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## *The "Impossible" Role of the Teacher in Progressive Education*

Since the earliest entrepreneurial efforts to institutionalize "progressive" education, most of what has been said by and for educators in the name of Dewey has consisted of distorted shadows and blurred images of the original doctrine—epitomes, diverse in content and tending to oppose or exclude one another.

Many of the epitomes, despite their diversity of content, exhibit two significant similarities. In Dewey's original statement, the members of a numerous set of terms were placed in new and fruitful relations to one another: time, fact-idea, change, freedom, organism-environment, experience, individual and society. In each epitome, on the other hand, only one or two of these terms appear, and conclusions about the character of education are drawn from them alone. Thus each epitome inflates what was a part of the original into an alleged whole.

The second uniform feature of the epitomes follows from the first. Since the one or two terms used in each epitome are now merely isolated terms rather than members of their original related set, they must be rendered with a specious simplicity and ambiguity to make the oversimplified statements of doctrine plausible. The result is to confuse or suppress reflection on the matters represented by the terms.

These uniformities point to a single degenerative process as the source of the various misinterpretations which Dewey has suffered. This process is one of selection which seeks a single evident principle

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on which to found a policy for education. The effect of this process, despite the variety of epitomes it produced, was to leave out of account three crucial aspects of Dewey's pragmatic method and content—precisely those three which treat of the function of numerous terms and how to cope with them. It is my intention to outline these facets of Dewey's view and suggest how they may be used to correct and organize the various epitomes which still represent Dewey's thought to substantial segments of our world.

In the past few years, something has taken place in education which renders this intention very much to the point. One sees emerging in recent school practices and in the utterances of creative teachers increasingly adequate reflections of Dewey's original views. The blurred images are beginning to come into focus; the shadows are taking on a third dimension. This change, itself, arises, as we shall presently see, from one of the facets of Dewey's doctrine and procedure. Teachers are discovering, from looking at their own practices and the consequences of them, some of the inadequacies of the epitomes they have used. They are beginning to see the omitted factors which, if added, would help constitute a defensible and effective scheme of education. The lack of reflection which the epitomes induced in the midst of the overt activity they evoked is being overcome as a result of that very activity. It is my hope to contribute a little to this process.

The three facets to be dealt with are simultaneously parts of Dewey's content and parts of the process by which that content is constructed or communicated. We may call them: (1) Pragmatic Rhetoric; (2) Intelligence; (3) Polyprincipiality.

In its most general sense, rhetoric is the process by which what is "true," "right" or "better" is convincingly communicated by one man to others. Every philosophy has its own version of this process, appropriate to what it means by truth and its discovery.

For certain rationalistic views, for example, rhetoric consists of finding the true first principles from which one's scattered items of

knowledge can be inferred. This discovery yields an effective rhetoric since true first principles, in such a view, are self-evident, seen immediately and without argument as true. Hence, if one can find and voice such a principle and show the bits of knowledge which can be inferred therefrom, these bits of knowledge will be accepted by the hearer as true and meaningful.

For an empiricist view, the true rhetoric consists of rubbing the learner's nose in the "facts." This conception rests on a premise very like that of rationalism, that "facts" carry their own self-evident guarantee and convey the same conclusion to all men.

On the other hand, for philosophies dominated by political views and a notion of a natural aristocracy, rhetoric becomes the process of finding the words, the attitudes, and the arguments which will rouse and marshal passions on the side one wishes to have affirmed. This is the rhetoric appropriate to such a philosophy because the ability to appreciate evidence and argument is the property of the few. The many must be moved by their passions.

Dewey's conception of rhetoric differs from all of these. It is grounded in the notion of warrantable statement (as against "truth" in the traditional views) and concerns reconstruction of solutions to problems rather than the implanting of conviction. Dewey's concept of rhetoric is crucial to an understanding of Dewey in two ways. It is a part of his conception of education. It is also the means by which he attempted to convey that conception. Without an understanding of it in this second function, the remainder of the doctrine is liable to crippling misinterpretation. It is this rhetoric which it is our present business to describe.

