1977

Teaching virtue.

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TEACHING VIRTUE

A Thesis Presented

By

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Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS

February 1977

Department of Philosophy

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CHAPTER I

INTRODUCTION

> . . . special perspicacity is not necessary to be able to grasp that, in examining normal adult individuals who are representative of the honest, human average, the truly logical persons who are masters of their reasoning power are as rare as are the truly moral men who exercise their conscience with all their strength.
>
> Jean Piaget[1]

While it is apparent that virtue must be learned, it is not as clear that it can be taught. Strictly speaking, the question is one that must remain open. We cannot demonstrate that such a thing has ever been done, yet neither can we be certain that it has not. We can, however, establish the theoretical possibility of teaching virtue. The aim of this paper is to reaffirm such a theory, and to support it in a practical way by presenting a complementary theory of learning from which we may conclude that the teaching of virtue is a psychological possibility as well as a philosophical one.

Plato has provided the logical framework;[2] the argument we need is of this form:

1. Virtue is knowledge of the Good.
2. Knowledge can be taught.

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3. Virtue can be taught.

That Plato apparently came to modify - one might say compromise - his position on the first proposition may have been due to growing

doubt about the truth of the second. Teaching, as it is usually understood, implies submission by the learner to the instruction or example of the teacher and the acquisition of new opinions or skills. But we can gain knowledge only by submitting to reason, and reasoning appears to be a wholly independent activity. We may conclude either that knowledge cannot be taught or that there is another sense in which to understand "teaching" - one that asks us to use our reason. In the Meno, it seems that we are being encouraged to draw the second conclusion, hence to appreciate the soundness of the Socratic method. That no (other) teacher of virtue can be found is no proof that one might not exist.

Although he himself has called it into question, Plato continues to favor the opinion (which seems to me correct) that what can be learned can be taught, provided the appropriate method is used. Indeed, without such an idea there could be no Utopian scheme like that of the Republic. But we find there that the second premise of our argument is qualified in such a way that it might now read, "knowledge can be taught sometimes." This suggests, not that Plato is disillusioned about the effectiveness of the method, but that he has either given up believing or else never believed in the universal existence of reason adequate to profit from such teaching. If knowledge can be taught only sometimes, it is because it can only sometimes be learned.

Having identified the correct means of teaching knowledge, and apparently having found little improvement in virtue, Plato could

hardly avoid such a conclusion. That a person capable of reason would willingly fail to use it must have been inconceivable to someone who presumed that no one who knew what was right could do otherwise. And if Plato himself did not allow enough time for the method to prove itself, or if because of lack of acceptance he had no such opportunity, similar methods have been tried since and there is ample evidence that ignorance persists, supporting the opinion that many of us are not _able_ to reason. The alternative is to hold that we know innately, or have all somehow managed to learn, how to recognize the Good, but that we persist in doing wrong deliberately. Even if this statement is not already a logical contradiction, most of us would simply deny that human nature is so perverse. We would rather admit to ignorance than vice.

Yet if we hold any hope for the possibility of a more just society, it must be based on the belief that we are educable in one way or another. Rather than relinquish that idea, Plato abandoned the provisional definition of virtue as knowledge proposed in the _Meno_ and conceived instead a system of justice based on the notion of a tripartite soul.[3] Now virtue became a question of knowledge only for those in whom reason was predominant, and who would be charged with making judgments on behalf of the whole society. For the rest, whose social virtue consisted in carrying out their proper roles as providers or defenders, true belief would have to suffice as a guide to right conduct. In all cases, personal virtue still required that the "appetitive" and "spirited" parts of the

soul be controlled by the rational.

Revised, our argument is this:

1. Virtue is either knowledge or true belief.

2. True belief, and in some cases knowledge, can be taught.

---

3. Virtue can be taught.

For the most part, this is the basis on which we actually operate, with a heavy reliance on belief. But the trouble with belief, as Plato was acutely aware, is its transitory nature. What is learned by indoctrination can be as easily forgotten, and replaced or even accompanied by a contradictory idea.

On the other hand, beliefs that ought to be revised are sometimes difficult to dislodge. In order to be transferred in a practical way, rules of conduct must be phrased in such particular terms that they will demand revision under changing conditions. But those accustomed to depending upon the judgments of others, still influenced by old threats or promises, will not be changed by new evidence or argument. Yet neither is it likely that they can be reindoctrinated in a uniform way, for there will surely be discrepancies even among the justifiable interpretations of a given principle. Indoctrination may be suited to a small and relatively stable group, loyal to a consistently wise and benevolent ruler (if one could be recognized as such). But where there is neither such a situation nor the mediation of reason, the breadth of opinion we encourage seems to result less in informed growth than in the multiplication of tensions and animosities, in the course of which the initial significance of

our beliefs is lost.

Beliefs, when provisional, are an essential step in understanding; fixed, they are often pernicious. One response to this problem is to bypass thought altogether, and to concern ourselves only with behavior. To do so, however, is to encounter the choice between anarchy and manipulation. We can leave virtue to instinct and chance, or else define it as conformity and attempt to influence behavior directly by means of rewards and punishments. The latter, if only from a practical standpoint, is a step backward rather than forward. Because only very specific habits can be formed in this way, the non-thinking individual is helpless in the face of change and requires constant direction and supervision. And again, even if we had efficient technical means of accomplishing such training - by electronic devices, for example - to whom should we entrust the programming? In terms of human dignity, such an answer is simply repellent. While the dangerous illusion of freedom grows in those uncontrolled by knowledge or principle, actual freedom is diminished.

The way out of this dilemma is to go back to the original argument and affirm without qualification the second premise: knowledge can be taught. Since it was rejected, apparently, for empirical reasons, I feel it is legitimate to devote considerable space (Chapter II) to explaining a psychological theory which should cause us to reconsider. The theory is that of Jean Piaget, who claims that reason can be taught. If that is the case, then a

necessary condition for acquiring knowledge can be reinstated. Then, if it could be agreed that reason and experience together are sufficient for knowledge, and that both can be taught (provided we understand "teaching" in the appropriate ways), we could claim that knowledge can be taught.

As for the first premise, it can now more easily be asserted that knowledge is necessary for virtue, without seeming to exclude great numbers of people from this more desirable prospect. In Chapter III, I shall attempt to support this claim; moreover, I shall agree with Plato that knowledge is indeed sufficient for virtue. However, the kind of knowledge I consider adequate is more inclusive than what Plato seems to have required. Whereas he takes theoretical knowledge of the Good to be sufficient (though not, in his later position, necessary), it seems to me that this condition must be made even more stringent. If we are to carry out our good intentions in particular acts, we must understand not only the criterion of right action, but how to predict and control the consequences of actual events.

If we are still unable to conclude that knowledge, hence virtue, can be taught, it should now be for a different reason. The same limitation would hold whether knowledge of the right principle or only belief in that principle were used as a guide to right action. It is not our ability to reason that is necessarily limited, but our opportunity to experience. While it cannot be guaranteed that every individual - even with an ideal education - will turn out

to be capable of achieving the necessary level of reasoning, it is quite probable that this is usually so and that there is always at least a way of maximizing reason. But even if adequate reason were universal, and each of us knew what he ideally ought to do, we would still be unable to know what we are in fact doing. Reason, though necessary, is not sufficient for the ongoing kinds of empirical judgments that the practice of virtue requires, since experience is never adequate to support such judgments. The problem is not that theoretical knowledge cannot be taught in certain cases, but that empirical knowledge cannot be fully achieved in any. Here we must all rely to some extent on belief.

While it now appears that virtue is not something that can be attained once and for all, even by the wisest of us, it becomes instead something that can be approached by everyone, through a process of continual self-correction. Rather than attributing a different form of virtue to those who are not yet, or not always, able to decide correctly what action is required of them (confirming the suspicion that they can never do so, or simply don't want to) and then calling such a state equally desirable (thus justifying external control), it seems to me important to maintain an ideal toward which everyone can realistically strive and progress. While we are all to some extent subject to the limitations imposed by ignorance, these need not be compounded by our control of one another.

My thesis, then, is this: without perfect knowledge, we

cannot be perfectly virtuous. However, we can learn - provided we reason - to be more nearly so. And insofar as virtue depends on knowledge, and knowledge on reason, and reason on a certain kind of teaching, then virtue not only can but must be taught, and in a particular way. With all its qualifications, I believe this is a significant conclusion.

This is the argument I shall defend:

1. Reason is necessary for virtue.
2. Reason can be taught.

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3. A necessary means to virtue can be taught.

Chapter II will be devoted to an elaboration of the second premise, with an explanation of Piaget's levels of intellectual development. After Chapter III, in which I hope to justify the first premise, I shall describe Lawrence Kohlberg's corresponding levels of moral development, and the ways in which they appear to depend upon the growth of reason. It will be seen that both reason and virtue exist in what might be called progressive approximations, each derived from and preferable to its predecessor.

While there is a remarkable parallel between the three parts of the soul identified by Plato and Piaget's three major stages of rational development, the crucial difference is that Plato sees the relevant qualities as more or less fixed (in different proportions) in three types of individuals, whereas Piaget would consider them hierarchical, with each combination at least potentially characteristic of every individual over the course of his development, and

tending toward the more nearly rational. Formal reason, and consequently moral autonomy, can thus be seen once again as universally legitimate aims of education.

REFERENCES FOR CHAPTER I

1. Jean Piaget, To Understand Is To Invent (New York: Grossman Publishers, Viking Compass Edition, 1973), p. 50.

2. Plato, Meno, ed. Fulton H. Anderson, trans. Benjamin Jowett (New York: Bobbs-Merrill Company, Liberal Arts Press, 1949).

3. Plato, Republic, ed. and trans. Francis M. Cornford (London: Oxford University Press, 1941).

CHAPTER II

REASON CAN BE TAUGHT

> . . . if logic is itself created rather than being inborn, it follows that the first task of education is to form reasoning. The proposition "every person has the right to education". . . means, therefore, in the first place, "every human being has the right to be placed in a scholastic environment during his formation which will enable him to build until completion the basic tools of adaptation which are the processes of logic."
>
> Jean Piaget[1]

1. Ways of Teaching

The essence of Piaget's cognitive theory is that reason is not a fixed endowment, but a construction to be progressively developed. This idea can be contrasted with the view that reason is qualitatively uniform, and furthermore that it is given, if at all, in some greater or lesser measure to each individual.

> As for the Platonic, rationalist, or apriorist epistemologies, each believed it had found some instrument of knowledge foreign, superior, or prior to the experiment. But. . . these doctrines, although careful to characterize the qualities they attributed to this instrument, . . . neglected to verify that it was actually at the subject's disposal. Here, whether we wish it or not, there is a question of fact. (PE:5)

From his observations of children, Piaget concluded that reason is indeed present and operating, but often in precursory forms which cannot be recognized. When teachers themselves are not educated as to the expectations they can have of their students, educational efforts may easily be misdirected.

If it were true that reasoning ability is determined from birth in respect to both its nature and its degree, there would remain only two variables to bear on the amount of knowledge available to a given person: the data he receives and the way he processes it. Educational objectives tend to line up accordingly. On the one hand, there is the communication of ideas, and on the other, the actual exercise of reason. The picture is slightly complicated by the fact that each goal may be seen as a means to the other. Ideas that lend themselves to reflection and analysis may be introduced primarily to engage the student in decision-making in order to develop in him, for its own sake, the habit of aggressive, disciplined thought. This may or may not be seen as a means of further increasing reasoning skill. Alternatively, a student may be encouraged to reason about a given problem in order to gain knowledge - to understand an idea selected as important, and to recognize its truth in such a way that certain general concepts become his own.

In practice, although these interdependent purposes have wide verbal acceptance, neither is very widely implemented in the ways described. For it appears that many students lack either sufficient reasoning ability or the willingness to employ what they have, and furthermore that little can be done to change this. One appears forced to abandon either a large number of students or else the cultivation of reason as an educational goal.

When the latter occurs, the teacher becomes merely an instructor, who simply tells what he believes to be the truth. This is to

be remembered, with or without an accompanying set of supporting reasons, also perfunctorily memorized. An alternative approach is the experiential, direct discovery method, which often goes on to take account of the student's personal interests and feelings, either for their own sake or as a means of keeping his attention.

In either case - whether the teacher or student is the reporter of information - the observations in question tend to remain unevaluated. For even when the importance of the student's own reasoning is not overlooked, it seems that one can do no more than hope for its natural unfolding at some predetermined time. Without the unifying purpose of shared critical judgments, selection of content appears arbitrary, becoming a subject of dispute rather than of deliberation. Such a situation can degenerate into one of apathy and aimlessness in which discipline becomes a serious problem, so that the teacher is now not so much an instructor as a trainer. Success is measured in terms of overt performance, with emphasis on the results rather than the causes of behavior.

Reason can be restored to its legitimate role in the classroom, and in the larger society, not by retrenchment to more rigorous methods of selecting an educable élite, but by expansion of our understanding of what can be accomplished through teaching. According to Piaget, this includes not only the exercise of reason, with quantitative growth in both the content of knowledge and in the skill of using such reasoning ability as one has; we can also count as an objective the qualitative development of reason itself. One can

learn not only to reason better or to reason more, but to use a better kind of reason. While training and instruction are both legitimate and important aspects of teaching, if they are employed without an understanding of this idea the changes that result are likely to be only superficial. The most appropriate use of any teaching method is in the service of true education: the cultivation of inner discipline.

What the teacher may "lead forth" from the child is not only truth, but universal forms in which truths can be conceptualized and communicated. If Piaget is correct, these forms will vary in a systematic, progressive way. While he believes that certain very general properties of reason are inherent in every person qua organism, and that these properties remain constant, Piaget claims that there can also be identified an orderly sequence of epigenetic changes involving the active construction of logical structures and their transformation into increasingly useful forms. The level of intellectual adaptation finally achieved by an individual is determined neither by heredity nor environment alone, but by the organizing activity through which he mediates between them.

Since only the order of development is fixed, and not its timing or extent, the interaction of a child with his experience can be influenced in such a way as to effect optimum growth, provided we learn to recognize reason in its progressive forms. The student can then be encouraged to engage in reasoning at his existing level of development, to mature at each foundational stage, and

finally to progress to the level which is ordinarily considered the only kind of reason there is. Unlike habits and beliefs, these changes are irreversible. Once achieved, they provide the access and the "tether" which makes knowledge, if not permanent, at least retrievable. Although the acquisition of knowledge and practical skills are worthwhile aims in themselves, they must be considered secondary to this even more fundamental aim of education.

The next three sections will introduce some of the concepts essential to understanding Piaget's theory of cognitive development. In Section 5, I shall discuss further the implications of this theory for the revision of educational goals and methods.

2. Ways of Knowing

> It is not by knowing the Pythagorean theorem that free exercise of personal reasoning power is assured; it is in having rediscovered its existence and its usage. . . . It is in learning to master the truth by oneself at the risk of losing a lot of time and of going through all the round-about ways that are inherent in real activity.
>
> Jean Piaget[2]

Piaget himself seldom speaks of the growth of reason, or even of knowledge, as though either were a quantifiable entity. Rather, he is concerned with the development of the activity of knowing, which is interdependent with the activity of reasoning. For Piaget, "this calculation is sufficient in itself, without our needing to

hypostatize its result in the form of 'beings' or 'essences.'" (BK:318)

With the understanding that "we are tending more and more today to regard knowledge as a process more than as a state" (PE:2), we can distinguish three forms of knowledge, or ways of knowing. The most primitive Piaget calls instinctive, a "knowing how" which can be considered entirely non-theoretical. Instinctive knowledge takes the form of a few generalized reflex mechanisms, whose primary value for learning is to initiate the functioning of the organism according to certain universal rules of organization. But as for specific "knowledge structured by hereditary programming," such as perception of color and spatial dimension, "it is debatable whether it has any real extension." (BK:266) Unlike Kant, Piaget does not believe the child has an inherent knowledge of cognitive structures or "categories" by means of which to order reality.

As soon as repeated activities begin to be represented in thought, instinct is quickly replaced by the complementary development of <u>experimental</u> (or "physical") and <u>logico-mathematical</u> knowledge. These correspond, respectively, to the explicative and the implicative functions (OI:9), or, roughly, to the recognition of truth and of validity. Experimental knowledge, which provides the variable content of intelligence, is derived exclusively from experience of external objects, and with this as a criterion its acquisition may be considered "authentic" learning. (BK:306) Such learning, however, requires a pre-existing cognitive framework.

> . . . any kind of knowledge about an object is always an assimilation into schemata, and these schemata contain an organization, however elementary, which may be logical or mathematical. (BK:335)

Logico-mathematical knowledge, abstracted from the very activity of knowing, is knowledge of form. Although this kind of knowledge, as available to an individual, undergoes qualitative change, its progressive structures follow normative laws.

The formation of increasingly adequate logico-mathematical schemata I take to be the development of what we may call "reason," or the necessary condition for the ability to engage in reasoning. This development, which will be our main topic, will be discussed more fully in the next two sections, where it will be seen that logico-mathematical knowledge is "learned" in a somewhat different way. The rest of this section will be concerned primarily with experimental knowledge.

