commonly ignored. The general argument of this book is that education, if it is to become a more useful field of study and a more successful field of practice, must generate its own theories about the phenomena of most direct interest to it. If it persists in relying on theories drawn from psychology, or sociology, or anthropology, or whatever, it will fail to come adequately to grips with what we should teach children; how we should teach those things; and when during the process of their development we should teach which things in which ways.

I am neither a philosopher nor a psychologist but—to echo Piaget's claim in reverse—a mere pedagogue. This essay trespasses clumsily in areas where psychologists and philosophers would pass

with greater elegance, ease, and confidence. If I go ahead with my trespassing despite my unfamiliarity with the terrain—with its terms, distinctions, methods, and so on—it is because I think I can recognize education when I see it, and its absence when I do not. In this essay I point out why I do not see education in a large range of what passes for educational research.

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1/ Education and Psychology

A Sense of Differences

Introduction

EDUCATORS ARE primarily interested in knowing what things should be taught (“taught” in the sense that implies “learned”), by what methods, at what stages during a person’s educational development, in order to produce a particular kind of educated person. This suggests four related questions: *What should we teach? How should we teach those things? When should we teach them? What should our end-product be like?*¹ Answering these four questions allows us to construct an educational program or curriculum, and we might reasonably look to an educational theory to provide such answers.

In this chapter I want to begin distinguishing between psychologists’ and educators’ interests in such things as development, learning, and motivation. I will take these four major educational questions and see what kinds of answers psychology offers to education and see in what ways these answers are like or unlike what education requires. For this initial look at the area I will concentrate on theories of development, because it is this area of psychology that is at present seen as richest in implications for education. This restricted focus is for economy’s sake; it nevertheless allows dealing with each of the educational questions. Piaget’s developmental theory, after all, is commonly taken as having implications for the aims, methods, content, and sequence of educational programs.² And while it may seem odd to use Piaget’s atypical theory as a kind of paradigm of

psychological theories, I will argue the appropriateness of this procedure in chapter 5.

Introductory to discussing the major educational questions I would like to make three general points. Each concerns differences between psychology and education. They are not contentious, but worth making here because they seem sometimes to be ignored in education.

I. DESCRIBING WHAT IS: PRESCRIBING WHAT OUGHT TO BE

The four major educational questions mentioned above are tightly interrelated. One cannot offer a sensible answer to any one of them without providing some kind of answer to all of them. If our educational theory prescribes learning about, say, the Industrial Revolution in grade nine, we will expect that prescription to be in the context of an outline of normal educational development which makes the set of concepts, facts, and skills to be learned developmentally appropriate, both logically and psychologically; and we will expect it to be in the context of suggestions about the manner in which the topic should be organized and presented to be most engaging and meaningful to typical grade nine students; and also in the context of a description of a desirable end-product which *justifies* such content being taught then and in those ways. Similarly an educational theory will seek to characterize developmental stages partly in terms of the content, concepts, and skills most appropriately mastered during each stage, and in terms of the organization, and forms of presentation, of knowledge that are most meaningful to students at each stage. As the content and forms of presentation will differ if one aims to produce a Spartan warrior rather than a Christian gentleman, so the characterization of the developmental stages leading to such diverse end-products will also differ.

Psychologists, on the other hand, do not seek to answer questions about development in terms of content or programs of cultural initiation. Psychological theories embody the scientific aim of describing what is the case and providing explanations of a particular range of phenomena. Psychology's first task in approaching, say, cognitive development is to isolate the appropriate phenomena and to eradicate all extraneous matters. As the aim is to discover what is necessarily true about cognitive development, psychologists must discount whatever effects on such development are culturally or historically conditioned. Psychologists may perform experiments which involve children at different ages learning certain concepts, or dealing with

certain problems. But that content and those problems in themselves are irrelevant, except in so far as they allow the psychologist to see the underlying abstract processes of cognitive development. They are as incidental to the resulting theory as the stain or dye a biologist might use in order to see better the form of a transparent organism. Far from being expressed in terms of something else, especially if that something else is the kind of cultural content which forms a central focus for an educational theory, a psychological theory will if necessary construct its own technical language to refer as precisely as possible to the abstract processes that form its focus of concern.

So first and most generally, a psychological theory is about phenomena that exist in the world; there are psychological processes and patterns of behavior which the researcher may seek to describe and explain. There may be enormous difficulties in the way of providing secure explanations of psychological phenomena, but a presupposition of scientific psychology is that there is a *nature* of things psychological about which increasingly secure theories may be established. So Piaget's claim that "Psychology is a natural science"³ is a fundamental premise to the program of scientific psychology. There is, however, no such thing as a natural educational process out there that we should be trying to find, describe, and explain. An educational process exists only as we bring it into existence. The main problem for the educator, then, is not to describe the nature of the process but to prescribe what ought to be done to create an ideal or good process.

In considering the differences between psychology and education this rather gross difference should be emphasized. The habit of looking at education through psychology, as it were, tends to suppress or disguise this profound and far-reaching difference. We would expect theories about phenomena that exist to be significantly different from theories whose role is to prescribe processes which do not exist. (Whether we want to call the latter "theories" will be dealt with in chapter 4.)