One aspect of the confusion which came to characterize the "new" education has its origin in the fact that Dewey set forth a doctrine whose radical novelty lay in an unfamiliar way of constructing a doctrine. This way of building produces a structure of meanings which will not yield to the kind of reading and interpretation which the educated man (including the educators) of the first to fourth decades of this century was commonly taught in the schools and

conditioned by habit to use. It is as if Dewey had been grossly ignorant of, or indifferent to, his audience.

Yet the fault is not Dewey's. He had no choice in the matter. This is a hard saying. Let us see what leads to it.

The new education proposed by Dewey differed fundamentally from common theory and practice. Its aims and methods took their meaning from a new view of intelligence or inquiry: a new conception of knowledge, of knowing and of that which is known. Thus his doctrine was, in two ways, something more than a theory of education. In the first place, it was not about education taken as something apart. It was about knowing, knowledge, and the known. Because of the view it took of these matters, it was also about human action and communication and human goods. In the second place, it was not a theory in the received meaning of the term. Its aim was not to explain and provide settled "understanding" but to persuade its readers to embark upon a practice.

This aim was inherent to the very view of knowledge which it proposed. For Dewey, any theory of practice, including his, finds its full meaning only as it is put into practice and gains its "verification" only as it is tested there. A theory includes a body of "logical forms," conceptions designed to embrace and relate to one another all the facts in a problematic situation which are seen as relevant to its resolution. These logical forms take part of their meaning from the facts they are designed to hold, and another part from what they do to the facts by way of making them signify actions to be taken. Hence, the theory cannot be understood until the facts are experienced in the form given them by the organizing conceptions of the theory; and "experienced" means that they must be seen and felt and that the actions they signify must be undertaken.

Further, the theory is "verified" only by such an undertaking, for a theory is good to the extent that it does take account of all the pregnant facts and leads to actions which resolve the problem to the satisfaction of those who are caught up in it. Hence, the problem

of pragmatic rhetoric is to move men to an informed and reflected practice.

Now, it must be remembered that this view of knowledge plays two roles. In part it is the conception of education which Dewey hopes to convey. At the same time, it represents to him the way it must be conveyed. Remember too, that it is a wholly novel view of meaning and of truth. To this day, it remains far from being generally understood. If these three points now be joined, something very like a paradox emerges.

Dewey seeks to persuade men to teach a mode of learning and knowing which they themselves do not know and which they cannot grasp by their habitual ways of learning. It is the same problem of breaking the apparently unbreakable circle which Plato faces in *Meno* and Augustine in his treatise, *On the Teacher*.

To appreciate this seeming paradox more fully, let us turn to an analogous but simpler situation. Suppose a man wishes to show that the classic logic can lead to error. The one thing he cannot do is to give a classic argument which leads to this conclusion. For, if the classic argument does so lead, the conclusion, for that very reason, is suspect. Nor can he hope to succeed by arguing for his new logic by means of the new. For then he follows rules which his hearers do not know, much less agree to. This is a true dilemma—the live equivalent of a paradox.

We can begin to see Dewey's solution to this problem by continuing the analogy. Suppose that the man with the new logic changes his intention. He proposes, not to "prove" the fallibility of the old logic but to persuade men to try the new system which he conceives to be sounder. By this change of intention, he opens for himself a new route. He points out many assertions which his hearers will agree to be erroneous. He then points out that these errors were conclusions arrived at by the old logic. He does not (for he cannot) show that the fault lay in the old logic itself rather than in its faulty application. Hence, by these "pointings" he *proves* nothing. But he

has, perhaps, raised a reasonable doubt in the minds of reasonable men. He has created a situation in which some men of good will may be moved to try the new logic and thereby submit it to the test of practice—provided they can understand it.

This last is the remaining great stumbling block. If the enterprise is to be successful, it is the new logic and not some radically mistaken version of it which must be tried. Yet this is the unlikeliest outcome of all. For, if the new logic be described in its own new terms, its hearers must struggle hard for understanding by whatever means they have. These means, however, are the old modes of understanding, stemming from the old logic. Inevitably, the new will be altered and distorted in this process of communication, converted into some semblance of the old.