Perhaps the most significant thing for the teacher to understand is that experimental knowledge can be acquired only through the activity of the learner. Like Dewey, Piaget believes that it is by means of our repeated manipulation of things that we are able to extract their properties.

> Knowledge is not a copy of reality. To know an object, to know an event, is not simply to look at it and make a mental copy, or image, of it. To know an object is to act on it. To know is to modify, to transform the object, and to understand the process of this transformation. (DL:8)

This activity is not limited to overt action on physical objects, but may include symbolic or incipient action on theoretical ones. Experimental knowledge thus comprehends ideas which are transmitted

verbally, for it is

> . . . acquired by means of physical experience of every type, that is, the experience of external objects or of whatever appertains to them, abstraction being made of objects as such. (BK:266)

> . . . this object may just as well be the action of consciousness of an external object, insofar as the information is obtained by observation or experiment. . . . In introspection, the subject as seen constitutes an external object in relation to the subject as cognitive, whatever "subjective" errors the latter may make. (BK:333-4)

Instruction, like training, can be an effective means of education, provided it is understood that collaboration by the student is always a necessary condition for learning.

The activity of the learner is initiated and given direction by his effort to integrate his experience into an existing conceptual framework. As new observations and ideas are encountered, provided they are only slightly different from those already familiar, the concepts being used are elaborated to accomodate them. In this way experimental knowledge becomes more comprehensive, more differentiated, and more highly organized - in short, more adaptive.

> The mind can only be adapted to a reality if perfect accomodation exists, that is to say, if nothing, in that reality, intervenes to modify the subject's schemata. (OI:7)

Experimentation, enriched by the communication and "coordination of measurements supplied by different observers" (BK:337), eventually results in knowledge which corresponds to a shared reality - a process Piaget calls "decentration."

> . . . experimental action is oriented in the direction of logico-mathematical decentering. . . . Action does not exclude objectivity; on the contrary, it is conducive to it,

> since it is extended into mathematical operators whose coordinations provide laws independent of the subject as individual ego. (BK:337)

It is important to understand, however, that objectivity is achieved only gradually. Instruction which goes far beyond the student's existing rational system simply cannot be comprehended, no matter how well it is supported with facts and arguments.

There is a certain resistance to accomodation caused by the desire to preserve one's sense of intellectual security, and to reinforce and strengthen present concepts through their use - that is, by assimilating new knowledge into them. Successful assimilation feels good and contributes to a feeling of integrity which is still compatible with external reality. Paradoxically, the "egocentricity" associated with this activity is the underlying motivation for learning; one expands and adjusts his concepts a little in order to be able to continue using them. However, experience which cannot be seen as consistent with customary ways of thinking is denied, either by being ignored altogether or by being rejected as "unreasonable."

I take reasoning to be the systematic evaluation of information - be it sensory data or a verbal assertion - to see whether and how it can be integrated into an existing cognitive system.

> Notion is indeed richer than perception. . . . Notion does not consist merely in expressing the perceptive fact but also (and often especially) in correcting it. (PE:68-9)

New information can be considered learned, hence known, either when it is recognized as implicit in knowledge already present or when its admission extends and explains such knowledge. In either case,

selectivity which depends upon active justification by the learner permanently strengthens the knowledge at his command, since it requires continuous assessment and use of existing structures.

When certain aspects of reality cannot readily be assimilated in this way, yet become too insistent to be ignored, successful adaptation may require that experimental knowledge undergo a major reorganization involving something more than the elaboration of specific concepts. The very rules of reason are restructured in such a way that they both comprehend previous forms and are adapted to a kind of physical knowledge which is more general, and therefore more useful in explaining experienced facts. The introduction of a new rational concept may clear up a whole set of difficulties, and at the same time it creates new ones by altering the balance of existing schemata. The continuous reorganization of the rules of reasoning constitutes the "learning" of logico-mathematical knowledge, or of reason itself.

These rules are not at first consciously recognized; they are implemented long before they are abstracted. New schemes are "known" when they work and can be put to use.

> . . . structures do not belong to consciousness but to behavior (only when there is some sort of dis-adaptation does the individual become aware of structures, and this awareness is always quite dim and partial. (STR:99)

Logico-mathematical knowledge is not known by the individual as such, but by the epistemic subject, that is, the "cognitive nucleus which is common to all subjects at the same level." STR:139) That the

individual has a practical understanding is evidenced by his behavior, and not by any theoretical formulation.

> . . . the always fragmentary and frequently distorting grasp of consciousness must be set apart from the achievements of the subject; what he knows is the outcome of his intellectual activity, not its mechanisms. (STR:139)

Learning reason is, again, an active process, but one whose object is in this case the form rather than the empirical content of knowing. In order to distinguish such learning from the acquisition of experimental knowledge, I have referred to it as "development." However, this should not be taken to imply that the growth of reason is merely a matter of maturation - that it is programmed from birth, or that it cannot be influenced by teaching as well as by other kinds of experience. Piaget makes the point that a much better term would be "construction." For we cannot, strictly speaking, say that structures are discovered, since "one can only discover what already exists, whether it is within or outside one's person." (BK:318) Neither can they be invented, inasmuch as invention implies free choice.

> We are thus compelled to think of the construction of logico-mathematical structures in the form, not of a development that is integrated unpredictably with external elements, but as a kind of endogenous evolution going forward in stages. These stages are of such a kind that the combinations characteristic of any one of them will be new as combinations, yet based intirely upon the elements already present in the preceding stage. (BK:318-19)

In discussing the learning of experimental knowledge and its relation to the construction of more advanced logico-mathematical structures, we have assumed the presence of some such structures yet

denied that they are innate. But neither can they be drawn directly from experience of the external world, which would not even be intelligible without their prior existence. This is true even of perception, where "cognitive contact with the object perceived is not just a recording or mere 'reading' of experience." (BK:335)

> We need hardly point out that, for a copy to serve as arbiter in a case of conflict, we would have to trust it as a true copy, which would require some other means of access to its original than through it. (STR:72)

If logico-mathematical knowledge is a distinct way of knowing which serves as such an arbiter, and if it is in fact also learned, this learning process must clearly be the primary concern of the teacher.

We shall next consider the origin of logico-mathematical structures and the general principles of their continued construction. The following section will describe the sequential forms in which these structures can be recognized in the growing individual. Finally, we shall review the way in which reason can be developed in conjunction with the teaching of experimental knowledge and through the informed use of methods which are already familiar.

3. How Reason is Formed

> . . . the progress of reason doubtless consists in an increasingly advanced acquisition of awareness of the organizing activity inherent in life itself.
>
> Jean Piaget[3]

How can we account for the origin of universal logico-

mathematical structures? Not through empirical generalization, for reason is not "out there" waiting to be apprehended. If the laws of logic applied to the physical world so that they could be

> . . . discovered from outside, as the laws of physics are, then there (would) no longer (be) anything "necessary" about them in the deductive and axiomatic sense of the term. If, on the other hand, the laws of logic were universal, . . . they would be innate and would manifest themselves in infancy. . . . Now this is just not so. Their necessity is brought about by a gradual construction. (BK:315-16)

Moreover, we have seen that some endogenous structuration is prerequisite to experimental learning, and cannot itself be "learned" in the same sense.

> . . . it is not comparison that supports generalization, but the other way around. If, as we believe to be the case, the unconscious activity of the mind consists in imposing forms upon content, and if these forms are fundamentally the same for all minds. . . it is necessary and sufficient to grasp the unconscious structure underlying each institution and each custom in order to obtain a principle of interpretation valid for other institutions and other customs. . . .[4]

The alternative seems to be that rational structures are inherent in the species, at least in some germinal form.

> . . . if this knowledge is not brought about by empirical learning but simply constitutes the necessary condition for the organization and recording of experience, will it not then have to be considered ipso facto as being hereditary by nature? Yes and no. . . . (BK:313)

"No," says Piaget, if we mean well-defined structures that give specific information. He rejects the "new rationalism" whose search for the "unconscious structures" underlying thought is represented by Chomsky's "generative grammar" - a "fixed innate scheme" from which language is elaborated. (STR:74-96) Piaget agrees that it is logic

which is the basis for language, and not the reverse, but denies that this logic is innate. So it cannot be said that "thought is the mirror of logic." On the contrary, logic is derived from thought. (STR:53)

> . . . to think is to produce, thought being a kind of "theoretical practice" which is not so much the work of an individual subject as the outcome of interactions between the subject and his personal environment. . . . (STR:125-6)

Thought, which first occurs as a non-verbal representation of activity, is in turn prefigured by experience. The first thing of which the infant is aware is his own movement.

> . . . when thought or representative intelligence begins to function, it starts from zero in its conceptual content, though not, of course, in its sensorimotor or perceptual data. (BK:333)

As innate behavior patterns are repeated and coordinated with each other and with the environment, there occurs the first "splintering off" of logico-mathematical knowledge from hereditary structuration.

> . . . the processes of repetition, ordering, and associative connecting whereby the sensori-motor schemata become coordinated themselves contain the source of Chomsky's "monoid." (STR:91)

Thereafter, "logico-mathematical structures fill the same sort of role at the representational level as do hereditary frameworks at the initial learning stages." (BK:335)

As has already been suggested, Piaget believes that the rules for the earliest cognitive structures are derived from the infant's awareness of the rhythms of his own physical activity, which is initiated by instinct and governed by universal biological principles.

> . . . though it would not do to say that all vital processes are "intelligent," it can be maintained that. . . life is geometrizing; today we may go so far as to say that in many respects life works like a cybernetic machine, an "artificial" or "general" intelligence. (STR:114)

It is as "general coordinations of actions" that logico-mathematical knowledge is "already at work in some elementary or immanent form in every cognitive functioning." (BK:267-68) Its form is

> . . . based on the internal conditions of each functioning (that is, on those general forms of organization which extend beyond cognitive assimilation and back into the common mechanisms, hence, to those processes which lie at the heart of any living organization). . . . (BK:267)

It is because of the generality of the functional principles "common to all sensorimotor coordinations" (STR:62-3) that logico-mathematical forms can be derived from them which are both stable and adaptable to experienced reality. But the inference directly from the stability of these forms to their innateness is going too far. (STR:12) First, it does not really deal with the problem of origin, for "even when a trait is recognized as hereditary, the question of its formation remains." (STR:89) More important, specific heredity is as finite and contingent as experience.

> . . . if a priori evolve like some biological characteristic, being prior conditions for every kind of experimental knowledge and fixed in heredity as instincts or innate conceptual frameworks, then they must lose, along with their uniqueness and their universality (since they vary from species [to species] and are fixated in man as he is now. . .) the very thing which gave them their chief value, which was their necessity. (BK:314-15)

Whereas inherited structures would be "essentially limiting, . . . the deductive and organizing activity of the mind is unlimited and leads. . . to generalizations which surpass intuition." (IO:2) We

shall see that ". . . necessity, instead of being the prior condition for learning, is its outcome." (STR:62)

Logic can be thought of as hereditary only in the sense that it is formed within the constraints of "certain necessary and irreducible conditions" (OI:3) which are not so much inherited as they are conserved and perpetuated from one generation to the next. (BK: 313 and 323) It can also be thought of as acquired, but by abstraction from the experience of internal processes rather than of the external world.

> . . . reason does not evolve without reason; . . . it develops by virtue of internal necessities which impose themselves in the course of its interactions with the external environment. . . . (STR:119)

It turns out that the innatists and empiricists are both partly right. The source of reason is neither entirely within the individual nor outside him, but in the laws governing the concrete interactions that take place as instinctive behavior patterns are repeated, modified, and coordinated.

The functions which account for the orderly construction of logico-mathematical structures are the self-regulatory processes by which every living system conserves itself as a coherent whole. Reason develops

> . . . within the framework of the two most general biological functions: organization and adaptation. . . . They are two complementary processes of a single mechanism, the first being the internal aspect of the cycle of which adaptation constitutes the external aspect. (OI:4-7)

Organization, which preserves the inherent balance and unity of the individual organism, is reflected intellectually as consistency of

thought. The universal organizing function remains constant throughout the evolution of the cognitive structures; although the child's logic is incomplete, differing in form as well as in content from that of the adult, there is always maintained an independent validity. The nature of the autoregulatory mechanisms employed will be considered in connection with the kinds of intellectual structures that are governed by these functions (Section 4).

Because self-preservation by means of self-organizing activity occurs within a context of change, the individual is also required to fit himself into a larger order. He must maintain a successful balance, not only within himself, but at the same time between himself and the environment that nourishes him. Adaptation is an active response to the demands imposed by transactions between the individual and his surroundings, and intelligence - "the equilibrated form of all cognitive functions" (STR:114) - develops as a highly effective means of adaptation.

> . . . behavior is at the mercy of every possible disequilibrating factor, since it is always dependent on an environment which has no fixed limits and is constantly fluctuating. Thus, the autoregulatory function of the cognitive mechanisms produces the most highly stabilized equilibrium forms found in any living creature, namely, the structures of intelligence. . . . (BK:37)

Successful human adaptation, or change, is very largely a matter of achieving this intellectual equilibrium.

> Life is a continuous creation of increasingly complex forms and a progressive balancing of these forms with the environment. . . . The organism adapts itself by materially constructing new forms to fit them into those of the universe, whereas intelligence extends this creation by constructing

> mentally structures which can be applied to those of the environment. . . . If things perceived or known are a limited part of the environment to which the organism tends to adapt, a reversal of these relationships subsequently takes place. (OI:3-4)

Adaptation is the "functional invariant" which accounts for the tendency toward objectivity in experimental knowledge and for the evolution of logico-mathematical structures which will accomodate more and more of external reality. While the laws of organization regulate the form of knowledge, those of adaptation determine the fact of learning; ". . . everything in intellectual development consists of adaptation." (OI:5)

The adaptive process is an equilibration of two complementary functions: assimilation and accomodation. In general, assimilation is the "integration of any sort of reality into a structure" (DL:18), and this function includes the "furnishing" and reinforcement of cognitive structures.

> . . . in every case intellectual adaptation involves an element of assimilation, that is to say, of structuring through incorporation of external reality into forms due to the subject's activity. (OI:6)

The principle of "functional assimilation" is expressed as a tendency to repeat familiar patterns of thought and behavior, and to internalize selected aspects of one's surroundings as fuel for this activity. Since both the subject and object will have changed slightly with each exchange, exact repetition is impossible and disequilibrium occurs. Accomodation is the compensatory, externalizing process whereby the individual yields and adjusts to the particularities of each new situation. Accomodation is therefore most closely

associated with change; more specifically, it brings about learning, or growth in experimental knowledge.

Assimilation is self-preserving and transforms the environment; accomodation is truth-preserving and changes the individual. One must constantly coordinate these two variables by working out in each case a new reciprocal relationship which both protects internal equilibrium and expands the scope of possible transactions.

> There is adaptation when the organism is transformed by the environment and when this variation results in an increase in the interchanges between the environment and itself which are favorable to its preservation. (OI:5)

Such interchanges continue to modify the environment as well as the subject who is accomodating to it. As adaptive growth perpetuates itself, both physical and intellectual activity influence the form and availability of external resources upon which to draw in the future.

It is worth noting again that the individual always attempts to keep learning under his control, and spontaneously undertakes the difficult task of accomodation insofar as it is seen as beneficial.

> . . . animals "choose" and "modify" their environment before submitting to its influences. . . . That is just what behavior is: a mixture of choice from, and effect upon, the environment, exerting optimal control over exchanges. Learning is no exception to this definition, for as the living creature acquires new conditioning or new habits, it assimilates signals and organizes action schemata that it then imposes on the environment at the same time as it is itself undergoing environmental influence. (BK:32)

The chief benefit of accomodation is that it makes possible further assimilation. The more this is recognized, the less is learning a reaction to unavoidable intrusions and the more it becomes an active

striving to comprehend. During the overall course of cognitive development, as well as within each of its stages, "decentering" occurs through a shift in emphasis from assimilation to accomodation, until at maturity they are brought into balance.

The egocentricity associated with assimilation and characteristic of the earliest stages of development is due less to preference than to necessity. While the small child clearly must undergo a great deal of accomodation to the surroundings into which he is born, there is an even greater need for him to begin by assimilating from them. This is because assimilation is the source of the first logico-mathematical structuration.

> . . . the function. . . chiefly credited for the formation of structures was "assimilation," our structuralist substitute for atomistic "association" . . . .
>
> Psychologically (behaviorally) considered, assimilation is the process whereby a function, once exercised, presses toward repetition, and in "reproducing" its own activity produces a schema into which the objects propitious to its exercise, whether familiar ("recognitory assimilation") or new ("generalizing assimilation"), become incorporated.
>
> So assimilation, the process or activity common to all forms of life, is the source of that continual relating, setting up of correspondences, establishing of functional connections, and so on, which characterizes the early stages of intelligence.
>
> And it is assimilation, again, which finally gives rise to those general schemata we called structures. . . . Assimilation is the functional aspect of structure-formation. . . sooner or later leading to the mutual assimilation of structures to one another. . . . (STR:71-72)

By means of functional assimilation, innate behavior patterns produce the earliest sensorimotor schemata, and the coordination of these schemata is the source of a new and more complex form which

incorporates and preserves the previous ones.