Psychologists also seek to establish empirical regularities between, say, motivation and learning, but a condition of establishing any such regularity is that the two be separate and independent entities. This separation presents conceptual problems for the psychologist, the resolution of which requires precision in definitions of "learning" and "motivation." These precise definitions make the meaning of the psychologist's "learning" and "motivation" somewhat different from the more diffuse and complex meanings proper in education. The educator's level of interest is such, however, that

the question of how to make knowledge about the Industrial Revolution interesting to grade nine students tends to collapse any precise distinctions between the content, learning, and motivation. The educator cannot assume a stable body of knowledge about the Industrial Revolution which students are to be motivated to learn. The "motivation" has to be built into the way the knowledge is selected, organized, and presented. This seems, on the face of it, a somewhat different task from applying principles of motivation, of learning, of development to organizing content and teaching about the Industrial Revolution. At least there is some opaqueness here; the centrality for all educational questions of particular content and the meanings and values of that content makes the application of theories which abstract themselves from such matters problematic. However, let us return to this topic in more detail in chapter 5, at which point we will have accumulated some ideas to help clear up some of the opaqueness.

We may, in passing, use two metaphors to reflect on the function of a theory. We can see a theory as a kind of lens which brings a particular set of elements into focus. We can also see a theory as a kind of syntax; as syntax organizes phonemes into larger meaningful linguistic entities, so a theory organizes data into more general claims. As suggested above, when dealing with topics like learning, development, or motivation, psychological theories focus on a different range of phenomena from educators and also a different "level" of phenomena; the data organized by psychological theories into more general meaningful claims are likely to be different from the data organized by educational theories, as are the claims made by each. Because educators and psychologists both express interest in topics such as "development" or "motivation," the common terms tend occasionally to bewitch us into thinking that their commonalities are greater than is in fact the case.

II. LOOKING AT EDUCATION WITH PSYCHOLOGICAL LENSES

A not uncommon effect of importing psychological theories into education is that, because of their apparently greater precision and scientific authority, they tend to displace the proper role of educational theories. This might be seen in people taking, for example, Piaget's developmental theory as providing aims for the educational process. At its crudest this results in situations where, as David Elkind puts it, "some 'Piaget-based' curricula aim at teaching

the kinds of concepts (conservation of substance, liquid quantity, and so on) that Piaget has shown most children acquire pretty much on their own as a natural consequence of their active involvement with the environment.”⁴ A little more insidiously it leads to the not uncommon claim that the aim of education is to achieve sophisticated formal operations—the final stage of the cognitive developmental process which Piaget describes—and that the particular things taught and the methods of teaching are important to the extent that they help realize this end. This is to substitute intellectual skills for education, and psychological development for educational development. The former has to be encompassed by the latter; it may provide constraints or boundaries or variables that affect the latter—it cannot, as a part, provide an aim for the whole.

Piaget’s theory focuses on a particular strand in the wide and complex thread of human development. Indeed, even within the strand of cognitive development, Piaget focuses on and highlights particular parts. As Flavell and Wohlwill put it, Piaget has been highly selective with regard to the phenomena he has focused on, and

We should not be at all surprised to find some future theorist making an excellent case for the simply momentous cognitive changes that take place, say during the three-to-five-year-old span . . . Developmentalists would then say that some very important things happen between three and five and that some other things, quite different, but equally important, happen between five and seven.⁵

If we might expect to see quite different things from focusing on different aspects of the cognitive developmental strand, we might *a fortiori* expect the strand of educational development to have different characteristics, highlights, stage divisions, and so on. Or, at least, we must be open to that possibility. The danger for education in letting Piaget’s theory focus our attention on the developmental process is that it will focus attention on phenomena of prime interest to the cognitive psychologist but of possibly only peripheral interest to the educator, and it may focus attention away from the phenomena of most direct interest and value to the educator.

Similarly with motivation: as mentioned above, education is properly concerned not so much with isolating and explaining a phenomenon called “motivation,” but rather with how one engages children’s interest in learning particular things of value. Importing the term “motivation” into education, while it may have more tech-

nical éclat than, say, “a study of children’s changing interests,” is mischievous. It is mischievous not just because it converts what is appropriate technical language in psychology into educational jargon, but because it shifts educators’ attention away from childrens’ interests toward trying to spin tenuous connections from ideas about “need reduction” or “extinction of orienting reflexes” to the behavior of groups of children sitting in classrooms. If we borrow psychology’s theories we borrow also its focus of interest, and lose our own.

III. SHOULD PSYCHOLOGY’S DESCRIPTIONS CONSTRAIN EDUCATION’S PRESCRIPTIONS?

Psychology aims to become a scientific discipline. It seeks to handle its data of interest with the rigor and security of the physical sciences. That such rigor and security may be achieved in rather different ways in psychology and physics, and that such differences may be reflected in the theories proper to each field, is a reasonable expectation. Psychology at present seeks to describe certain processes and behaviors rigorously and explain them as far as possible. Piaget thus had the scientific aim of describing as precisely as possible what is the case about human cognitive development. He sought to generate a theory that has as general application as possible. Cross-cultural studies are designed in order to provide data that will help establish the general claims or will allow the theory to be revised in order to make it more generally applicable.

An educational theory might outline a developmental process which no one has yet experienced. But if it outlines a new ideal, and provides plausible practical steps whereby that ideal can be realized, it will tell us precisely the kinds of things we want to know in education.

A psychological theory like Piaget’s is, we may say, properly descriptive, with the ambition of becoming explanatory, whereas an educational theory is properly prescriptive. We want an educational theory to prescribe a program that will lead to a particular end-product. We will not, of course, be satisfied with an educational theory that is purely prescriptive. We will expect it to make empirically testable claims, and we will expect its prescriptions to be made within the bounds of what a secure descriptive psychological theory tells us is possible. It is in this regard that Piaget’s theory is considered by some educators to have its most important implications for education. Given the general differences between educational and psychological theories noted above, we might conclude that what