As we shall see, this is not a fatal objection, but it might appear so when first discerned. Hence, an alternative way of conveying the new logic might be sought, and there is a seeming alternative. The exponent of the new may prefer, for the sake of communication, to distort his own doctrine, converting his new conception into something thinner and less complete for the sake of transmitting it in the old, familiar terms. Thus he might get immediate comprehension. And what was comprehended would deviate from the original no more than (if as much as) the notions conveyed by the first technique.

This analogy pretty well describes the situation as Dewey's view of knowing and communication required him to see it. He too renounces any intention of "proving," in favor of moving men to reconstruct and test by practice. He points to weaknesses in men and society which exponents of the existing educational mode can agree are weaknesses, although he does not "prove" that these weaknesses are failures of that education. He points to omissions in current educational doctrine which are omissions even by that doctrine's standards. He then proposes a new and alternative scheme, though he does not, since he cannot, "prove" that it is better. And he, too, by so doing, runs the calculated risk of serious misunderstanding.

In one respect, however, the analogy does not hold. For Dewey, the

two alternative routes to misunderstanding are not real alternatives. Only the first is feasible. The reason is simple. If the new doctrine is entirely converted into the terms of the old, a static and unrecognized misunderstanding is likely to result. The poisoning occurs at the source. The hearers experience no struggle to comprehend. Hence, they do not know that they do not fully know. A new practice may ensue, but it is unlikely to be the testing practice which discloses that the policy it rested on was an imperfect shadow of what it seemed to be.

This follows from the fact that complex problems and what would be solutions to them are not “given” and “objective,” and thus seen as the same by all men—any more than are the means for solution. Such a community of problem and desired solution characterizes only those situations which are the same for all of us by virtue of our common biology or a common culture, thoroughly shared. Neither of these conditions holds for problems of education. We play different roles in our society and occupy varied parts of it. We have different personal histories which confer on us widely varying wants and capacities for satisfaction. Hence, an imperfect and partial understanding of a theory, leading to an incomplete practice, may yet seem to us satisfactory. It may have outcomes which fulfil some of our needs. Some of the needs it does not fulfil may not be our needs here and now. We may not be so placed as to see that their privation in others will later hit us where it hurts. In the same way, some of the outcomes of that practice may be deleterious to others, and eventually to us, but as long as they are not damaging to us here and now, we may, again, easily overlook them. Still other needs the practice fails to fill may be ours here and now, but we guess that they are needs whose satisfaction should be sought elsewhere or at another time.

Thus many a man-in-the-street has no use for the Humanities. “What good is it?” meaning, “How will it fill my belly?” is his present looming problem. He does not know that, when his belly and the needs it figuratively stands for are satisfied, he will discover new wants which art and the novel would fulfil had he learned access to them.



Many a teacher "has no use for theories of education," meaning, "How will they help me keep order in the classroom and help my students get good grades?" She is not so placed that she can see that new subjects and new disciplines proposed by the theory are intended to solve problems on the part of government or science or industry of which she and her students will eventually feel the pinch though she is not aware of them now. Many an editor urges that this or that aim of the school be "returned to the home where it belongs"—not knowing, or perhaps not wanting to know, that the homes of many of our children are no longer capable of serving the aim.

In brief, a pragmatic theory does more than merely suggest means for solving problems. It also points both to the problems themselves and to what a solution might be like—seen by the pragmatic theory-maker because his special stance affords him a view of problems which are visible to others only part by part.

Since pragmatic theory does contain a "pointing" to possible problems and possible aims, as well as to means to these ends, it must, in its own right, be in good part understood. It is not enough that a pale shadow of it be comfortably taken for the real thing, on the supposition that practice will soon disclose its weaknesses and lead to their correction. Hence, for Dewey, the alternative rhetoric which consists of thinning out and "dumbing down" at source is not a real alternative. It will not lead to test and understanding.