> Indeed, it is not a question of adding another story to an edifice to which it bears no relation; rather, we have here a group of syntheses or structurations which, although new, are a direct and natural extension of the preceding ones and fill in some of the gaps left by them. (PC:131)

The increasingly complex "materials" for construction of cognitive structures are furnished through a process Piaget calls reflective abstraction. Abstraction is made, not of the properties of objects, but of the logico-mathematical laws governing actions performed upon objects.

> Examination of child behavior in regard to objects shows that there exist two kinds of experiments and two kinds of abstractions, depending on whether the experiment is based on things themselves and allows for discovery of some of their characteristics, or whether it is based on coordinations, which were not in things but that the action, in utilizing the latter, had introduced for its own requirements. (PE:29)

A classic example is that of the child who discovers that he has a given number of pebbles, and that the number stays constant no matter in what order they are arranged. "Actually he experiments not on the pebbles, which he uses merely as instruments, but on his own action of order and enumeration." (PE:30) In doing so, he enriches the objects with logico-mathematical characteristics (order and number) which they did not have independently.

This "de-centering makes the subject enter upon, not so much an already available and therefore external universality, as an uninterrupted process of coordinating and setting in reciprocal relations." (STR:139) At higher levels, the structures of formal reason are abstracted from existential intellectual operations, which

were in turn derived from concrete experimentation. Progress through the sequential stages of logico-mathematical structuration occurs when action is thus "reflected" by being projected onto a more general plane, i.e. from action to thought, and from "concrete" thought to abstract. Reflection is defined as "a rearrangement, by means of thought, of some matter previously presented to the subject in a rough or immediate form." (BK:320)

Each new construction, while complete and coherent in itself, is "open" in that it is subject to incorporation into a "stronger" structure of which it is a subsystem. Following the cybernetic model, successive forms follow from, and not simply upon, their predecessors. (STR:134)

> This process. . . takes the form of a succession of levels of equilibrium, of levels which have a certain probability which I shall call a sequential probability, that is, the probabilities are not established a priori. . . . Each level is determined as the most probable given that the preceding level has been reached. (DL:14)

> Through the interplay of reflective abstraction. . . and of equilibration (self-regulation) mechanisms, which make for internal reversibility, structures - in being constructed - give rise to that necessity which a priorist theories have always thought it necessary to posit at the outset. (STR:62)

Reason can thus progress indefinitely, as it must in order to explain itself.

> From the logical angle, Gödel demonstrated as long ago as 1930. . . that a system which is otherwise sufficient for its own purposes. . . cannot by its own or weaker means, succeed in verifying its own noncontradiction. (BK:319)

Richer structures can, however, explain previous ones by incorporating and reorganizing them at a more advanced level of equilibrium.

Using inadequate forms as content, we can go beyond the limits of a system

> . . . not by generalizing or merely extending it, but by abstracting from its results an operation that makes possible the construction of a new structure, which includes the old. (BK:319)

The adaptive value of logico-mathematical knowledge lies in its versatility, and this is largely due to the method of its formation. Because "the phenotype, instead of being an uninteresting epiphenomenon, [is] in fact the outcome of interaction between the genotype and the environment" (BK:272), there is wide scope for accomodation to new circumstances. At every level from the genetic to the intellectual, "recombination exploits mutation by means of efficient combinatorial systems," and this process

> . . . provides an explanation for those vital initiatives taken by living creatures in the course of evolution, whereas chance or selection alone offer none (for selection only produces effects of immediate utility). (BK:279)

Man has the singular advantage of being able to take such initiatives on a theoretical plane before attempting to implement them.

> No doubt "pure" mathematics does exist, quite free of any actual application, but it is nonetheless related to objects of some kind and remains essentially an instrument for adaptation to the real world even if it goes beyond it (and because it goes beyond it). (BK:334)

The construction of meaning furnishes the alternatives which not only enrich human life but make possible its self-perpetuation.

> Whereas other animals cannot alter themselves except by changing their species, man can transform himself by transforming the world and can structure himself by constructing structures; and these structures are his own, for they are

> not eternally predestined either from within or from without. (STR:118-19)

As each individual recapitulates the progress of previous generations by a process of "convergent reconstructions with overtaking" (or regression) (BK:331-33), he is able to profit from their accomplishments but is not limited to them.

4. Stages of Intellectual Development

> The characteristic of intelligence is not to contemplate but to "transform" and its mechanism is essentially operatory.
>
> Jean Piaget[5]

We have said that the development of reason consists in the construction of increasingly adaptive logico-mathematical structures, and have described in general terms the "functional invariants" (organization and adaptation) which persist throughout their evolution and help account for it. Here we shall consider the structures themselves, and with them the specific regulatory mechanisms by which organization is maintained in spite of both internal and external change. Focus will be mainly upon the "operational" structures which characterize the appearance of reason on the plane of thought.

A structure may be defined as a "system closed under transformation" (STR:6), or a "systematic whole of self-regulating transformations" (STR:44). The key notions are those of wholeness, transformation, and self-regulation (or equilibration). Like the living

organism, which is "in a way, the paradigm structure" (STR:44), knowledge occurs not simply as an aggregate of independent elements with their particular attributes, but as a dynamic system whose form is due to its organizational properties.

> . . . the elements of a structure are subordinated to laws, and it is in terms of these laws that the structure qua whole or system is defined. (STR:7)

The laws which make a structure intelligible are those governing its transformations. Although it need not be temporal, change is always inherent in a structure.

> Were it not for the idea of transformation, structures would lose all explanatory import, since they would collapse into static forms. (STR:12)

A structure becomes self-conserving within stable boundaries, and in this sense "closed," when it is governed by laws of transformation which never lead beyond the system.

> Once an area of knowledge has been reduced to a self-regulating system or "structure," the feeling that one has at last come upon its innermost source of movement is hardly avoidable. (STR:14)

Such laws maintain the unity and coherence of a whole by regulating the function of equilibration, that "general formative process in nature" (STR:113) which accounts for the construction of cognitive structures. ". . . the essential function of logical operations. . . is to set up systems of control and autocorrection." (BK:28)

The most elementary autoregulatory mechanisms are the instinctive rhythms found in all forms of life. The "reproduction" (functional assimilation) and coordination of "rhythm-structures" results in sensorimotor schemata governed by "regulations." Regulations

are partially reversible, probabilistic laws which "depend on the interplay of anticipation and correction (feedback)" (STR:15-16) and which are associated with structures whose transformations are temporal. Practical logic appears at the level of thought with the construction of cognitive structures which are governed by "operations." A true operation is a "perfect regulation," and "an operational system is one which excludes errors before they are made." (STR:15) Because they have the properties of both reversibility and associativity, operations offer the first opportunity to make informed choices of action. Finally, just as the practical operations were abstracted from the assimilation and equilibration of regulations, formal logic is derived from the integration of the "concrete" operations.

> Rhythm, regulation, operation - these are the three basic mechanisms of self-regulation and self-maintenance. One may, if one so desires, view them as the "real" stages of a structure's "construction," or, reversing the sequence, one may use operational mechanisms of a quasi-Platonic and non-temporal sort as the "basis" from which the others are then in some manner "derived." (STR:16)

In order to illustrate how a system is governed by an operation, it will be useful to consider the mathematical "group" as a prototype rational structure. (STR:19) A group is a system of elements (e.g. the integers) with an operation or rule of combination (e.g. addition). It has the following properties: (STR:18)

1. Performed upon the elements of the set, the operation yields only elements of the set.

2. The set contains an identity element (0) which is unaffected by being combined with any other element of the set ($n + 0 = n$).

3. The operation has an inverse (subtraction) which, when combined with it, yields the identity element: (+ n - n = 0).

4. The operation and its inverse are associative: (n + m) + 1 = n + (m + 1).

The identity element is essential in order for change to be understood as a transformation, "an intelligible change which does not transform things beyond recognition at one stroke, and which always preserves invariance in certain respects." (STR:20) Because of the two restrictive conditions of reversibility (the inverse operation always makes possible a return to the starting point) and associativity (the same goal is attainable by alternate routes), any system having a group structure has an inherent logic.

> This self-regulation is really the continual application of three of the basic principles of rationalism: the principle of non-contradiction, which is incarnate in the reversibility of transformations; the principle of identity, which is guaranteed by the permanence of the identity element; and the principle, less frequently cited but just as fundamental, according to which the end result is independent of the route taken. (STR:20)

The group is an algebraic structure in which reversibility takes the form of inversion or negation. In addition, there are order and topological structures. The former have as their prototype the lattice or network, where reversibility occurs as reciprocity (e.g. $A < B$ transforms into $B > A$). Finally, there are the topological structures, which form the basis of geometry and incorporate the notions of neighborhood, continuity, and limit. These "parent structures" constitute "three not further reducible 'sources' of all other structures" (STR:24) which can be be constructed by the

combination or differentiation of their restrictive conditions. (STR:25)

While the Bourbaki mathematicians were discovering these abstract "mother structures," Piaget's study of psychogenetic development simultaneously revealed that

> . . . the earliest cognitive operations, those which grow directly out of handling things, can be divided in precisely three large categories, according to whether reversibility takes the form of "inversion," of "reciprocity," or of "continuity" and "separation." (STR:26)

He was thus led to conclude that the logico-mathematical parent structures

> . . . correspond to coordinations that are necessary to all intellectual activity, though they be very elementary, even rudimentary, and quite lacking in generality in the earliest stages of intellectual development. (STR:27)

Logico-mathematical schemata cannot be considered true structures until they come to be regulated by operations having one of the three forms of reversibility. This achievement, which occurs at around seven or eight years of age, marks the third of four major levels of intellectual growth and constitutes a synthesis of earlier constructions. At the most primitive sensorimotor level, assimilation schemata are coordinated into schemes for direct action on reality (e.g. displacement groups, the scheme of the permanent object, inclusion and order structures). (BK:321) During the preoperational stage, which begins at about eighteen months to two years with the appearance of the semiotic function, these practical structures are internalized and "reconstructed into thought structures" (BK:321) which can now in turn be coordinated (e.g. the

concept of number is constructed as a synthesis of seriation and inclusion). (PE:37-44)

The semiotic function, which makes possible these coordinations, is not limited to speech, but includes imitative and symbolic actions. Such symbols may take the form of incipient movements, drawings, etc. as well as images.

> Representative intelligence begins with the child's systematic concentration on his own action and on the momentary figurative aspects of the segments of reality with which this action deals. Later it arrives at a decentering based on the general coordination of action, and this permits the formation of operatory systems of transformations and constants or conservations which liberate the representation of reality from its deceptive figurative appearances. (PC:128)

Finally, words become the signifiers that follow and re-evoke comprehension of meaning. Language allows the child "to reconstitute his past actions in the form of recapitulation and to anticipate his future actions through verbal representation." (SS:17)

Representation in thought lets the individual consider a whole all at once, free of the limitations of space, time, and sequence, and thus to grasp the concept of reversibility as an instrument of self-regulation. The period following its appearance is one of transition from trial-and-error activity to action governed by operations. In an existential sense, operations are the general acts (e.g. uniting, ordering) which "enter into all coordinations of particular actions." (PC:96) By thinking about his own acts of this kind, the child abstracts the corresponding intellectual schemes.

The construction of an "operational" structure can be illustrated by the following example. When a pre-operational child is

asked to roll a ball of clay into a sausage shape, it is at first most probable that he will focus on only one dimension (length) or the other (width), and will treat them independently. In the first case, he will say that the clay has grown larger, since it is longer. At some point he will notice its increasing narrowness, and say now that there is less. At a third stage he will oscillate between length and width, until at a fourth he discovers their inverse relationship.

When he is able to make the compensation necessary for equilibration of these two opposing variables, the child has formed an algebraic structure which has an identity element (in this case, conservation of substance) and a reversible operation. (DL:14) The structure becomes closed because "the relations within it are interdependent and can be composed among themselves without recourse to anything outside the system." (BK:316) The perceived correspondence now appears necessary,

> . . . and this logical "necessity" is recognized not only by some inner feeling, which cannot be proved, but by the intellectual behavior of the subject, who uses the newly mastered deductive instrument with confidence and discipline. (BK:316)

This third level, that of the concrete operations, is so called because the mechanisms being used "relate directly to objects and not yet to verbally stated hypotheses." (PC:100) Progress has been made in that images are now anticipatory, and not simply reproductive of transformations and their results (PC:74-79), but the child is still dependent on the figurative, as opposed to the purely operative,

aspects of his experience. Transformational laws are coordinated into relatively weak systems called "groupings" (e.g. classifications, seriations, correspondences, matrices) which make possible new notions of conservation. The operations involved are only partly associative, and the structures they form "permit only step-by-step reasoning, for lack of generalized combinations." (PC:100) Several years are spent in consolidating and stabilizing these new instruments, which eventually become general and permanent in the absence of their objects.

During adolescence, the child finally "succeeds in freeing himself from the concrete and in locating reality within a group of possible transformations." (PC:130) This "final fundamental decentering" marks the beginning of the period of formal operations, which is characterized by the ability to coordinate ideas (including ideas of actions) by means of propositional logic.

> By comparison with a child, an adolescent is an individual who constructs systems and "theories." The child does not build systems. Those which he possesses are unconscious or preconscious in the sense that they are unformulable or unformulated so that only an external observer can understand them, while he himself never "reflects" on them. In other words, he thinks concretely, he deals with each problem in isolation and does not integrate his solutions by means of any general theories from which he could abstract a common principle. (SS:61)

Just as the concrete operations were derived from thinking about action, formal operations result from thinking about thinking. The individual can now perform "operations on operations" (PC:138), that is, he can reason without intuitive ties to content, forming arguments about possible truths and dealing with hypothetico-

deductive problems in a systematic and exhaustive way. Long courses of action can be rehearsed in the mind, and their consequences considered without the need to act out each step.

Formal reasoning becomes possible due to the synthesis of previous groupings into a fully associative combinatorial system which integrates the two fundamental forms of reversibility found in concrete algebraic and order structures.

> Henceforth every operation will at once be the inverse of another and the reciprocal of a third, which gives four transformations: direct, inverse, reciprocal, and the inverse of the reciprocal. . . . (PC:138-9)

This "INRC group" (identity, negation, reciprocity, correlativity) is the basis for a richer logic which includes such new operations as implication, disjunction, exclusion, incompatibility, etc. (PC: 136) Within the system Piaget identifies sixteen such "binary operations" which can now be systematically performed on all combinations of two values (p and $\overline{p}$) of each of two factors (p and q), resulting in four possible outcomes ($p + q$, $p + \overline{q}$, $\overline{p} + q$, $\overline{p} + \overline{q}$).

Liberation from observed content represents a significant accomodation, and a new level of decentration. Autoregulation by means of "pure" reason is carried out at a more stable level of organization, and is at the same time far more adaptive in its flexibility and efficiency. But egocentricity manifests itself, as it does at the beginning of each new level, in the form of "belief in the omnipotence of reflection." (SS:64)

> It is the metaphysical age <u>par excellence</u>; the self is strong enough to reconstruct the universe and big enough to

> incorporate it. . . . Equilibrium is attained when the adolescent understands that the proper function of reflection is not to contradict but to predict and interpret experience. This formal equilibrium surpasses by far the equilibrium of concrete thought because it not only encompasses the real world but also the undefined constructions of rational deduction and inner life. (SS:64)

Mastery of formal operations allows the individual to organize his beliefs in a given area into a closed theoretical system which accounts for all relevant possibilities and in which the concept of knowledge takes on new meaning. Given certain provisional truths, others can be seen to follow with logical necessity. This most difficult level of logic takes the longest to achieve, and development through at least three identifiable substages continues well into adulthood. (See the table following.) In most adults, full development is never completed.

Average ages at which the various levels of logical development typically appear are also given in the table which follows. It should be clearly understood, however, that the notion "stage follows age" does not apply in this case, as it does for physical maturation and perhaps for certain social dispositions (e.g. the "terrible twos" and the "noisy nines"). Logical stages do not appear simply with the passage of time, but are definitely influenced by experience as well as by individual differences in rates of growth. Since it is not possible to skip stages, but rather to progress from an already familiar way of thinking to the next most satisfactory level, the role of the teacher is to provide the proper experience at the proper time.

PIAGET'S ERAS AND STAGES OF LOGICAL AND COGNITIVE DEVELOPMENT[6]

ERA I — Sensorimotor Intelligence (age 0-2)

Stage 1: Reflex action.

Stage 2: Coordination of reflexes and sensorimotor repetition (primary circular reaction).

Stage 3: Activities to make interesting events in the environment reappear (secondary circular reaction).

Stage 4: Means/ends behavior and search for absent objects.

Stage 5: Experimental search for new means (tertiary circular reaction).

Stage 6: Use of imagery in insightful invention of new means and in recall of absent objects and events.

ERA II — Symbolic, Intuitive, or Prelogical Thought (age 2-5)

Inference is carried on through images and symbols which do not maintain logical relations or invariances with one another. "Magical thinking" in the sense of (a) confusion of apparent or imagined events with real events and objects and (b) confusion of perceptual appearances of qualitative and quantitative change with actual change.