Only the first and thornier route is feasible. If the new is presented mainly in its own new terms, a quite different situation is created, uncomfortable but productive. From the first, hearers must struggle to understand. As they translate their tentative understanding into action, a powerful stimulus to thought and reflection is created. This stimulus acts in two ways. On the one hand, it creates new food for thought. The actions undertaken lead to unexpected consequences, effects on teachers and students, which cry for explanation. There is reflection on the disparities between ends envisaged and the consequences which actually ensue. There is reflection on the means used and the reasons why their outcomes were as they were. At the same

time, new competences for taking thought are roused. The new actions change old habits of thought and observation. Facts formerly ignored or deemed irrelevant take on significance. Energies are mobilized; new empathies are roused.

There thus arises a new and fuller understanding of the situation and a better grasp of the ideas which led to it. A revised practice is undertaken. The cycle renews itself. As long as the struggle is—and is felt as—indecisive, there will be such a continuing re-examination and reassessment of what is thought and done.

The significance to education of pragmatic rhetoric is twofold—corresponding to the two roles which the rhetoric plays for Dewey. As part of a conception of education, it becomes part of the meaning of “learning by doing.” What one learns is considerably more than habits, attitudes, precepts and doctrines presently true and useful. These, yes. But they are only the first order of learning. Each such instance of first-order mastery is, in addition, the occasion for a learning of a second order, a learning of what it is to learn. And learning, for Dewey, is active participation in the pragmatic rhetoric—the recovery and test of meaning. Hence, the effective “learning situation” is not the one which leads by the quickest, most comfortable route to mastered habit and attitude, used precept and applied knowledge, but the one which is provocative of reflection, experiment, and revision.

As the means by which Dewey hoped to convey his view of education, pragmatic rhetoric points to the fact that Dewey’s evangelists rendered him a poor service when they interposed between him and the teacher a series of deceiving simplicities which purported to contain the “new” view of education. This point applies to the present as well as the past. If teachers are effectively to guide their students through and to the exercise of intelligence, they cannot, themselves, be unreflective. The teachers college and the administrative structure of the school cannot afford, therefore, to repeat the error of the epitomists, to provide their teachers with fixed techniques, content to be learned by rote, and imposed curriculums. Teacher training

ought, in some measure, to become teacher education despite the pressure of an expanding population. It ought to exhibit the material which their students will teach as matter for reflection rather than as matter for docile mastery. It ought to exhibit proposed ends and methods of instruction in some of their difficult, tangled, and doubtful connection with the imperfect and incomplete researches on society, the learning process, human personality, and similar topics, from which they stem. The schools, in turn, ought to be so organized that at least some of their capable and energetic teachers find in the classroom and in each other the opportunity to reflect on ends and methods and try alternatives which experience and reflection suggest.

Luckily, Dewey's influence penetrated areas other than education. He laid the ground for dynamic theories of personality. His criticism of the rigid Pavlovian notions of conditioning modified research into learning and thereby affected our views of human intelligence and its operation. His conception of human association influenced many sociologists and, through the results of their researches, modified the very social structure in which we live. By these means, Dewey created a learning situation much broader than the classroom. Out of that situation, many American scholars, including some educators, have moved into the region of pragmatic intelligence. Let us look now at the scope and character of that space.

Dewey's problem in constructing that space was to rejoin what decadent memories of ancient philosophies had struck apart, to re-establish circuits through which divisions of human thought and interest could find each other. There were the urgencies of human needs, the "practical," left, in their isolation from science and scholarship, to seek each its own means to satisfaction with indifference to the farther future and with frightened inattention to the consequences of taken actions on areas of other needs. There were the fields of science and scholarship, enjoying an integral character which the practical lacked but preoccupied each with the intricate relations among its own conceptions and growing sterile from lack of contact

with the arena of human needs and with each other. There was the area of value—of duty and enjoyment—treated as something opposing or beyond the condition of man and the circumstances of existence. There was the area of fact treated as ultimately unresponsive to man's wishes and irrelevant to his highest aspirations.

Pragmatic Intellectual Space is Dewey's solution to these problems. The solution is remarkable in that these divided factors are placed in communication with one another without sacrificing the special character of each one. Science and scholarship retain their integrations; the practical, its competence to cope with urgency. Art and aspiration continue to look beyond the present and the presently possible. The anchoring recalcitrance of fact is not denied. But while each retains its special advantage, each can repair its lack by connection with the others. Science finds refreshment and new impetus in problems posed it by the practical. The practical finds organization of means and consequences and refinement of its aims in science. Art and aspiration find test, support, and material for realization in the world of fact and of the practical. Facts are made more pliable by science and placed in the service of art and the practical.

These connections are achieved by discerning new guiding patterns and outcomes for the exercise of intelligence, replacing the older ones. In older guiding views, for example, science consisted in the pursuit of one or another eternal stability: irreducible elements of which the world was supposed to be composed; or the ultimate formal patterns which organized each subject matter; or the system of natural classes to which each natural thing belonged. The very universality and ultimacy of these directive notions was what cut science off from the practical. Similar directives walled off art from "life" and ethics from ordinary affairs.

We can catch a glimpse of Dewey's revised channels of intelligence by examining briefly the topography of pragmatic intellectual space with special reference to theory and practice, science and daily problems.

The (literally) fundamental differentiation of pragmatic space

from other views of intelligence lies in the discard of the notion of brute and given fact observed. The doubtful notion that facts are seen "objectively," without reference to the seeing thing, is replaced by the notion of "situation." The primitive intelligent act is apprehension of need, requirement, imbalance, in one's relation to surrounding circumstance. From apprehension of imbalance we move to specification of it—what there is about us and circumstance which is teetering, open, needful: we locate the problem which the situation poses. The process moves to its climax when we find a way of acting which promises to restore balance in the situation—a way to solve our problem. The process is completed when we master the pattern of action which does, in fact, resolve the problem by creating a satisfactory state of affairs.

If we look closely at this idea we can see what replaces "brute" fact and plants the germ of an integration of theory and practice. There is a primitive knowing here—a forecast of science. There is a primitive practicality—the resolution of an imbalance involving us. And the two are closely joined. What we know is not facts *sub specie aeterni*, but facts as parts of a practical problem and as means to its solution. In the opposite direction, what we achieve is not merely satisfaction of a need but a new condition in the world around us, an experiment, if you please, which will evoke new situations posing new problems which will present new facts for us to know.

The first level of pragmatic space is, then, a mastered pattern of action to an end. But, says Dewey, this is an artifact, an abstraction. No single pattern of action to an end exists alone—even in animals "lower" than man. No two situations are precisely alike; single, rigid patterns of action will not continue to master situations. So a second level must intervene before we can reach the level of reflection. At this level, we achieve, for each kind of problem and situation, flexible ways of acting, modified steps and alternative sequences designed to meet the flux of materials and events.

This state of affairs is a marked improvement; it is intelligent. But it is not yet reflective; we have not reflexed, looked back. On the

side of means, we have not yet noted why certain actions were effective, others not. On the side of aims, we have not yet compared them with one another. We are *too* responsive to the flux of materials and events; too little its master.

The third level of pragmatic space—the first level in which reflection appears—fills this gap. At this level, we take note of connections between different things done and different resulting consequences. Thus we compile a catalogue of means to ends, a body of practical knowledge. Then we look to connections among differing consequences and the differing satisfactions which ensue, yielding knowledge of wants and their objects—what there is that satisfies and in what degree. Thus reflection provides us with tested means by which to meet similar situations in the future and with alternative aims by which to guide the use we make of these situations. We become good, practical animals.

This sort of practical knowledge suffices for some parts of some lives, but it is too much chained to the past to anticipate adequately the changing future. It is reflection on past means and ends. It can serve to anticipate only such futures as are notable in the past; but there is reason to be sure that the future will pose problems markedly different. We have ourselves set in train events which will change them. Each resolution of a past situation has been successful because it changed something. Very often, the change is small, and what follows from it is equally small. But some solutions to problems are far-reaching in their effects. Agriculture, for example, has changed the face and climate of vast areas. Urbanization has altered the waters we drink and the air we breathe. And while these changes take place on the circumstantial side of situations, the other side—ourselves—changes too. By the act of solving problems and by living with their solutions, we alter ourselves. Our competence is enhanced, and our wants are changed. When problems of mere survival are overcome, we look for comfort. When this is found, we uncover higher aspirations. From being satisfied with outcomes of our acts, we turn to pleasure in the act well done; from being satisfied with

other men as henchmen, we look for men as friends. So, in respect of both ends and means, the future poses problems which may differ radically from those of the past.