ERA III — Concrete Operational Thought (age 6-10)

Inference carried on through system of classes, relations, and quantities maintaining logically invariant properties and which refer to concrete objects. These include such logical processes as (a) inclusion of lower-order classes in higher order classes; (b) transitive seriation (recognition that if $a > b$ and $b > c$, then $a > c$; (c) logical addition and multiplication of classes and quantities; (d) conservation of number, class membership, length, and mass under apparent change.

PIAGET'S ERAS AND STAGES OF LOGICAL AND COGNITIVE DEVELOPMENT

ERA III (Continued)

Substage 1: Formation of stable categorical classes.

Substage 2: Formation of quantitative and numerical relations of invariance.

ERA IV Formal Operational Thought (age 11 to adulthood)

Inferences through logical operations upon propositions or "operations upon operations." Reasoning about reasoning. Construction of systems of all possible relations or implications. Hypothetico-deductive isolation of variables and testing of hypotheses.

Substage 1: Formation of the inverse of the reciprocal. Capacity to form negative classes (for example, the class of all not-crows) and to see relations as simultaneously reciprocal (for example, to understand that liquid in a U-shaped tube holds an equal level because of counterbalanced pressures).

Substage 2: Capacity to order triads of propositions or relations (for example, to understand that if Bob is taller than Joe and Joe is shorter than Dick, then Joe is the shortest of the three).

Substage 3: True formal thought. Construction of all possible combinations of relations, systematic isolation of variables, and deductive hypothesis-testing.

Even when stages of development are appreciated, diagnosis is complicated by the fact that there are "all sorts of overlaps." (PP: 171) That the stages appear in an invariant sequence "does not exclude either telescoping or even momentary individual regressions." (PP:171) Furthermore, there are no clearcut boundaries between one level and another. The achievement of equilibrium for one phase marks the beginning of disequilibrium for the next. Defined levels are only idealizations of average potential abilities; transitions are gradual and continuous. Not only is there considerable flexibility in time of appearance among individuals, but there is also variation in respect to different content for the same individual - a phenomenon called "horizontal decalage." A person may be at different levels of development for different subject areas, or may show different levels of achievement in problems that involve the same kinds of operations.

A related concept, "vertical decalage," can be understood if we recall the process of reflective abstraction. Because the student is able to solve problems on the "plane of action" before he can do so verbally, and because his operations are logical before he can formulate their logic, the child often understands the subject without understanding the "lesson." (UI:14 and 96-104)

> Practical adaptation. . . far from being an application of conceptual knowledge, constitutes, on the contrary, the first stage of knowledge itself and the necessary condition of all subsequent reflexive knowledge. (PP:162)

That a person knows before he can demonstrate his knowledge is a warning against too-hasty evaluations, and that he learns by doing

reminds us of the importance of allowing the student to pursue internally motivated experiments. The notion of active learning does not necessarily imply a lot of motor activity, but rather engagement of the mind in performing an operation on familiar but problematic objects. (PP:163) By means of actual problem-solving, involving operations on increasingly abstract objects, we progress in the construction of symbolic, formal systems.

5. How the Development of Reason Can be Influenced

> . . . to understand is to discover, or reconstruct by rediscovery, and such conditions must be complied with if in the future individuals are to be formed who are capable of production and creativity and not simply repetition.
>
> Jean Piaget[7]

In the introduction, and again at the beginning of this chapter, I suggested that there have traditionally been two basic methods of influencing behavior: training and instruction. Generally speaking, training is the more direct method, aimed at developing skills and habits through practice. The teacher may simply serve as a model for imitation, or he may deliberately intervene in the usual trial-and-error process by reinforcing the desired performance, helping to produce a certain association of thoughts and/or movements. When the student is able and willing to carry out verbal commands, instruction may be used as an adjunct to training, either as a cue for immediate response or in the form of a general rule to

be followed in response to specified conditions.

Instruction need not take the form of imperatives in order to influence behavior. A teacher can do so more effectively, and with more lasting results, by presenting ideas which become incorporated into the belief system governing the actions of the student. In altering the content of thought, instruction may not only influence overt behavior, but may sometimes also stimulate the practice of thinking. Used in this way, the communication of ideas can again be seen as a training technique - in this case for the training of the mind. Ultimately, when used as a means of presenting ideas to be reflected upon by a practiced mind, instruction contributes to knowledge.

The application of these methods to both learning and development has already been discussed, especially in Section 2 of this chapter. Badly used, instruction does no more than clutter the mind with the transient raw materials of knowledge. Similarly, training, when undertaken merely to elicit an automatic response, has little significant effect. Piaget rejects the associationist view of learning

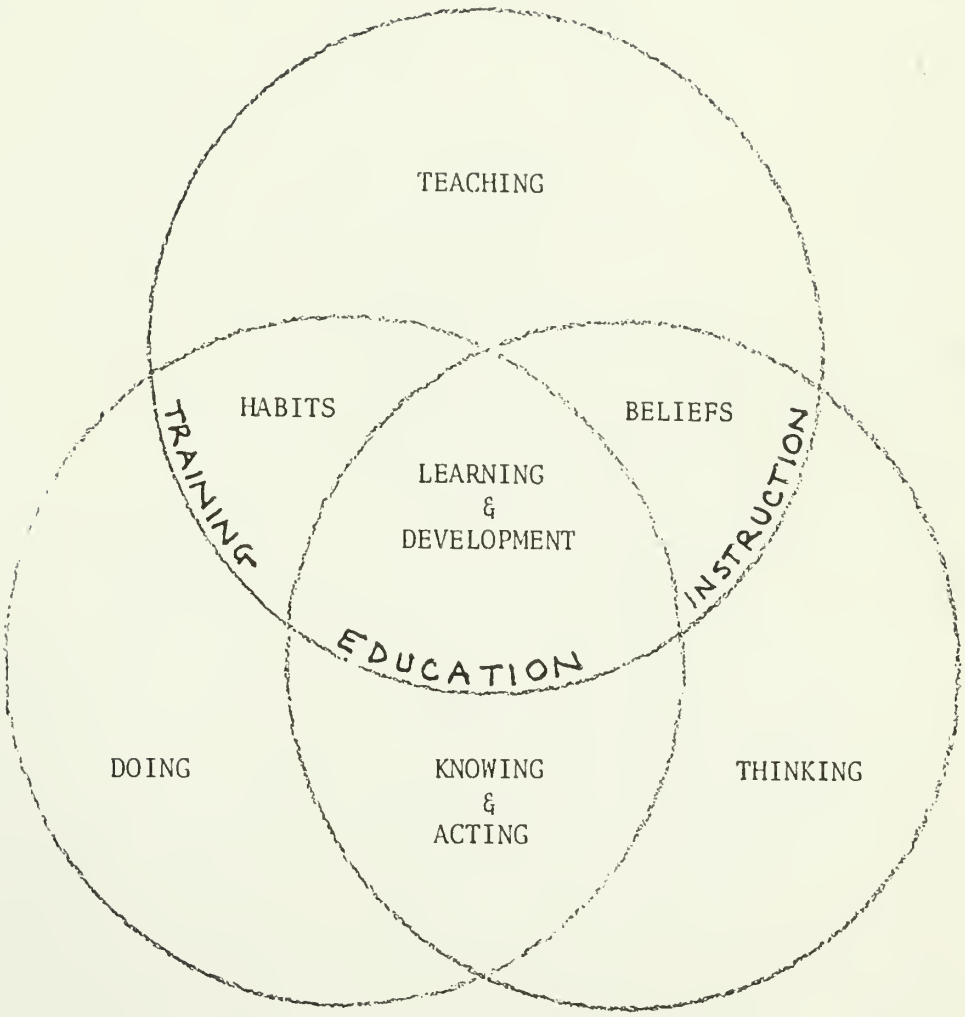
> . . . according to which knowledge. . . results from acquired habits without there being any internal activity which would constitute intelligence as such to condition those acquisitions. (OI:14)

Only when the student, through his own rational activity, organizes his ideas in a stable, systematic way can we say that true learning has occurred. Both training and instruction, however, can be used to supply the conditions under which the student will take the

necessary initiative. If the ideas that prompt a conceptual reorganization have been received by instruction, or abstracted from behavior patterns developed through training, then he has also been taught - and not simply taught, but genuinely educated. What makes the difference is not that any special method has been used, but that the same fundamental methods have been used in a special way, with an understanding of both the individual child and the universal way in which knowledge develops.

The schema on the following page seems to me a useful way of representing the relationships between ways of teaching and the elements of learning. Here artificially separated, the activities of thinking and doing must be integrated in order for learning to take place. While each may be influenced independently, the results remain superficial unless they can be assimilated into existing patterns of thought and behavior.

In terms of method, teaching logico-mathematical knowledge is no different from teaching experimental knowledge. In both cases, the child needs the opportunity to stabilize his new learning by using it in various ways and, at the proper time, to expand it by meeting appropriate challenges. At each stage, his existing level of development must be respected, so that he is fully in control of any change. But while it is easy for a teacher to accept that certain concepts may not yet be present, it is more difficult to understand that some are there in different forms. We cannot assume that words have the same meaning for the child as they do for adults, or


TEACHING
HABITS
BELIEFS
TRAINING
INSTRUCTION
LEARNING
&
DEVELOPMENT
EDUCATION
DOING
KNOWING
&
ACTING
THINKING

that ways of thinking which seem to us naive, incomplete, and even contradictory are not coherent and satisfying from his point of view. (PP:152-3,164-5)

Clearly it is not enough to know one's subject. The success of peer teaching is due to the fact that other students only slightly more advanced can still remember what it was like not to have grasped the lesson. Furthermore, the young teacher profits from the opportunity to consolidate his recent discoveries. For the adult teacher, it is more difficult.

> . . . though these views are much more widely accepted today than heretofore, no great progress has been made in putting them into practice, simply because the active methods are much more difficult to employ than our current receptive methods. In the first place, they require a much more varied and much more concentrated kind of work from the teacher. . . . Secondly. . . . without an adequate knowledge of child psychology. . . the teacher cannot properly understand the students' spontaneous procedures, and therefore fails to take advantage of reactions that appear to him quite insignificant and a mere waste of time. . . . The best methods are also the most difficult ones: it would be impossible to employ a Socratic method without having first acquired some of Socrates' qualities, the first of which would have to be a certain respect for intelligence in the process of development. (PP:69)

Even when the relevant pedagogic principles are understood, there is still the matter of evaluating the status of each student. For this, traditional methods are inadequate.

> The two basic faults of the examination are that generally it does not give objective results, and it becomes, fatally, an end in itself. . . The school examination is not objective . . . mostly because it depends on memory more than on the constructive capabilities of the student. . . . The surest method of diagnosis and of prognosis is certainly that based on the observation of students and their real work. (UI:74-77)

What is most significant here is not the answer to a problem, but

"To the adult mind this room appears disorganized, but to the mind of a child everything is logically arranged for use."

Drawing by G. Emerson; ©1976
Saturday Review/World, Inc. [8]

the way in which the student arrives at the answer he gives.

The rewards for mastery of the "active methods" more than compensate for the investment. For one thing, there are not the usual problems of maintaining interest, for while it is important to remember that the child cares little about the answers to other people's questions, and moreover has his own criterion of what constitutes a "right" answer, he is vitally interested in his own sense of equilibrium. The smaller the child, the less likely he is to be capable of "heteronomous activity" because of his still undeveloped capacity for accomodation. (PP:159) However, when an object is assimilable into his scheme, it is spontaneously seized upon.

> Interest is nothing other, in effect, than the dynamic aspect of assimilation. As Dewey demonstrated with such profundity, true interest appears when the self identifies itself with ideas or objects, when it finds in them a means of expression and they become a necessary form of fuel for its activity. (PP:158-9)

Interest is not inherent in any object, but in the use that can be made of it. Similarly, the "work" of accomodation is undertaken willingly when new objects are introduced that bear on a situation seen as problematic by the child. Following the "moderate novelty" principle, the teacher can sustain interest and growth in a way that is personal but not private. When the form of affectivity properly associated with any activity is present - i.e. internal motivation - it is not necessary to manipulate the child by means of feelings connected with external evaluations and the giving and withholding

of rewards. (SS:33-34) Reinforcement of success which is also seen as personal is far more valuable in promoting development than is praise for conformity to standards which are meaningless to the student.

Attention to the present concerns of the child is as important in determining the optimum rate of change as it is in choosing the content of the lesson. From the fact that progress through identifiable stages can be speeded up, it does not follow that this is desirable. At each level, the child needs the opportunity to consolidate and use his new learning, until he himself suspects its inadequacy and eventually recognizes the need for restructuring.

> . . . while everything warns against artificially rushing, and advises the dedicating of this beginning period, precious to everyone, to the establishment of the most solid foundations possible. . . the multiple activities that are necessary . . . seem to parents like a luxury and a waste of time, simply delaying that solemn moment. . . when the neophyte will know how to read and count up to 20! And so it goes at each new stage. . . . (UI:82)

The most important implication of Piaget's theory for educators is not that development can be hurried, but that it can be completed.

Although autonomous intellectual progress is not always obvious, it is far more stable than results obtained by instruction which provides answers without problems or by training which offers practice without the opportunity for reflection. The freedom of activity essential to this method is not to be confused with self-indulgence. Far from denying the concept of accountability, progressive education encourages the individual to understand its meaning by learning first of all to be accountable to himself.

Without such attention to building the particular cognitive structure which makes success meaningful, we deprive the child of power and freedom along with objectivity and social awareness. By developing reason to its fullest potential, the educator most effectively responds to humanistic concerns as well as to the most rigorous standards of intellectual excellence.

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CHAPTER III

REASON IS NECESSARY FOR VIRTUE

> . . . lack of intellectual honesty may be of a certain practical use (it is usually more convenient to be able to contradict oneself) and, when scruples about truth finally triumph, it is certainly not because there has been competition and selection in terms of utility alone but rather because of certain choices dictated by the internal organization of thought.
>
> Jean Piaget[1]

1. Recognizing Virtue

Virtue, to the extent that it exists, makes its appearance as a property of persons. Moral virtue, however, differs from the usual collection of desirable character traits - tagged by Kohlberg the "bag of virtues" (ME:59-69) - in that it depends upon motive rather than manner. Terrible consequences can be brought about with loyalty, steadfastness, efficiency, impartiality. Although such qualities are useful, and often necessary, in the service of moral virtue, we should not be misled into thinking that virtue is constituted by them.

Ways of behaving, moreover, can be variously interpreted: stubbornness may be mistaken for persistence, heedlessness for courage, flattery for consideration. Moral virtue, on the other hand, should be objectively identifiable, irrespective of personality. If this is possible, it is because one set of criteria for such judgment is to be found, not in the peculiarities of the person, but in those

of his individual actions. Each action can be isolated, as it were - judged independently qua event, then reattributed to an agent, whose moral worth in each instance rests partly upon that of his action. A good person is one who actually succeeds in doing the right thing. His moral virtue is derived, not from the style in which he performs a right action, but from the fact that he performs it.

There are two kinds of judgments to be made in order to determine whether an instance of right action has occurred. One concerns the moral value of the event in question: does it conform to a universal standard of right? Would an impartial, omniscient observer, aware of all its consequences, choose to have it happen again? The other has to do with its status as an action: can this kind of event be attributed in this way to the person instrumental in bringing it about? The answer depends upon his reasons for acting at all, and here we may have to rely to some extent on the agent's willingness and ability to make them explicit. But we need not do so exclusively; while not immediately apparent, it can be argued that intentions, as much as physical events, can be identified by any thoughtful observer.[2]

Because we must depend upon empirical judgments in both cases, we cannot be certain of either the moral worth of an actual event or the presence of a corresponding good intention. Yet both kinds of decisions can be made objectively, using criteria which can be shared. In order to do so we need to form not only a theory of action, but also a theory of right action that is universally

acceptable. Contrary to what we might expect, this can be accomplished; where differences occur, their source is not in any fundamental disagreement about the kinds of results we consider desirable, but rather about the reasons why they are desirable. As reason develops, however, we more nearly approach a common principle by which to judge whether our common values are being realized. If mature practical reason were universally employed, actions believed to conform to that standard would be universally recognized as right and those which violate it as wrong. Our remaining differences would then be due either to our failure to have reasoned at all in a given instance, or more likely to the inaccessibility of the relevant information.

2. Right Action

> . . . all maxims are repudiated which cannot accord with the will's own enactment of universal law. The will is therefore not merely subject to the law, but is so subject that it must be considered as also making the law for itself and precisely on this account as first of all subject to the law (of which it can regard itself as the author).
>
> Immanuel Kant[3]

We can probably agree that in order to be right an action must at least have good results. It is not enough that it be done from kindness, or the desire to produce good; it must really benefit someone. But no action falls outside this classification, since all are events deliberately brought about, presumably for the purpose

of advancing someone's interest. If it should turn out that not all the effects of an action meet our expectations, the mere fact that it occurs always has at least the immediate benefit of fulfilling some intention.