If this condition is to be met, the pursuit of knowledge must race ahead of practical problems posed and do without their aid. It must be unchained from past experience, even from the present. It must go on "for its own sake," for the future. This process is the birth of the sciences—those which concern ourselves as well as those concerned with the surrounding world. We now arrive at the fourth level.

We already have the makings of a modest science in the form of known means to ends. But the linkage of each bit of knowledge as a means to an end is the chain to the past. It makes a catalogue of our knowledge which can be enhanced only as new problems permit us to discover new means. What we need is a way in which knowledge of means alone will point to sources for new knowledge. This is achieved when we disconnect each means from its end and invent a new form of organization which binds our bits together as coherent knowledge of some extensive part or aspect of the world. Where we knew before, for example, that heat hardens clay and eggs but softens meat, we are now to forget about dishes and stews and concern ourselves with heat and with the structure and states of matter. Thus we transform knowledge from knowledge of means to tentative knowledge of the world.

This reorganization, remember, is not invented to give more practically useful structure to what we already know but to point to new things to know and new ways of disclosing knowledge. There is a dual significance to this function of scientific structure. In the first place, it means that the organization is still instrumental (not "real" or ultimate or "true") as was knowledge when organized as means. Only, the end has changed, and the instrument is a new instrument. The end is knowledge, the instrument is an instrument of inquiry. It is designed to show us how to create problems deliberately instead of waiting on them and how to create just those problems

which will create new experiences to enlarge our body of knowledge. This is the activity of experiment and research.

To say that scientific knowledge is organized instrumentally is also to suggest the second significant point: that its organizing forms (atoms, electrons, wave-motion, reflex arcs, cultures, civilizations) are not the forms of things, an ultimate or "true" picture of a static world, but the forms which serve us well, in the present state of our knowledge, as means for pursuing more knowledge. In consequence, the forms will change. As they succeed, they change the state of our knowledge. New forms become necessary as the potential of the old ones is exhausted. So science, like practical knowledge, is fluid and dynamic.

This last fact has explosive meaning for the conduct of the school. It points to the pervasive place of reflection in all educative experience. The pervasive dynamism of things and knowledge, practical and theoretical, means that at no level of pragmatic space can education rest on inculcation only. There are no dependable patterns of reaction, no permanent catalogue of means and ends, not even a permanent body of scientific knowledge, which, once known, can be the unreflective basis of all other action and reflection. We need to reflect on our acts in the light of knowledge of means and ends and to reflect on this knowledge in the light of what science has to offer.

But this reflective motion downward from above is only half the story. Since scientific knowledge is couched in terms corresponding neither to "reality" nor to immediate human needs, we need to reflect on the relations of its conclusions to its forms and evidence in order even to know what it is about. Its conclusions make sense only in the light of the way they were formed. And the *use* of the conclusions presupposes reflection which transforms both the forms of scientific thought and the requirements of felt problems so that the two can be brought together.

Mirroring these needs, pragmatic intellectual space supposes two sets of reflective motions. There are, first, the motions which make each level: the trying-out which yields patterns of effective action;



the cataloguing which yields knowledge of means and ends; the inquiring which yields science. But these cannot go on (or, if pursued, be completed) without reflection that oscillates between each level and the others. Seeing problems in the practical freshens the forms of inquiry; seeing practical possibilities in the structure of scientific knowledge enhances the life of everyday. These are the dynamics which link the levels to one another and enable them to serve their function in the system.

With the fifth and sixth levels of pragmatic space we shall deal very briefly. The pursuit of new scientific knowledge is guided by the organization with which we structured the old. This structure, embodied in such "theoretic" concepts as atom and electron, organ and organism, culture and civilization, cause and kind, creates and constrains the methods of science. The effectiveness of each science is thus determined or limited by the adequacy of its forming concepts. These may be more or less effective for the purposes of inquiry. But effective as they may be at any given time, they may reach the end of their usefulness, require refreshment or replacement. Hence, there must be reflection on the means and ends involved in the discovery of knowledge, a reflection that judges and measures. This is the level called Logic.