What is more interesting is that we produce good consequences at a price, paid always by ourselves, and frequently by others as well. This need not mean that the necessary means are disagreeable, but only that they demand an investment of time and effort, replacing other possible good-producing actions. Thus every actuality we bring about contains some balance of the desirable and the undesirable. One must be weighed against the other. The action selected is right when it proves successful: it has the good results we expect, and no regrettable ones. We have judged correctly that this new situation is at least as beneficial as any alternative we might have chosen.

Prudential rules, the results of a sort of cost-benefit analysis, help guide us in our choices among competing benefits insofar as we seek to maintain or promote our particular welfare. As skill, opportunity, and imagination increase, we tend to develop a system of preferences involving a hierarchical arrangement of aims, varying in duration and intensity, and interconnected by causal relationships. This spares us from making calculations and choices at every turn, and from losing valuable opportunities. When two actions are found to be incompatible, we are usually prepared to sacrifice one for the other. But prudential norms are always subject to revision in

response to the contingencies of experience. It is our primary, ongoing task to maintain a realistic system of purposes, organized in such a way that we do not undermine our own interests either by contradicting ourselves or by making plans based upon expectations that cannot be realized.

Not the least part of keeping both an internal balance and a stable relationship to the environment is learning to anticipate the actions of other agents. Because each pursues his welfare in his own way, and furthermore may change his methods, it is difficult for us either to influence others or to accomodate our actions to theirs. But to what extent ought we to do either? Here virtue, as much as powerlessness or ignorance, constrains us in our choice of action. We take account of the sometimes conflicting interests of others, not in order to avoid incurring their opposition, or to discover how they can be manipulated, but in recognition of their right to experience good results.

Although consideration for the wishes of others may impose further limitations on the range of right actions available to us, the institution of rules of consideration can also be recognized as a benefit worth the sacrifice. We recognize our interdependency, and make a personal investment in seeing justice perpetuated. While we may not adopt these rules only or even primarily out of self-interest, they are nevertheless always seen by us as compatible with our ultimate interest. Virtue is not the antithesis of prudence, but simply its generalization. Prudence forbids us to harm ourselves; morality

forbids us (and others) to harm anyone (including us). Prudentially right actions produce particular benefits chosen as preferable to others under a certain set of conditions, thus contributing to the internal harmony of individual systems. Morally right actions are beneficial under any conditions in that they maintain a stable social environment in which such choices can best be made and carried out.

There is no single time at which a clear, universal criterion of justice becomes apparent. The notion cannot even begin to occur to us until we have formed a realistic concept of self as distinct from other. By reasoning about our experience, we must first develop what Piaget calls "the scheme of the permanent object." Then, at first, other persons are seen merely as objects, and valued to the extent that they are considered instrumental to us. On the other hand, even inanimate objects may be invested with subjectivity. Our own preferences are falsely attributed to others, and our sympathies inappropriately spent. The concept of personhood, like any concept, is only gradually elaborated as we take note of experienced similarities and differences. We make attempts at identification, test reality, and, ideally, adjust our ideas accordingly until we can understand that we are similar to all others in some respects and to certain others in certain respects, and that in some ways each of us is unique.

The general assumption with which we begin is that we ourselves, and then those with whom we identify as like ourselves, deserve fair treatment. The good is whatever value is perceived as

held in common. Hence, to the extent that we identify with only limited groups, we make different assumptions not only about which individuals qualify for consideration but about what constitutes it. As we are physically able to expand our associations, however, and at the same time become intellectually able to accomodate greater diversity, the group extends to include all possible people, known or unknown. At the same time, our idea of what is right for everybody in our group is narrowed and refined. When we ourselves finally come to value rational choice, we can understand that this is the only value we can validly attribute to any person, as well as the only good that can, in practice, be "distributed" equitably. The opportunity to choose freely is one that can be claimed by every person by virtue of his personhood, even though the ability to make wise use of this opportunity may be present only in potential form.

The universal principle which affirms the freedom of each person to take responsibility for his own course of conduct - "maximum liberty compatible with the like liberty of others" (CD:673) - imposes no particular rules or values. Rather, it allows each of us to adopt for ourselves any consistent set of values we choose, and then demands that we act accordingly. It seems to me that this is the one standard of conduct to which we can all be legitimately held, whether or not we have explicitly formulated or committed ourselves to it.

The implication of this principle is that no action ought to interfere with any person's effort to maintain the difficult

prudential balance we have described. This prohibition includes the act of legislating to others without their consent, for there is no kind of action which may not under certain circumstances be harmful to someone, and none which is always beneficial. Just to the extent that a choice made by an individual limits the choices of others can we intervene without his consent to limit his action.

This is in no way to suggest that everyone should be able to do whatever he desires, but only that he should not be compelled, except by his own choice, to do something other than what he desires. The power everyone claims for himself whenever he acts - namely, that of doing only as he wills - is also his right. It should be possible, at least, for him to deliberate, to legislate to himself, and to follow his own conviction that the action he performs is more desirable than any he forgoes. The rule can be stated as simply as "let live," provided we understand "live" as including ". . . in a way that is considered worthwhile by the person in question." (Some would go so far as to extend this "right" to all natural phenomena. I think the decision might well be justified by prudence, along with a certain respect - whether based on fear or admiration - for the integrity even of inanimate systems, but that the moral "right" must be limited to consideration for the dignity of thinking beings.)

I do not mean that virtue requires, or even allows, a passive, laissez-faire attitude. For one thing, I am constantly obliged to safeguard, by exercising it, my own right to take responsibility

for the conduct of my life - remembering that I myself am to be counted as a representative of human dignity, and that self-effacing submission, though sometimes more convenient than protest, serves nothing but oppression. At the same time, I must avoid infringing upon the dignity of others, either by doing them outright harm or by "helping" them without their prior consent.

Neither does the moral law exempt me from carrying out any substantive obligations. Although it dictates none, it requires me to keep any I have voluntarily made. The greater part of allowing others to live and plan freely is not in leaving them alone, but in letting them count on the kinds of behavior they have come to expect of us, or at least due warning to prepare for change. Although I need not cooperate with others, I will probably choose to do so by means of both personal and social contracts. When I have some purpose in common with others, we agree upon certain codes of conduct believed to be conducive to that purpose and consistent with our respective interests. Now we are both morally obligated to behave in <u>particular</u> ways, not because there is necessarily any inherent good in such behavior, but because we have promised. In the future, my private goals must be chosen in such a way that they are consistent, not only with each other, but with my publicly expressed intentions. These go beyond my explicit commitments, I think, to include the expectations I lead people to have of me through my behavior.

Foremost among our rules will be those for the keeping of

promises - i.e. for acting as though our intentions were unchanged. Should I decide that a different course of action is better for me and wish to be released from a commitment, I must give fair notice, or else good cause why I could not do so, and be prepared to pay whatever penalty might be agreed upon as a reasonable compensation for non-compliance. If everyone is clear about his particular interest and the available means, then different arrangements can usually be made which are no worse for those who were counting on something from me, and no worse according to _their_ judgment. If no such agreement can be reached, then I remain morally bound by my original promise, however regrettable, and what might have been a pleasure now must be done _only_ for the sake of duty.

There are times, however, when I _must_ break certain promises - not because I am physically prevented from carrying them out, and certainly not because it is inconvenient or even a hardship for me to do so, but because I find that I have made a pact with the devil - that I was deceived, not simply about my preferences, but about what I was really conceding. In the light of new evidence, I simply cannot continue to intend as I thought I would, even for the sake of duty. I now have reason to believe that to carry out my original agreement, regardless of the prudential value of doing so, would cause gratuitous harm to someone. If I am committed to the moral law as the only one by which I am categorically bound, then I am compelled by reason to consider myself released from performing the action to which I now see that I have wrongly obligated myself. I

am in fact forbidden to perform that action, no matter what punishment there may be for my failure. The one assumption I am free to make, with or without the concurrence of my collaborators, is that obedience to the moral law has precedence over more limited forms of justice.

Since I myself am one person whose will is being violated by an agreement I have made, then in acting to protect my moral integrity by breaking that agreement I am simultaneously advancing my personal interest. I may appear to be acting only for that reason, just as I may appear to be doing in keeping a commitment for the sake of duty. Nevertheless, I have no choice. To carry out action A, upon which we have agreed, without being able to intend A would be to extinguish myself as an agent. To continue to intend not-A without being able to carry it out is more than I am psychologically capable of doing. If it is not impossible for us to intend not to intend, we certainly cannot do so more than once, and in any case it is more than can be expected of us. While there may be times for having absolute faith in the judgment of others, we would have no way of deciding in whom to place such trust if we ourselves never judged at all. To surrender this freedom would be to reject our moral responsibility.

When it is necessary to make a decision of this kind unilaterally, I think we may be excused from the usual procedure of giving fair notice if it must be done at an unfair cost to ourselves. When we do so, it is often because we are compelled by the value we place

on our integrity and reputation; to misrepresent ourselves by appearing to condone something we do not would be an intolerable deceit. Beyond this, we may go out of our way to make our situation a public example, in order to help others avoid suffering a similar injustice. When it seems clear that no one will be convinced, however, I doubt that we are required to martyr ourselves for such a purpose.

Keeping promises is one specific kind of action usually agreed upon as a means of maintaining an equitable social balance. Since it is likely that every action will make a difference to persons other than ourselves, hence that none is to be undertaken without consideration of their choice in the matter, such social contracts provide the most direct means of assuring their consent. Normally we ask permission before performing actions of probable consequence to others, and when we neglect to do so they are expected to speak up. Yet we cannot always consult those affected by our actions, or even know who they are. Because of temporal limitations, or because a person for whose welfare we are legitimately responsible is clearly unable to know what is good for him, we are sometimes forced to estimate what someone would choose to have done for him, or would consent to have us do for ourselves, if he shared our beliefs about our circumstances and his own. For this reason we tend to rely on the normative rules developed over time, and in this way prudential judgments enter into moral ones. We must take considerable care, however, not to confuse one with the other, or to follow blindly, on our own behalf or another's, any temporal rule which might

interfere with individual freedom. In the last analysis, we ourselves have to accept this freedom, and the corresponding obligation to justify our choices of action.

We are often mistaken about the kinds of results others want, and almost as often about what we want. We make wrong judgments as to who is capable of deciding what is truly in his own interest. Such mistakes can sometimes be corrected, if we take seriously the expressed opinions of those affected, or of those in a better position to speak for them. Unfortunately, not all of our decisions can be corrected or vindicated by the judgment of others or even by the evidence of time. Even if everyone could agree not only upon a principle of justice, but about the kinds of actions that would be consistent with that principle in every case, we would still be unable to carry out our good intentions with full confidence that what we are in fact doing is the kind of thing we know we must. To judge a contemplated change, most of whose ramifications are not apparent and some of which may never be, in order to decide whether we should be willing to call this change our action, we must rely on beliefs based on incomplete evidence. Even when an action has been performed we cannot claim that it is right. We can, however, claim that to the best of our knowledge it is not wrong. To support and expand this knowledge, we can educate each other about our experiences, and then use our reason.

3. Good Intentions

> Freedom. . . is not the absence of causation. Negatively, freedom is the absence of, or independence from, foreign or external determination. Positively, freedom is autonomy, or self-determination.
>
> Robert Paul Wolff[4]

If, as we have claimed, moral judgments about persons depend partly upon the good or bad consequences of their actions, then on this account alone we are always prevented from knowing that someone has acted virtuously - not because we do not know that he caused a particular event, or even his reasons for doing so, but because we cannot know all the consequences of any event.

In addition, in order to decide whether someone has acted virtuously, we must decide whether the event in question can really be called his action. For even if we knew that a person's behavior were just in every way, this would not be enough to make him worthy of praise. Virtue can be confirmed only if the desirable result is not only caused but intended. When that is the case, then the person who so intends is responsible not merely as an instrument but as an initiator, or agent. The event can be called his action, and judged right or wrong according to the given standard. Even if there is no such thing as 'free will,' and we are never more than instruments, the fact that we consent to be instrumental in bringing about foreseeable events, or in failing to cause or prevent them when that

seems to be in our power, makes us as responsible as if we were entirely free to choose what would occur.

Because it is so apparent that responsibility depends upon what we believe we are doing, it is not difficult to think of the 'acts of will' that bring about voluntary movements as our real actions, and all that follows as something beyond our control once we have unleashed the cause.[5] But it is the actual consequences of our movements that affect others, and to the extent that they can be predicted by us, they can also be considered "ours." For this reason, and because it is closer to familiar usage, I have used the term "action" to refer to physical behavior - but only to physical behavior of a certain kind: that for which there is a corresponding intention.

I shall try to clarify what I mean by both "action" and "intention," and then consider different cases in which a person appears to be morally right or wrong, and whether in each kind of situation he deserves praise or blame. I think we will find that it is not possible to perform a wrong action - i.e. to do the wrong thing knowingly - but only to perform an action with bad consequences, and furthermore that when this occurs it can always be traced to ignorance. The question of assigning blame then turns on the issue of whether we can be blamed for our ignorance, and my own opinion is that education is always a more appropriate and useful response. (Learning does not preclude punishment, and remorse for having failed to learn sooner may in fact constitute it.) Similarly,

moral praise is due when an action not only conforms to the moral standard, but when it is done because the agent believes it conforms (if not necessarily for only that reason). Again, since virtue really is its own reward, praise is superfluous, though not unwelcome.

By civil law, a person is not held responsible for the things he does without the ability to know what he is doing - provided either he has no control over this ability, or else it was reasonable for him to have given it up. The presence of either of these conditions, of course, is debatable, and is at the heart of many of our perplexities regarding guilt and innocence. But even on the assumption that a person is conscious, of sound mind, etc., and furthermore has admitted to having acted in such a way as to cause a given event, it is still not clear to what extent he can be held responsible for any of its effects and whether he deserves the prescribed rewards or penalties for them. The knowledge that he is in such a state as to be able to act in some way is no assurance that he is able to act in the right way. Even when he understands and accepts the right rule, he may be unable to make the relevant connections between his action as it is conceived by him and the way in which the very same behavior could be conceived. Because of the limitations of our particular experience, it frequently happens that we act without full knowledge of what we are doing.

The greater part of knowing what we are doing is in understanding the causal chain of events associated with some movement we choose to make, for that movement can be referred to by many

descriptions, according to its causes and consequences.[6] Under certain descriptions, it can be called an action; under others, merely behavior. In answering the phone, I am also leaving my dinner, causing the ringing to stop, letting you know that I am home (as I promised I would be), making a fingerprint on the receiver, preventing you from catching cold by going out in a storm to find me, learning that I have won the sweepstakes, and stepping on the cat - and countless other things, only some of which I am aware, and only some of which I meant to do. Although only one of these descriptions may apply to my uppermost purpose in making certain movements, it seems to me that any I foresaw, or could immediately have acknowledged if questioned, can also be said to describe an action of mine, but that those I failed to take into account, whether they come as welcome or unwelcome surprises or remain unnoticed, describe only causally related events for which I deserve neither credit nor blame.

Action, then, is a species of behavior, distinguished by the fact that it was intended, or preconceived as worth doing, given the right opportunity. To intend a given action A, it seems to me, is not only to conceive it as desirable (or to have a "pro attitude" toward it[7]), but at least to choose it as more desirable than the alternative not-A. In some minimal way, an intentional action is thus also deliberate, and there has been deliberation not only about the technical possibility of carrying it out, but about its value. The kinds of intentions to which we are more or less

committed, including the intention to do what we believe is morally right, make up the system of purposes mentioned earlier, and are kept in trust, so to speak, to be drawn upon as the appropriate occasions arise.

When we act, we recognize both an intention, or the idea of an action judged as preferred, and the idea of its immediate realization, judged as possible. If we have only one such intention in mind, and can think of the corresponding action under only one description, then nothing more is required for execution than this awareness, and the simple act of reason by which we relate intention to opportunity.[8] Barring unforeseen intervention, and with only a little skill, we are able to begin acting at a very early age. But it is difficult to imagine such single-mindedness. Very soon, we have a number of intentions and learn that if we wish to avoid unexpected consequences it is not enough to acknowledge opportunity. We must also decide whether it is appropriate - i.e. consistent with our other intentions - to perform a given action at <u>this</u> opportunity. The intention that is carried out must have been evaluated and confirmed as not only more desirable than not-A, for example, but as no less desirable than any of our growing repertoire of intentions that might have been acted upon instead. As we begin to understand causal connections, we learn to evaluate by whatever standard we hold each of the foreseeable consequences of carrying out a given intention.

Until we have personally adopted a universal moral standard, we must rely for our criteria of right action on the rules of those

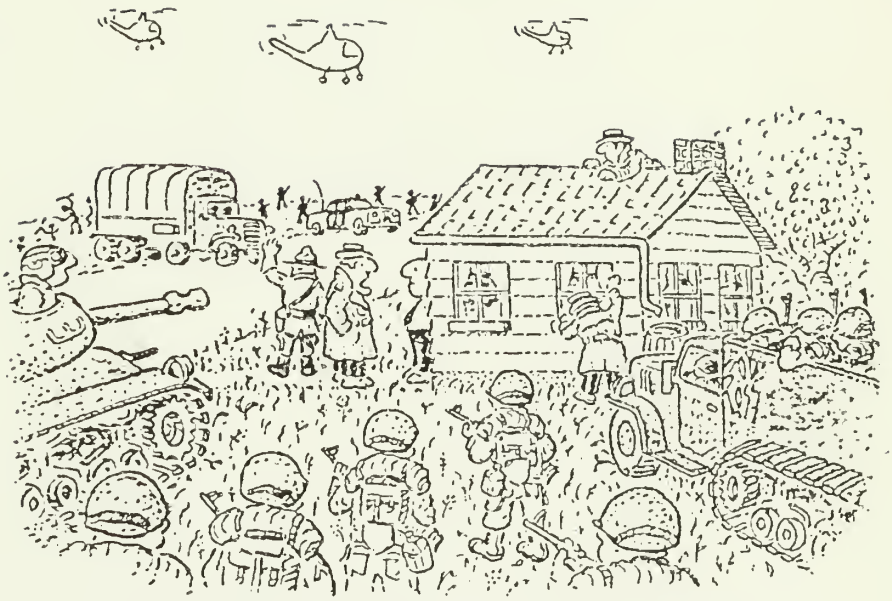
we respect. Physical and social dependence lead us to adopt, at least temporarily, a "morality of obedience."

> . . . the formation of the sense of obligation is subject to two conditions: (1) the intervention of orders given from the outside, that is, orders of indeterminate time span (don't tell lies, etc.); and (2) the acceptance of these orders, which presupposes the existence of a sentiment sui generis on the part of the person who receives the order toward the person who gives it. . . .
>
> According to Bovet,[9] this sentiment is one of respect and consists of affection and fear. Affection alone could not suffice to produce obligation, and fear alone provokes only a physical or self-interested submission, but respect involves both affection and the fear associated with the position of the inferior in relation to the superior, and therefore suffices to determine the acceptance of orders and consequently the sense of obligation. (PC:123)

To the extent possible, such "unilateral respect" is expressed in imitation. Beyond this point, "the self of the parents. . . becomes an 'ideal self' which is a source of coercive models and of moral conscience." (PC:122-3)

One problem inherent in this stage of heteronomy - the fact that "the power of the orders is initially dependent upon the physical presence of the person who gives them" - is overcome by identification with the authority figure. But this identification only aggravates the more fundamental problem - that of the impossibility of conforming to the ideal - and leads to dissociation of the elements of respect, typically causing guilt, anxiety, etc. (PC:124-5)

Provided the child can overcome these ambivalences, he enters the substage of moral realism, a preoperatory structure "according to which obligations and values are determined by the law or the



"We understand you tore the little tag off your mattress."

Drawing by Robert P. Ross; © 1975
Saturday Review/World, Inc. 10

order itself, independent of intentions and relationships." Authority retains its concrete quality, however. An order from the authority figure is taken very literally and is considered binding even when waived by that person. (PC:125-6)

Moral realism next leads to objective responsibility, whereby

> . . . an act is evaluated in terms of the degree to which it conforms to the law rather than with reference to whether there is malicious intent to violate the law or whether the intent is good but in involuntary conflict with the law. (PC:126)

Under this criterion, for example,

> . . . a lie appears to be serious not to the degree that it corresponds to the intent to deceive, but to the degree that it differs materially from the objective truth. (PC:126)

Finally, the child begins to move into the stage of moral autonomy.[11] Whereas he used to regard rules as "sacred" and "of transcendent origin," he now comes to see them as "the result of agreement among contemporaries" and subject to change by consensus. This notion is dependent upon the development of mutual (as opposed to "unilateral") respect. A sense of reciprocity comes about as a result of social cooperation, most particularly with one's peers, and "is often acquired at the expense of the parents." (PC:127) The idea of mutual responsibility also appears to depend upon the formation of the concrete operatory structures.

> As early as seven or eight and increasingly thereafter, justice prevails over obedience itself and becomes a central norm, equivalent in the affective realm to the norms of coherence in the realm of the cognitive operations. (Indeed, on the level of cooperation and mutual respect there is a striking parallelism between these operations and the structuration of moral values.) (PC:127)

It is at this point that a child can begin to respect an authority by virtue of his fairness, or the degree to which he represents the moral law, rather than simply because of his personal power to do direct good or harm. Children who have reached the level of concrete operations select "leaders" from among their colleagues partially on the basis of such earned respect, and not so much, for example, on account of size, appearance, skill, or the opinions of others. (PC:128) A person chosen as a moral authority by reason of this more relevant criterion will be willingly emulated, and if the judgment by which he was selected was correct, he will enhance development by providing a realistic model. If the judgment was faulty, he can more easily be rejected than can a parent or other "imposed" authority, and the rejection in itself constitutes another step in moral development.

Even if there is no person who commands such respect, by virtue of either position or merit, we can at the very least form a concept of right action in terms of our individual interests. (One suspects that in cases where we are dependent upon a strong but conflicting will, we might do better to be without emotional attachments.) By conforming to practical and political codes, if only for the prudential value of doing so, we can come to appreciate (or mistrust) the general value of rules; we learn how to apply them and, eventually, to make our own. And although it is more difficult under these conditions, we can probably develop the concept of equal consideration in a purely intellectual way, whether or not we have

ever met anyone who seems to deserve this right.

The main point is this: only when we have learned, in one way or another, to trust and value our own judgment can we recognize the universality of human agency. And only then can we appreciate the significance of the principle which protects this universal good.

Until we are in this position, we cannot be held responsible either for failing to act for the sake of the moral law or for deliberately violating it, but only for performing actions whose consequences fail to conform to that law. Such actions cannot be judged morally wrong except by others, and cannot be intended as morally wrong actions. We may, of course, break every kind of social law quite deliberately, but our doing so is always supported by some quasi-moral justification we believe is sound. If our actions are to be influenced, it cannot be done by appealing to a moral principle we do not understand, and it cannot be done permanently by political sanctions. Although we intend to do "the right thing," our interpretation of what is the right thing is not entirely free of ambiguity. Until we ourselves make the correct interpretation, we can hardly avoid moral error.

When Lt. Calley killed children who had not contracted to fight, he could not have thought of them as responsible agents like himself, since it is questionable whether he considered himself responsible except to his commander. He may have believed he was doing a right thing in obeying the orders of a superior, even if the action was not one he himself preferred. When Lord Amherst sent

smallpox-infested blankets to the Indians, under no orders to do so but his own, he may not have considered himself bound by any obligation other than that of self-interest. If on the other hand he recognized the moral law, he could not have considered his particular cause exempt. More likely, he mistakenly believed that his enemy did not fall under the same law, hence did not deserve the same kind of consideration he would have shown other gentlemen "of his kind."

Although these seem to be clear instances of morally wrong behavior, it does not seem that they can be called actions. Lt. Calley performed the action of carrying out his duty to a legitimate authority. Lord Amherst performed the action of acquiring territory, as he was no doubt charged to do, by being a clever tactician. Neither kind of action can be called morally wrong in itself, and I doubt that either was understood as a means of doing moral harm. Although each agent failed to evaluate his behavior and its consequences by a standard that supersedes any obligation to particular individuals, each could call his action right if he believed morality meant only conformity to the expectations of others. While we may feel contempt for people who behave in what we are able to see as ignorant or treacherous ways, we cannot call them bad, but only deficient in virtue.

As for those of us who are both rational and either experienced or imaginative enough to understand the moral law, the wrong we bring about is due to more particular kinds of ignorance. We make mistakes that harm others in the same way that we mistakenly

harm ourselves, and having learned the effects of our actions we are as eager to avoid repeating them, and to make amends if we can. (This is not to deny that at times, perhaps because of an important emotional investment or perhaps because of ordinary cowardice, we almost deliberately blind ourselves to knowledge of effects that are quite evident to others. This need not be attributed to selfishness or maliciousness, however; we do the same sort of thing in breaking rules of prudence. In either case, the ultimate effect of attempting to "bend" reality to our immediate needs is always self-destructive.)

Whether I am acting specifically for the sake of moral duty, or performing an action I believe to be both prudentially desirable and morally obligatory, or simply doing what I want in the belief that it is permissible in both respects, I can easily bring about a wrong event without intending to do something that is wrong. I may be blamed for not having known better, but not for being evil. Although my pride is at stake, in that I have either miscalculated or neglected to calculate at all, my moral education should be relatively simple in that it is only a matter of learning to exercise more care, or perhaps more courage, rather than of grasping the principle of autonomy.

When I act with an intention that is not only good as far as I can determine, but acceptable to others, I may still do them harm either by failing to accomplish what I intend or by causing something I did not. Because of my ineptness, I give you bad advice, harming you as surely as if I had deliberately betrayed your confidence in

me. At great sacrifice to myself, I agree to give a meal to a starving man and do so only to discover that he is allergic to it. I promise my father that I will save the homestead and take care of him in his last years, but while I am away seeking my fortune he suddenly falls sick and dies unattended, and the property is sold at auction. Tragedies great and small, caused by errors of both commission and omission, can be traced to unforeseen, and often unforeseeable, circumstances. Such mistakes are easier to excuse than those of the non-repentant, and all the more so when they are done with the consent and even gratitude of those being harmed. Our forgiveness seems to be proportional to the extent to which we ourselves consider the intended purpose worthwhile, and to which we ourselves could not have predicted the results under the same conditions. Yet the underlying reason for the wrong behavior is the same in both kinds of cases; where there is no remorse, it is because ordinary, empirical ignorance is compounded by ignorance of the moral law.

We are morally blameworthy only if we knowingly do what is morally wrong. In order to do so, we would have to act autonomously in deliberate violation of the principle of universal autonomy. Unless we failed to count someone other than ourselves as an agent, it does not appear we could do such a thing. While it is not irrational to make such an exclusion, provided we appeal only to logic, it is nevertheless contrary to what logic tells us to conclude about the evidence of our senses. To act on such a false belief would not

be to act knowingly.

Whether or not we ourselves are able to recognize the correct moral standard or make the correct judgment about a particular action, it can be definitely determined that some of the results of our actions are bad. We, however, are never bad, if we are to be so judged only by our actions. For our actions are always intended, and it is always our intention to do what is right, i.e. to produce good results. If, in addition, we produce bad ones - either because of faulty predictions about our chosen means, or because we have not yet formulated a principle that allows us to cause only objectively good results - then we are not bad, but mistaken.

If, on the other hand, our actions do prove to be the correct means of doing good (and no harm), we ourselves need not necessarily be considered good on that account. The good we cause may be accidental; we make fortunate rather than unfortunate "mistakes." I mean to deceive you, but I am not clever enough; you take it as a joke, and have a wonderful laugh. I mean only to go about my business, but in doing so I teach you something that greatly improves your life. I deserve no credit unless I have intended these kinds of behavior as my actions, and furthermore have chosen them because I believed them to be the means of doing only good.

The conditions of virtue are that I intend to do only good and that I succeed (in the estimation of any informed, rational judge). In addition, if I am to be credited with my success, then not only my actions, but all their results, must be believed by me

to be good, and I must be correct in my belief. In other words, everything I do must be an action. While I am unqualifiedly good to the extent that I act, I am not unqualifiedly good. For I sometimes fail to act responsibly - to take as full account as I might of the probable consequences of my proposed action in order to see if they are consistent with my intention to do only what is right, and then either to incorporate these further results as part of my action or else revise my intention. Even if I were to take such responsibility, I could not know - nor could anyone - that I had made a correct judgment. If I can never be called bad, neither can I be called good with any certainty that it is true.

But the fact that it cannot be attained is not sufficient reason to reject the ideal. Although we can only approximate absolute virtue, we can do so more nearly if we are both observant and thoughtful. We must first be able to carry out instructions to ourselves - to understand and bring about the idea of an action. But it is not enough to follow the example of others, or even to promise to act in specified ways. We are free to act virtuously only when we know how to promise <u>ourselves</u> to accept responsibility for all the consequences of any intention we choose to realize.

In order to evaluate our intentions morally and instruct ourselves accordingly, we must be able to predict the consequences of our actions (or to recognize the right advice, which amounts to the same thing). It seems to me that this ability is a necessary condition not only for conforming to the moral law, or any law, either

original or adopted, but for formulating the correct moral principle. Only when we can reason about possible as well as actual events, basing our expectations on warranted evidence, are we able to accept the idea that it is up to us to do so. Because we welcome such prudential responsibility (once we are capable of assuming it), we want others to show their respect for our rational freedom by following the same principles of consistency and objectivity. But if they are competent to do so, then they are agents like us, and there is no way we can justify our failure to grant them the same privilege. It is not just because of any advantage to ourselves that we reach this conclusion, although there is an advantage in reciprocity, as well as in keeping our beliefs consistent with reality. Virtue is required by the same kind of reason with which we formulate our other practical beliefs.

Reason, then, is necessary both in order to understand the moral law and in order to carry it out. The first needs to be accomplished only once; the second requires continuous effort. Since we are usually motivated to make this effort ourselves - or are at least able to do so - once we have formulated the moral principle on the basis of our own reasoning, the primary task of the moral educator must be to help his students achieve a universal standard of right action, partly by stimulating the general development of reason, and partly by encouraging students to reason about moral questions.

In the next chapter I shall outline the levels of moral

reasoning developed by Lawrence Kohlberg and their relationship to Piaget's stages of intellectual achievement. In conclusion, I shall discuss the general kinds of methods that can be used to foster moral development.

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9. P. Bovet, "Les Conditions de l'obligation de conscience," Année psychologique, 1912.

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11. Piaget's stage of autonomy, which occurs roughly between the ages of 8 and 12, corresponds to Kohlberg's Stage 2: instrumental relativism, and should not be confused with the level of autonomous, postconventional moral reasoning postulated by Dewey and developed by Kohlberg. See Lawrence Kohlberg, "The Cognitive-Developmental Approach to Moral Education," Phi Delta Kappan, vol. 56, no. 10 (June 1975), p. 670.

CHAPTER IV

VIRTUE CAN BE TAUGHT

> . . . in contrast to a given rule imposed upon the child from outside, the rule of justice is an imminent condition of social relationships or a law governing their equilibrium.
>
> Jean Piaget[1]

1. Levels of Moral Development

We have said that virtue depends on right action: doing the right thing for the right reason. Moral education which is concerned only with behavior, however successful it might be in producing the appearance of virtue, is unlikely to have significant or lasting results, for behavior alone is not a true indicator of virtue. Right intentions, on the other hand, are very likely to be followed by good results as well. It is quite probable that someone who knows how to set himself a practical standard will also know how to carry out his purpose in a variety of circumstances, provided only he can get access to the relevant facts.

Furthermore, since the standard is his own, it is presumed that he will want to avoid any action that is known to contradict it, and will correct his mistakes as they become apparent to him. Once a person has formed the intention of governing his conduct by the moral law, it can be expected with some confidence that most of his actions will conform to that law, even though the specific means

he will choose cannot be predicted. The moral educator, therefore, if he is to effect any such stable change in behavior, ought to address himself to the fundamental task of forming right reason.

By "right reason" I do not mean simply correct reasoning, or the ability to draw valid inferences. Neither do I mean the general intention to do whatever is right, or any specific intention based on a concrete rule of behavior. Each of these, however, is essential for the formulation of a sound argument which explains why a particular action is the right one to choose in a given situation. Such an argument constitutes a "right reason." In addition, as the foundation of his argument, the agent must have adopted the correct principle of moral rightness by which to evaluate the rules to which his actions, in turn, are judged to conform. To understand this ultimate, universally binding principle is to have "knowledge of the Good." Without such a criterion, the explanation "because it is right" is as meaningless as "because I say so." Only by reference to a definite standard of rightness can one justify his particular actions, hence act virtuously.

If we think of an argument for the rightness of an action as consisting of three "stages," I think it will be easier to isolate the elements necessary for virtue and to understand both how "knowledge of the Good" can be achieved and why such knowledge is sufficient, if not for perfect virtue, at least as a worthwhile aim of moral education.

At the most immediate level of moral reasoning, one typically

argues, it seems to me, in the following way (where K names a kind of action):

1. In circumstance C, I may do only acts which are K.
2. This is circumstance C.
3. This act which I am considering is K.

---

4. I may now do this act which I am considering.

If class K happens to have only one member, then the act in question becomes obligatory, and "I may" becomes "I must." Otherwise, the agent may choose any action he desires, provided it meets the given standard.

Using a similar kind of reasoning, one selects his actions from a prudential point of view, using as his standard their intrinsic desirability to him balanced against the probability that they are effective means to his more highly valued goals. A particular action may be chosen from the subset of approved actions formed by the overlapping of those that meet each of the three criteria: desirability, practicality, and morality.

In order to decide how to conform to all three standards at once, one must be able to perform a rather complicated piece of reasoning. His more difficult task, however, is to determine whether conditions C and K apply. No matter how competent he may be as a logician, he must always base this decision on an empirical judgment, and such judgments are always a possible source of error.