Finally, there must be an activity of supremely creative reflection, a process dedicated to the invention of new concepts, new logical forms by which to restructure knowledge and guide its increase. This is the level of Mathematics.

Let us summarize the scope of pragmatic intellectual space in the diagram in Figure 1. This diagram omits two extremely important matters. One is the place of art. The other is the dimension of human association and communication. Perhaps also there is a seventh discipline, "Critic," combining logic and mathematics and applying to the entire space. This would be the discipline used by Dewey himself.

We turn now from knowledge and knowing to what is known—to the subject matter of reflection. Of the three factors we shall have

discussed, this one is the simplest. It may be put bluntly thus: no dependable, anticipatory judgment can tell us that *one* of the terms into which a problem can be analyzed is its first, most proper, or only principle. *All* the terms that men severally have recognized should be considered as relevant, interacting factors. Reflection is the better as it puts together what other men have put asunder.

THE DYNAMICS	THE ACTIVITY	THE OUTCOME	THE NAME
5th →	Reflection on knowledge of discovery	Invention of means and ends of discovery	Mathematics*
4th →	Reflection on the conduct of discovery	Critical knowledge of scientific method	Logic
	Reflection on ends and means; deliberate pursuit of experience	Knowledge organized for pursuit of further knowledge	Science, including the Social
	Reflection on actions and consequences	Knowledge organized as tested ends and means	Technics; Practical Ethics
3d	Sensitive mastery of variable problematic situations	Flexible ways of acting in each such situation	Flexible habit; Artfulness
2d	Mastery of problematic situations	A way of acting in each such situation	Mere habit
1st			

\* "Mathematics," as used here, covers more than the number system, algebra, and geometry taught in the schools. It includes all invention of formal devices and relations.

FIG. 1.—The levels and dynamics of pragmatic intellectual space

Where one man may judge a wrongdoer by his motive, a second by the effect of his act on others, a third by looking to upbringing as an extenuation, and so on, Dewey insists that all such factors must be considered. He puts it thus: "It is the business of an intelligent theory to ascertain the causes for the conflicts that exist and then, instead of taking one side or the other, to indicate a plan of operations proceeding from a level *deeper and more inclusive* than is represented by the practices and ideas of the contending parties" (1).

A glance at some of the epitomes spoken in Dewey's name will clarify the point. Let us begin with the following pair:

1. The school must educate for present living. Our tradition is a great one but its organization and content grew out of conditions and circumstances which are mostly over and done with. It must give way to what is live and real: to the conditions, the situations, the problems and instruments of the present.
2. A good education must be education for change. We live in a dynamic world. The present, by its very nature, is senescent. It is the blossoming future, with all its unknowns, that the child must be prepared to face.

Each of these, taken alone and without reflection, is plausible. But taken together they exhibit the "either-or," the signal that each is contributing a *part* of the story of education while ignoring the part contributed by the other. The first celebrates the present while ignoring the future and contemning the past. The second contemns both past and present in the interest of the future.

For Dewey, on the other hand, these parts of time were to be brought together. Reflection and inquiry take from the past and project toward the future. The learning experiences of the child, taking place in a childish present, are nevertheless to acquire a structure and organization as they extend over the weeks and months, embracing the formulated knowledge which we take as the gift of the past. Meanwhile the vivid presentness of experience serves the future by vivifying knowledge gained, insuring that it will be accessible as means to ends and as means for judging ends.

Let us take another pair:

3. We cannot impose a single norm on all individuals. Each differs from the other. A good education aims to develop whatever potentials each individual may possess. It identifies and then nurtures to maximum growth the uniqueness in each child.
4. Man's sociality is an inescapable fact. Each of us finds our effectiveness and our satisfactions in concert with others. Education must, therefore, develop each child into an effective, co-operative member of a group, competent and happy in his social life.