A different sort of "knowledge" is required in order to determine the "truth" of the first premise, "I may do only acts which

are K." In order to consider himself bound by a rule for the rightness of actions, one must believe that it conforms to his standard for the rightness of rules. The second stage of his argument is more abstract (where R signifies "morally right"):

1. If I want to be virtuous, I may do only acts which are R.
2. In circumstance C, only acts which are K are R.

---

3. If I want to be virtuous, I may, in circumstance C, do only acts which are K.

The sort of reasoning by which we decide that acts of a certain kind are right in a given circumstance can be carried out at a purely theoretical level, independent of personal plans and attitudes or the existence of circumstance C.

Such a rule is still not binding until the condition "If I want to be virtuous" is removed. However, since it is not necessary to believe that the truth of this condition is ever in question, I am taking the position that it is not. Although I doubt that anyone has ever actually done so, it is as though each of us had argued in the following way:

1. If I want to be virtuous, I may do only acts which are R.
2. I want to be virtuous.

---

3. I may do only acts which are R.

It seems to me that we not only want to be virtuous, but believe that we are. Virtue is simply integrity in practical reasoning, and no one would choose to think of himself as basing his actions on arguments

that are unsound. If we fail or hesitate to do K in C, this can just as easily be explained by the fact that we question whether K is really the only acceptable choice, or simply that we have not stopped to question.

When we do so, such questioning should cause us to reevaluate our concept of R, or the criterion by which we judge the moral rightness of temporal laws. While we all probably agree that everyone ought to do what is right or just, and even tend to concur in our values, hence on the general kinds of actions that can be so judged (e.g. truth-telling, respecting sentient life, obeying the civil law, etc.), we may differ in our understanding of why such actions should be considered right. Reevaluation can lead us either to formulate a more adequate explanation for our actions, one that cannot so easily be given up, or else to renew and strengthen our earlier convictions.

Piaget excludes this "knowledge of the Good" from his three categories of knowledge, since "metaphysical and ideological" constructs

> . . . are not kinds of knowledge in the strict sense but forms of wisdom or value coordinations, so that they represent. . . cultural superstructures rather than any extension of biological adaptation. (BK:268, footnote)

Nevertheless, practical wisdom has in common with experimental knowledge certain structural features which reflect the development of logico-mathematical knowledge. As is true in the area of science, each more advanced stage represents a better psychological equilibrium - "better" in that it is more comprehensive and more highly

differentiated. (AP:1068-69) Each new integration is accepted, not because it is demonstrably true, but because it is useful in organizing thought and more adequate in explaining apparent ambiguities. It is achieved through a form of reasoning which is at least analogous to scientific insight and appears to differ from it only in that the subject matter being reorganized consists of facts about what people generally acknowledge as valuable, or beleive ought to be true, rather than facts about what is believed to be actually true or probable or possible.

The notion that there is ultimately one correct criterion of moral rightness is consistent with the research findings of Lawrence Kohlberg. It is his theory that there are three definite levels of moral maturity, each divisible into at least two substages, through which everyone moves in an invariant sequence of development. These six stages are outlined on the following pages (94-96) in a table synthesized from two sources (AP:1066-68 and ME:71-72). The fact that the stages are found to be culturally universal also supports the idea that everyone believes himself bound by some standard of rightness. Although not everyone is at the same level of judgment at a given age or in a given culture, and few ever progress to the most advanced stages, everyone who is "concrete operational" - i.e. virtually every normal person over age 8 - can give some kind of moral justification for his actions.

The six stages of moral development are defined, not in terms of the extent to which people follow moral rules at all, or according

LEVELS AND STAGES OF MORAL JUDGMENT

LEVEL	BASIS OF MORAL JUDGMENT	STAGE
I	Egoistic interest in concrete events. Moral value resides in external, quasi-physical happenings (bad acts) or in quasi-physical needs, judged in terms of immediate personal interest.	1. Obedience and Punishment. Trouble-avoiding set; objective responsibility. Unquestioning, egocentric deference to superior power or prestige, motivated by fear rather than respect. The physical consequences of action regardless of their human meaning or value determine its goodness or badness. 2. Instrumental Relativism. Naively egoistic orientation, with awareness of relativism of value to each actor's needs and perspective. Right action is that which is instrumental in satisfying one's own needs and occasionally those of others. Naive egalitarianism and orientation to exchange and reciprocity. Elements of fairness and equal sharing are present, but they are always interpreted in a physical, pragmatic way. Human relations are viewed in terms like those of the market place: favors for rewards. Reciprocity is a matter of "you scratch my back and I'll scratch yours," not of loyalty, gratitude, or justice.

LEVELS AND STAGES OF MORAL JUDGMENT

LEVEL	BASIS OF MORAL JUDGMENT	STAGE
II	Conformity to Social Order.	3. Conformity. Good-boy-good-girl orientation. Good behavior is that which pleases or helps others, and is approved by them. One seeks approval by being "nice." Conformity to stereotypical images of what is majority or "natural" behavior, and to the expectations of peer groups. Behavior is often judged by intention; "he means well" becomes important for the first time and is overused.
		4. Law and Order. Orientation toward authority and fixed rules. Right behavior consists of doing one's duty, showing respect for authority, and maintaining the social order for its own sake. What the law commands takes precedence over personal wishes, good intentions, and conformity to group stereotypes. Regard for the earned expectations of others, and for earning respect by performing dutifully.
III	Responsibility under universal principles. Moral value resides in conformity to shared or shareable standards, rights or duties.	5. Social Contract. Contractual orientation, generally with legalistic overtones. Clear awareness of the relativism of personal values and opinions, and a corresponding emphasis on procedural rules. Recognition of an arbitrary element or starting point in rules or expectations for the sake of agreement, and of the possibility of changing laws in terms

LEVELS AND STAGES OF MORAL JUDGMENT

LEVEL	BASIS OF MORAL JUDGMENT	STAGE
III	Responsibility under universal principles.	5. Social Contract (continued)

of rational considerations of social utility. General avoidance of violation of the will or rights of others and the welfare of the majority. Duty is defined in terms of standards which have been critically examined and agreed upon by the whole society. Outside the legal realm, free agreement and contract are the binding elements of obligation. (This is the "official morality" of the U.S. government, but is achieved by only about one American adult in five.)

In Stage 5b there is an orientation to decisions of conscience, but without clear rational principles.

6. Principle and Conscience; Autonomy.

Orientation not only to actually ordained social rules, but to universal principles of choice appealing to logical comprehensiveness and consistency. These standards are not concrete moral precepts, but ethical principles of justice, dignity, and equality of human rights. Orientation to conscience as the directing agent and to mutual respect and trust. The moral test of a Stage 6 decision is the agent's willingness to apply his principles as readily to himself as to others. (Socrates, Gandhi, and Martin Luther King, Jr. are given as examples.)

to the content of the rules they do follow (i.e. the meaning of K), but by the structure of the reasons they give for adopting certain common rules or maxims. (CD:671) Using twelve basic moral concepts, Kohlberg finds that all people tend to reach the same conclusion on a particular issue - for example, that human life ought to be valued, or that one ought to obey moral rules. The reasons they give for these conclusions, however, or for choosing among conflicting values, reflect an increasingly general logical structure corresponding to definite levels of cognitive development. For example, on the issue of "Conscience, Motive Given for Rule Obedience or Moral Action," the six stages are represented by the following kinds of motives: (AP:1068)

1. Obey rules to avoid punishment.
2. Conform to obtain rewards, have favors returned, and so on.
3. Conform to avoid disapproval, dislike by others.
4. Conform to avoid censure by legitimate authorities and resultant guilt.

5A. Conform to maintain the respect of the impartial spectator judging in terms of community welfare.

5B. Conform to avoid self-condemnation.

The motive for moral action by a Stage-6 individual is not given, but I take it to be "Conform to avoid inconsistency between thought and action, as is binding on every agent."

While such principles dictate no concrete categorical rule of action, they can be used categorically as a standard for choosing among possible actions under various real conditions. Because they

are so used by people who tend to share certain universal values, the legitimacy of the rules designed to protect these values is also universally recognized. The adequacy of the principle being used as a rationale for the rules, however, will be questioned by anyone at a more advanced level of moral reasoning. Because he is able to understand the less adequate principle as well, he "knows" that he is "right." However, he has no common ground for communicating his reasons - e.g. for convincing a conventional-level conformist, who has not yet come to trust individual freedom guided by reason, that his later stage is really more advanced, and not a state of degeneracy. (CD:672) Since it is on the basis of such principles that we choose one kind of right action as "higher" than another and give it precedence in a case of moral conflict, it appears that differences among individuals, groups, and nations can be resolved, not by teaching the "right" values, but by teaching better reasons for holding the values we share.

2. How the Development of Virtue Can Be Influenced

> In reality, education constitutes an indissoluble whole, and it is not possible to create independent personalities in the ethical area if the individual is also subjected to intellectual constraint. . . . If he is intellectually passive, he will not know how to be free ethically. Conversely, if his ethics consist exclusively in submission to adult authority, and if the only social exchanges that make up the life of the class are those that bind each student individually to a master holding all power, he will not know how to be intellectually active.
>
> Jean Piaget[2]

Kohlberg's longitudinal studies strongly suggest not only that there is a hierarchical sequence of stages in moral development, such that achieving any given stage depends on having completed all previous stages in sequence, but that the ability to progress from one stage to another is directly related to one's level of logico-mathematical development. In one study, for example, whereas 60 percent of the subjects had attained formal operational thinking, only 10 percent showed clear principled thinking (Level III). Of this 10 percent, however, all were "formal operational." The conclusion drawn is that "attainment of the logical stage is a necessary but not sufficient condition for the attainment of the moral stage." (AP:1071)

The following table (page 100) shows that there is a "point-to-point" correspondence between logical and moral development. (AP:1072) It seems quite clear that a major part of teaching virtue consists in teaching reason: providing opportunities which challenge students to reach for more highly integrated levels of thought by means of "reflective abstraction" from the levels at which they are already operating. With only a superficial acquaintance with the stages identified by Kohlberg, it is not difficult to see that each depends upon a previously learned logical skill or concept, while elaborating and going beyond it.

First, in order to carry out any rule at all, one must be capable of the simple reasoning necessary to classify an immanent action as of a given kind, hence to act intentionally. One would

RELATIONS BETWEEN PIAGET LOGICAL STAGES AND KOHLBERG MORAL STAGES

All relations are that attainment of the logical stages is necessary, but not sufficient, for attainment of the moral stage.

LOGICAL STAGE	MORAL STAGE
FORMAL OPERATIONS Substage 3: True formal thought. Construction of all possible combinations of relations, systematic isolation of variables, and deductive hypothesis-testing.	POSTCONVENTIONAL MORALITY Stage 6: Universal ethical principle orientation. Stage 5B: Higher law and conscience orientation. Stage 5A: Social contract, utilitarian law-making perspective.
FORMAL OPERATIONS Substage 2: ordering triads of propositions or relations. Substage 1: relations involving the inverse of the reciprocal.	CONVENTIONAL MORALITY Stage 4: Maintenance of social order, fixed rules, authority. Stage 3: Orientation to interpersonal relations of mutuality.
CONCRETE OPERATIONS Substage 2: reversible concrete thought. Substage 1: categorical classification.	PRECONVENTIONAL MORALITY Stage 2: Instrumental hedonism and concrete reciprocity. Stage 1: Punishment-obedience orientation.
Prelogical thought: sensorimotor intelligence; symbolic, intuitive thought.	Stage 0: The good is what I want and like.

expect that the first standard a child learns to use in selecting his actions is that of immediate desirability. Next, in order to forego such an action, he must be able to understand causal relationships in general, and to see his immediate desire as incompatible with the means to other more strongly desired events (e.g. avoiding punishment, or winning the approval of others).

Having learned something about planning, the child is in a better position to value order as a condition of freedom, and to choose to follow the given moral or civil law for the sake of maintaining such order. Since he can now conceive of whole systems, he is able to "conserve" values as well as physical properties. The conditions of operational thought (i.e. objectivity, non-contradiction) are also seen as social obligations, necessary for the equitable balancing of points of view. The notion of justice begins to shift from retribution to distribution and from obedience to reciprocity.

Having "decentered" enough to see himself as a separate object with a distinct perspective, the child begins to think of himself as both initiator and collaborator. These complementary roles are closely related to the appearance of reflective thought.

> These two aspects of the behavior that starts at around seven years (individual concentration and effective collaboration) . . . are, in fact, so intimately linked that one is hard put to say whether the child has become capable of a certain degree of reflection because he has learned to cooperate with others or vice versa. (SS:39)

At first, the child works out elaborate systems of rules with his peers, with whom he feels a great sense of solidarity. At the same

time he maintains respect for adult authority outside his domain of "play."

Still within the conventional level, there is considerable room for cognitive growth before this way of thinking can be seen as inadequate. For example, the ability to carry out a rule like "Never disobey legitimate authority" requires more intellectual sophistication than is needed to follow one like "Never disobey your parents," and this in turn is more difficult than a rule like "Never run into the street." Only after considerable experience and practice does one learn to grasp the increasingly complex concepts of action that fall within conventional morality and to calculate how to make his actions conform to those concepts.

Finally, in order to move from the conventional to the "post-conventional, reflective, or philosophic view of values and society" (AP:1072), one must have freed his thinking from its ties to the given physical world.

> The shift in adolescence from concrete to formal operations, the ability now to see the given as only a subset of the possible and to spin out the alternatives, constitutes the necessary precondition for the transition from conventional to principled moral reasoning. (AP:1072)

Although the six universal stages of moral development are neither innate nor inevitable (AP:1058), most people in most cultures achieve concrete operational logic and a conventional level of morality whether or not they receive formal schooling. Only about half of adult Americans, however, reach formal operational thinking, and of these far fewer become morally autonomous. Having achieved

the cognitive level that corresponds to a given moral stage, one cannot automatically move "across" the chart to that stage unless he has also progressed "up" the moral ladder through each prerequisite form of moral reasoning.

> What is being asserted, then, is not that moral judgment stages are cognitive - they are not the mere application of logic to moral problems - but that the existence of moral stages implies that normal development has a basic cognitive-structural component. . . . While formal operations may be necessary for principled morality, one may be a theoretical physicist and yet not make moral judgments at the principled level. (AP:1071)

One can only speculate as to why moral progress does not keep pace with cognitive growth. Surely the former is more strongly influenced by affective experiences and habits and the degree of trust established between the individual and his society. It may be that some additional factor such as "will power" or "ego strength" makes the difference. For example, in a study on cheating Kohlberg and Krebs found that among the conventional-level subjects who cheated (55% of all conventional subjects), only 26% had been classified as "strong-willed," while a definite majority (74%) were "weak-willed." (CD:672) But it is still not clear that a factor of "will" can be distinctly separated from the factor of knowledge. On the contrary, it seems to me that strength of will is directly proportional to strength of conviction. Both together may result from strong and consistent reasoning. On the other hand, the will may be dispersed among vague, contradictory, and loosely-held ideas, or it may be enlisted inappropriately to sustain a false but compelling belief, such as the reasonableness of a command made by an authority/security

figure.

When the "will" becomes associated with a false idea (i.e. when one has a strong interest in holding that idea), it sometimes takes great moral courage for us to acknowledge even the simple facts needed in order to begin to use our reason. In the light of certain expectations in which we have an emotional investment, we would find this acknowledgement not just inconvenient, but painful. Standing behind our failure to act on a principle we would otherwise accept as right is our inability to recognize a given situation as falling under that principle. Our lack of right resolve can be traced, not to an inherent weakness in our character, but to the strength with which we cling to a false hope or belief adopted under earlier, different conditions when either the facts were not available or we were not sufficiently rational to see them. Although we may "know" intellectually what is the right thing to do, we are blinded to the reality of the situation.

> There is an objectivity of fact - not a perfect objectivity of knowledge - on which ethics must be built, or rot away. It does not justify intolerance, but neither does it justify relativism or a moral education that teaches relativism or implies it.[3]

A significant part of the empirical knowledge required for the practice of virtue is self-knowledge, including not only clarification of our ideas about what we want, but also of our knowledge about what we are really doing. As a form of knowledge, it is dependent on both logico-mathematical development and on the relevant forms of experience.

> The two correlative aspects of the personality are independence and reciprocity. . . . The person is an individual who situates his ego in its true perspective in relation to the ego of others. He inserts it into a system of reciprocity which implies simultaneously an independent discipline and a basic de-centering of his own activity. The two basic problems of ethical education are, therefore, to assure this de-centering and to build this discipline. (UI:111-12)

Intellectual discipline, as it applies to one's place in a reciprocal social system, is inseparable from the achievement of psychological autonomy. One must "de-center," not only in the area of physical knowledge about the common environment, but correspondingly in his understanding of how he as an individual fits into that environment. He must be able to free himself, not only from physical dependence, but from the powerful injunctions and attributions of his early protectors, and he must confirm or replace these with independent judgments based on his own observations. If obedience has required too much repression of personal desires, this process may involve getting back "in touch" with one's feelings and accepting them as part of reality. What results is different from Stage 0 morality, however, since "feeling good" is now only one of several criteria applied to choices of action, and furthermore one is by now able to "feel" cognitive dissonance. When feelings and thoughts can be freely acknowledged, and the personality reintegrated in a more authentic way, one learns that he can choose, without external sanctions, not to act on every desire and opinion.