Here, the obvious opposition lies between the members of that timeworn pair, the individual "versus" society. Number 3 harps on

uniqueness without noting that even the “nurturing” it recommends is a social act in which the nurturer and the nurtured must have much in common if nurture is to succeed. The nurturer will sacrifice some of his uniqueness in order to serve the child, while the fact that the child will learn much from the teacher as a model will make them much alike. Meanwhile, Number 4, by the unexamined ambiguity of “sociality” leaves unvoiced the extent to which a group requires differentness, uniqueness, among its members, and the similar extent to which individuals are rendered a service severally as well as collectively by being a member of a group.

Dewey sought, in education, the mutuality which joined society and separate persons. Development of the potentialities special to each person, yes. But so that they be put in the service of society as well as in the service of the self. And development, too, of the common competences which serve society, but so that association may better serve the individual while individuals serve to improve the quality of association. Neither automatic conformity to socially accepted norms nor centrifugal scattering into privacies can be the useful rule. Where all conform, none question. There is no inquiry. Where belligerent individualism is the rule, we lose the fruits which require collaboration and, more important, lose the satisfaction of sharing, itself.

Let us end with two further specimens:

5. Ultimately, the goal of education can only be to provide means for adjustment to the environment. Man’s means for meeting the conditions of life may be far richer than those of other species and his needs more complex. But in the last analysis, whether we seek merely to live or to live well, we share with all organisms our dependence on the environment.
6. To live is to do. It is a concrete shaping of events and things to serve our needs. Education too, unless it be for an ivory tower divorced from doing and undertaking, must occur through and for concrete doing and making. There is no place in it for the inactive, the abstract, the verbal; for academic “thought” and “logic” not focused on a concrete problem to be solved, an existent need to be fulfilled.

Between these two we see, first, the same kind of opposition visible in the others. Number 5 can speak of adjustment to the environment

while giving hardly a hint of the fact that we may often (and perhaps much more satisfactorily) adjust the environment to ourselves. Number 6 is opposed to Number 5, but its emphasis raises another pair of factors. It attacks thought and logic, words and abstraction, with just the touch of ambiguity which leaves the unwary reader supposing that somehow these are alternative to action, to doing and making, rather than their aids and correctives. It leaves unvoiced the point that the active doing which Dewey commended to the schools was not for its own sake but as the occasion and condition for learning and reflection. To "learn by doing" was neither to learn only by doing nor to learn only how to do. Doing was to go hand in hand with reading, reflecting, and remembering. And these intelligent activities were to eventuate in something more than efficient coping with the bread-and-butter problems of existence. They were to yield the capacity for rewarding experience, a doing and undergoing not merely for the sake of the material outcome; often, not for that outcome at all, but for the satisfaction of the work itself. Here lies the region which involves enjoyment—of problems and of work, of art, and of our relations with our friends and neighbors.

In brief, Dewey's effort in his work on education was to join together many factors, not to substitute one for another. He was concerned to find the "deeper and more inclusive ideas" which would *relate* past and present, doing and thinking, individual and society. So also for terms we have not illustrated: work and play; art and life; ends and means; impulse, discipline, order and spontaneity.

What, then, is the "impossible" role of the teacher in a progressive school and curriculum?

It consists, first, in the fact that the teacher must be a learner—even unto the fourth level of Dewey's intellectual space. It is not enough for the teacher to master certain ways of acting as a teacher. This is only a capable apprentice. It is not enough to be master of flexible ways of acting. This is only to be a competent "hand" who can function well when told what to do but who cannot himself

administer. It is not even enough to possess organized knowledge of ways and means. This is to interpret a policy and tend to its efficient execution but not to be able to improve a policy or change it as problems change.

Only as the teacher uses the classroom as the occasion and the means to reflect upon education as a whole (ends as well as means), as the laboratory in which to translate reflections into actions and thus to test reflections, actions, and outcomes against many criteria, is he a good “progressive” teacher.

Meanwhile, he must be a teacher too. As a teacher, he must aim to carry all his students to the third dynamic of intellectual space, some to the fourth, and be alert to find those few who may go still farther. To aim for less than the third is to fail to test the possibility of a democratic society, to capitulate to the notion of Mass and Class—the latter managerial and manipulative; the former, managed servants, unaware.

#### NOTE

1. John Dewey, *Experience and Education* (New York: Macmillan Co., 1939). Italics mine.