In addition to personal psychological barriers, there are likely to be strong social constraints against breaking with tradition, whereas we are given every inducement to submit to the

conventional wisdom. Though it means giving up our preoccupation with our immediate concerns, we learn quite easily to accept the prudential value to ourselves of making the shift from assimilation to social accomodation. Even the typical adolescent thwarting of authority is only a different way of affirming that it exists, and often one simply transfers his loyalty from one person or set of ideas to another. Beyond the satisfaction of group identification, if we have been treated with reasonable fairness we can also recognize the moral value of the law and the legitimacy of other interests.

To be critical of the laws of one's group, and to do so with reason, is not only difficult in an intellectual sense, but may require considerable personal courage as well. The transition to Stage 5 morality, although it is based on an awareness of the concept of relativism and not simply on its practice, is virtually indistinguishable from Stage 2. Indeed, it is a sort of abstract replay of the movement from strict heteronomy to instrumental relativism (the stage Piaget calls "autonomous"). This iconoclasm is often seen as a considerable threat by those who do not understand that the revived subjectivity characteristic of this period, which may appear as selfishness and lawlessness, really indicates the beginning of a new and enlightened sense of individual responsibility. To the Stage 3 thinker, who cannot understand a way of thinking so far beyond his own, the young person appears to be at Stage 2. It is interesting that each has reason to think of the other as less mature than himself.

In the face of these pressures for conformity, both from the people who are important to us and from our social institutions, few of us form the habit of addressing ourselves to moral issues unless forced to do so by a critical situation. Kohlberg has found, however, that progress can be made by exposing a student to a situation of moral conflict "for which his principles have no ready solution," and then to discussions about this situation with other students who are at the next higher level and whose arguments are then supported and clarified by the teacher. (ME:82)

> . . . we have found that children and adolescents rank as "best" the highest level of moral reasoning they can comprehend. Children comprehend all lower stages than their own, and often comprehend the stage one higher than their own and occasionally two stages higher, though they cannot actively express these higher stages of thought. If they comprehend the stage one higher than their own, they tend to prefer it to their own. . . . While it may be felt as dangerous, the moral leadership of the Platonic philosopher-ruler is nonetheless naturally felt. . . . The child's preference for the next level of thought shows that it is greeted as already familiar, that it is felt to be a more adequate expression of that already within, of that latent in the child's own thought. If the child were responding to fine words and external prestige he would not pick the next stage continuous with his own, but something else. (ME:80)

Movement out of the conventional stage is probably hindered by the fact that there are fewer opportunities to engage in such discussion and to hear such clarification, and fewer personal crises which require us to deal with moral issues at this level.

The transition to Level III usually begins, if at all, in late adolescence, and it is eventually resolved, in early adulthood, at a more highly principled moral stage. (AP:1072-81) If achieved, this new stage represents a more satisfactory balancing of personal

and social concerns which enables the young person to see himself as both powerful and responsible, more fully in control of his life. We may take some encouragement in Kohlberg's finding that "a larger proportion of youths (are) at the principled level today than was the case in their fathers' day." At the same time, however, more are at the preconventional level. The current weakening of conventional morality, interpreted by some as a sign of moral decay, can indeed lead to "fixation at the preconventional level." Yet the same situation represents an opportunity for the development of principled thinking. "Given this state, moral and civic education in the schools becomes a more urgent task." (CD:674-5)

While moral growth depends on no specific knowledge or experience, an experience of a certain kind may be needed as the motivation for resolving a certain kind of dilemma. Both moral and intellectual growth appear to depend largely if not exclusively upon the opportunity to respond to appropriate moral and intellectual challenges by restructuring one's values or knowledge. The word "appropriate" is most significant, since it is as much a mistake to assume that an individual is capable of solving a problem well beyond his level of development as it is to assume that he can never do so.

> The aristocratic tracking system. . . rested on the assumption that the capacity for abstract thought is all or none, that it appears at a fixed age, and that it is hereditarily limited to an élite group in the population. . . . However, when democratic secondary education ignored the existence of the adolescent cognitive shift and individual differences in their attainment, real difficulties emerged. . . . Clearly the new curricula assumed formal-operational thought, rather than attempting to develop it. (AP:1082)

Kohlberg advocates instead "progressive" education, where development takes precedence over achievement and is stimulated by "providing opportunities for active thought and active organization of experience." (AP:1083) He recommends to us the philosophy of Dewey:

> Education is precisely the work of supplying the conditions which will enable the psychical functions, as they successively arise, to mature and pass into higher functions in the freest and fullest manner.[4]

An important implication of this philosophy is that the learning atmosphere must be immediately meaningful to the student. Often this means taking advantage of opportunities as they present themselves, even if doing so is disruptive of the planned routine. Dewey, Piaget, and Kohlberg would all endorse the following view:

> Moral education is education for citizenship, for mature life, and is exactly like vocational education in that it will be useful exactly to the degree that it faces real-life problems - and that <u>means</u> controversy.[5]

"Intellect" should not be opposed to "life." (AP:1083) If such a separation tends to occur in the realm of experimental knowledge, there is an even stronger tendency to contrast the moral with the practical, rather than seeing morality simply as a more comprehensive form of practical reasoning which considers the relationship of any action to the possible prudential interests of any person.

Although movement to higher moral levels increasingly takes account of a wider and more varied universe of individuals, one need not give up valuing himself or the groups with which he is closely associated. On the contrary, he accepts each new principle <u>because</u> he sees it as a more adequate reason for the equitable treatment of

himself and his broadening circle of peers. Pluralism need not be seen as an argument for relativism; rather, appreciation of diverse points of view can lead us to formulate more comprehensive, objective moral principles. In this connection, Kohlberg has found that one of the conditions favorable to moral growth is the opportunity for role-taking, or a norm which encourages the child to take the point of view of others. (CD:676)

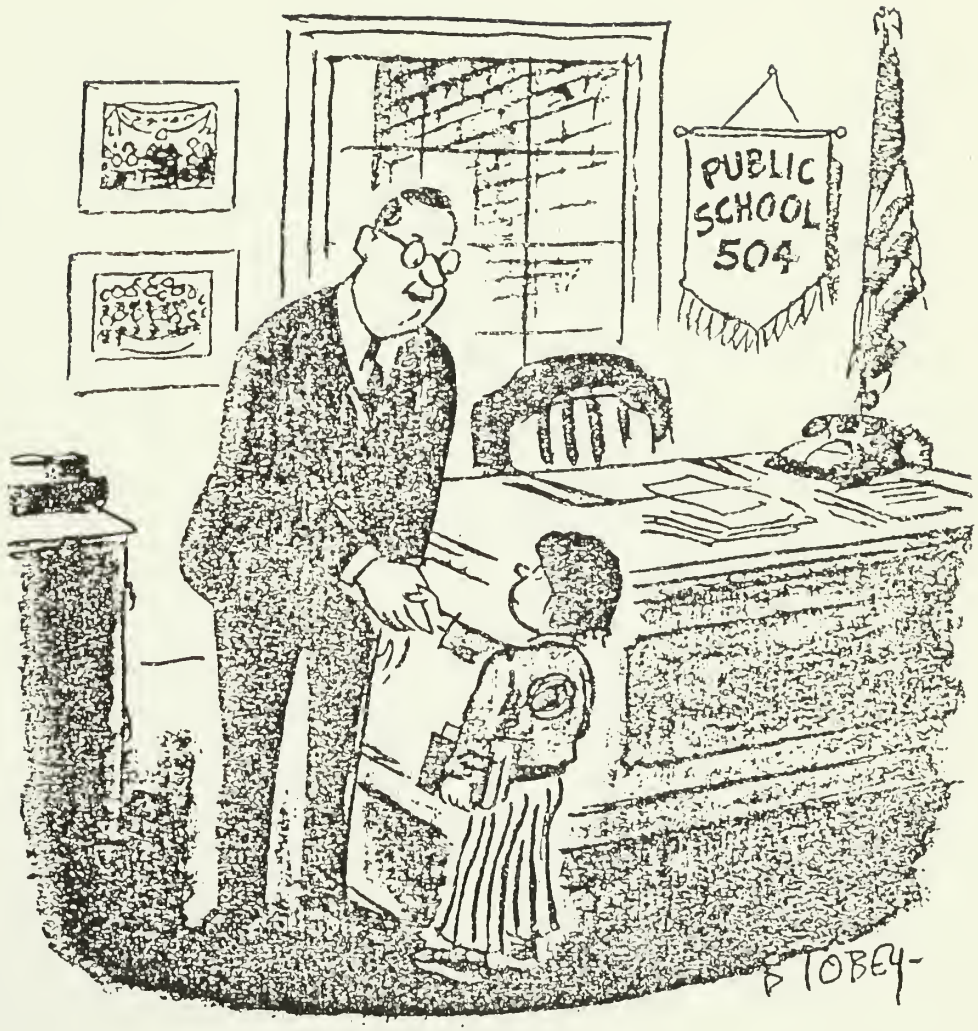
Similarly, moral growth is affected in a positive way by the extent to which the institution takes the point of view of the child.

> The second dimension of social atmosphere, more strictly moral, is the level of justice of the environment or institution. . . . This structure may exist or be perceived at any of our moral stages. (CD:676)

Kohlberg postulates that "a higher level of institutional justice is a condition for individual development of a higher sense of justice." (CD:676) It seems quite clear that a participatory democracy provides the best opportunity both for role-taking and for making thoughtful choices, the results of which are heard.

Although we cannot always approve or allow certain kinds of behavior, it is essential to show respect for the reasons a child gives for his actions or for his desire to act in a certain way. We often find that the reasons are not so much wrong as they are only partially right. Without some opportunity to express, if not act upon, his own principles when they fall short of convention, the child cannot be expected to do so when they go beyond it.

> In the same way that a kind of contradiction exists in adhering to an intellectual truth from outside (without having rediscovered and reverified it), so it can be asked



"Thank you for coming. The talks were forthright and useful, and provided an excellent climate in which to resolve our remaining differences."

> whether there does not exist some moral inconstancy in recognizing a duty without having come to it by an independent method. (UI:118)

> Does (not) the right of ethical education, as in the formation of the mind, mean a right truly to construct or at least to participate in the elaboration of the discipline that will obligate those very same persons who collaborated in this elaboration? (UI:51)

Maintaining the ideal atmosphere in which to consider moral or intellectual dilemmas is clearly the more difficult requirement. Not every institution administers just rules in a just way.

> In the logic of the system the student's intellectual and moral activity remains heteronomous because it is inseparable from a continual constraint exercised by the teacher, even though that constraint may remain unperceived by the student or be accepted by him of his own free will. (PP:151)

Moreover, parents and others are eager to see evidence of progress in the form of behavior, not in reasons for behavior; the fact of inner growth is seldom immediately apparent.

The difficulty of implementing these recommendations, however, is not in question; the only legitimate question is whether or not they work to bring about intellectual growth. Until such methods have been more fully studied and tried, there is no reason to believe they do not work, and considerable evidence that they do.

Furthermore, there is some reason to suppose that "knowledge of the Good" or practical wisdom, if it can be achieved, insures virtue insofar as virtue is ever achievable. The person who is sufficiently rational to understand Stage-6 morality is also reasonable enough to be able to obtain the kind of knowledge that bears upon his principles, and the strength of his reason is available to

induce him to use that ability to take an objective view of reality. Since both the principles and the knowledge are his own, we can expect him to carry out the kinds of actions dictated by them. Since both are right, to the extent that either can be known by him to be right, we can expect that most of his actions will be right also.

While we may not be able to give convincing support for the sufficiency of reason, we cannot deny its necessity.

> Since moral reasoning clearly is reasoning, advanced moral reasoning depends upon advanced logical reasoning; a person's logical stage puts a certain ceiling on the moral stage he can attain. (CD:671)

Kohlberg gives three reasons for advocating the cognitive-developmental approach to moral education. First, although moral judgment is only one factor in moral behavior, it is "the single most important factor yet discovered in moral behavior." Second, it is the "only distinctively moral factor," and accounts for the crucial difference in behavior when other factors, such as "ego strength," are constant.

> To illustrate, we noted that the Krebs study indicated that "strong-willed" conventional stage subjects resisted cheating more than "weak-willed" subjects. For those at a preconventional level of moral reasoning, however, "will" had an opposite effect. "Strong-willed" Stages 1 and 2 subjects cheated more, not less, than "weak-willed" subjects, i.e., they had the "courage of their (amoral) convictions" that it was worthwhile to cheat. "Will," then, is an important factor in moral behavior, but it is not distinctively moral; it becomes moral only when informed by mature moral judgment.

Third, Kohlberg reminds us of a point we have already discussed - the fact that growth in moral judgment is irreversible, whereas moral

behavior alone is "largely situational and reversible or 'loseable' in new situations." (CD:672)

Regardless of these practical considerations having to do with the actual effect of reason on behavior, we must be reminded of our theory. If we accept the claim that virtue depends on right action, and action on knowledge, and knowledge on reason, then there is no question as to the moral value of teaching reason.

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CHAPTER V

CONCLUSION

> Only a fool would despair of human nature because of his failure to find a truly dutiful act. Such a man might be compared to a mathematician who, setting out to test his idea of infinite length, seizes upon each long line he encounters, follows it with rising hopes, and then in an access of disappointment at always coming to the end, gives up the notion of infinity itself as a bad bet. For all we know, the right acts we observe may also be morally worthy acts. . . .
>
> Robert Paul Wolff[1]

I have taken the position that virtue depends on both behavior and thought. We are virtuous only if we do the morally right thing, and only if we do so with full knowledge of what we are doing and of the reason why it is the right choice. Together, these two kinds of knowledge may or may not be sufficient to cause right action. They are in any case necessary. Reason and experience may or may not be sufficient for achieving the required knowledge. Again, both are necessary.

I have discounted other possible variables, most notably the factor of "will power" as something distinct from the energy and often courage it takes to acknowledge practical truths and make them intelligible. Since one of the factors necessary for knowledge (i.e., experience) can never be fully controlled, it cannot be demonstrated, when wrong behavior occurs, that some such additional condition is still to be met. Rather than trying to resolve an

irresolvable issue, I think it is important for the teacher of virtue to consider how the conditions that are clearly necessary and to a great extent within our control can best be fulfilled, and to act on the provisional belief that knowledge, if it were achieved, would be sufficient for virtue.

Of the two kinds of knowledge necessary for right action, one is universally limited because of its temporal nature. We can deliberately have - or have deliberately provided - some, but not all, of the experiences required for empirical knowledge of the full consequences of our actions. The probability that our practical beliefs are true increases, however, the more we are able to support our predictions with reasoned observations. The habit of making such observations, at least, can be taught. Given the opportunity and incentive to practice doing so, we increase our skill in noticing things and in organizing our ideas about the things we notice. Each skill reinforces the other; experimental and logico-mathematical knowledge develop interdependently. Indirectly, by being taught to observe and to reflect, we can be taught to learn, to the greatest extent practicable in each instance, just what we are doing, and what we want to be doing, and whether or not they are the same.

The second kind of knowledge is universally achievable, at least in theory, and very likely in practice. If we cannot know what we are doing, we can know what we ideally ought to be doing. Whether or not we are willing to let the concept of theoretical knowledge include not only knowledge about what is given, but also

"knowledge" of what is desirable, both kinds of "knowledge" have in common their dependence on the achievement of a certain structural level of thought. Given a sufficiently advanced form of logic, it is possible for a teacher to provide the kinds of experiences that enable a student not only to grasp the laws of science, but to integrate his values and others' into a similarly complete, operational system, governed by a constant, universal moral principle.

Fundamental to both the theoretical and empirical knowledge required for virtue is the ability to reason at a "formal operational" level. With this ability and the experience of attempting to resolve certain kinds of moral problems in the most reasonable way, we can achieve "knowledge of the Good." With this ability, and, in addition, the experience that bears on our particular choices of action, we are in a position to implement our moral theory and to bring about good results knowingly.

Formal reason is not likely to develop without deliberate guidance. While an individual may occasionally achieve this level of logic independently, and while there is no guarantee that with such guidance he will achieve it at all, there is a great and still largely untried opportunity to influence cognitive development in a positive way. Again, it is a question of providing experience with certain kinds of intellectual tasks. Beyond this, it appears that one needs only the universal disposition to maintain integrity and equilibrium in order to reach a mature level of reasoning.

Reason, if not the only condition necessary for virtue, is

clearly the crucial condition. Experiences of a certain kind, and of a kind that can be provided, are in turn crucial for the development of both cognitive and moral reasoning. We must think of moral education, like every other kind of education, as not so much a matter of furnishing final answers as one of providing skills and opportunities for investigating problems. To the extent that it depends upon skill and practice in moral reasoning, virtue can be taught. The teacher who helps each student profit from the kinds of experiences appropriate to his particular level of intellectual and moral growth, and to take personal responsibility for his decisions, is the one who most significantly advances both the knowledge and the practice of virtue.

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