

# DEMOCRACY AND EDUCATION

AN INTRODUCTION TO THE PHILOS-  
OPHY OF EDUCATION

BY  
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## PREFACE

THE following pages embody an endeavor to detect and state the ideas implied in a democratic society and to apply these ideas to the problems of the enterprise of education. The discussion includes an indication of the constructive aims and methods of public education as seen from this point of view, and a critical estimate of the theories of knowing and moral development which were formulated in earlier social conditions, but which still operate, in societies nominally democratic, to hamper the adequate realization of the democratic ideal. As will appear from the book itself, the philosophy stated in this book connects the growth of democracy with the development of the experimental method in the sciences, evolutionary ideas in the biological sciences, and the industrial reorganization, and is concerned to point out the changes in subject matter and method of education indicated by these developments.

Hearty acknowledgments are due to Dr. Goodsell of Teachers College for criticisms; to Professor Kilpatrick of the same institution for criticisms, and for suggestions regarding the order of topics, of which I have freely availed myself, and to Miss Elsie Ripley Clapp for many criticisms and suggestions. The two firstnamed have also been kind enough to read the proofsheets. I am also greatly indebted to a long line of students whose successive classes span more years than I care to enumerate.

J. D.

COLUMBIA UNIVERSITY, NEW YORK CITY,  
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## CHAPTER IV

### EDUCATION AS GROWTH

**1. The Conditions of Growth.** — In directing the activities of the young, society determines its own future in determining that of the young. Since the young at a given time will at some later date compose the society of that period, the latter's nature will largely turn upon the direction children's activities were given at an earlier period. This cumulative movement of action toward a later result is what is meant by growth.

The primary condition of growth is immaturity. This may seem to be a mere truism — saying that a being can develop only in some point in which he is undeveloped. But the prefix 'im' of the word immaturity means something positive, not a mere void or lack. It is noteworthy that the terms 'capacity' and 'potentiality' have a double meaning, one sense being negative, the other positive. Capacity may denote mere receptivity, like the capacity of a quart measure. We may mean by potentiality a merely dormant or quiescent state — a capacity to become something different under external influences. But we also mean by capacity an ability, a power; and by potentiality potency, force. Now when we say that immaturity means the possibility of growth, we are not referring to absence of powers which may exist at a later time; we express a force positively present — the *ability to develop*.

Our tendency to take immaturity as mere lack, and growth as something which fills up the gap between the immature and the mature is due to regarding childhood *comparatively*, instead of *intrinsically*. We treat it simply as a privation

because we are measuring it by adulthood as a fixed standard. This fixes attention upon what the child has not, and will not have till he becomes a man. This comparative standpoint is legitimate enough for some purposes, but if we make it final, the question arises whether we are not guilty of an overweening presumption. Children, if they could express themselves articulately and sincerely, would tell a different tale; and there is excellent adult authority for the conviction that for certain moral and intellectual purposes adults must become as little children.

The seriousness of the assumption of the negative quality of the possibilities of immaturity is apparent when we reflect that it sets up as an ideal and standard a static end. The fulfillment of growing is taken to mean an *accomplished* growth: that is to say, an Ungrowth, something which is no longer growing. The futility of the assumption is seen in the fact that every adult resents the imputation of having no further possibilities of growth; and so far as he finds that they are closed to him mourns the fact as evidence of loss, instead of falling back on the achieved as adequate manifestation of power. Why an unequal measure for child and man?

Taken absolutely, instead of comparatively, immaturity designates a positive force or ability, — the *power* to grow. We do not have to draw out or educe positive activities from a child, as some educational doctrines would have it. Where there is life, there are already eager and impassioned activities. Growth is not something done to them; it is something they do. The positive and constructive aspect of possibility gives the key to understanding the two chief traits of immaturity, dependence and plasticity. (1) It sounds absurd to hear dependence spoken of as something positive, still more absurd as a power. Yet if helplessness were all there were in dependence, no development could ever take place. A merely impotent being has to be carried, forever, by others. The fact that dependence is accompanied by growth in ability,

not by an ever increasing lapse into parasitism, suggests that it is already something constructive. Being merely sheltered by others would not promote growth. For (2) it would only build a wall around impotence. With reference to the physical world, the child is helpless. He lacks at birth and for a long time thereafter power to make his way physically, to make his own living. If he had to do that by himself, he would hardly survive an hour. On this side his helplessness is almost complete. The young of the brutes are immeasurably his superiors. He is physically weak and not able to turn the strength which he possesses to coping with the physical environment.

1. The thoroughgoing character of this helplessness suggests, however, some compensating power. The relative ability of the young of brute animals to adapt themselves fairly well to physical conditions from an early period suggests the fact that their life is not intimately bound up with the life of those about them. They are compelled, so to speak, to have physical gifts because they are lacking in social gifts. Human infants, on the other hand, can get along with physical incapacity just because of their social capacity. We sometimes talk and think as if they simply happened to be *physically* in a social environment; as if social forces exclusively existed in the adults who take care of them, they being passive recipients. If it were said that children are themselves marvelously endowed with *power* to enlist the coöperative attention of others, this would be thought to be a backhanded way of saying that others are marvelously attentive to the needs of children. But observation shows that children are gifted with an equipment of the first order for social intercourse. Few grown-up persons retain all of the flexible and sensitive ability of children to vibrate sympathetically with the attitudes and doings of those about them. Inattention to physical things (going with incapacity to control them) is accompanied by a corresponding intensification of interest and attention as to the

doings of people. The native mechanism of the child and his impulses all tend to facile social responsiveness. The statement that children, before adolescence, are egotistically self-centered, even if it were true, would not contradict the truth of this statement. It would simply indicate that their social responsiveness is employed on their own behalf, not that it does not exist. But the statement is not true as matter of fact. The facts which are cited in support of the alleged pure egoism of children really show the intensity and directness with which they go to their mark. If the ends which form the mark seem narrow and selfish to adults, it is only because adults (by means of a similar engrossment in their day) have mastered these ends, which have consequently ceased to interest them. Most of the remainder of children's alleged native egoism is simply an egoism which runs counter to an adult's egoism. To a grown-up person who is too absorbed in his own affairs to take an interest in children's affairs, children doubtless seem unreasonably engrossed in *their* own affairs.

From a social standpoint, dependence denotes a power rather than a weakness; it involves interdependence. There is always a danger that increased personal independence will decrease the social capacity of an individual. In making him more self-reliant, it may make him more self-sufficient; it may lead to aloofness and indifference. It often makes an individual so insensitive in his relations to others as to develop an illusion of being really able to stand and act alone — an unnamed form of insanity which is responsible for a large part of the remediable suffering of the world.

2. The specific adaptability of an immature creature for growth constitutes his *plasticity*. This is something quite different from the plasticity of putty or wax. It is not a capacity to take on change of form in accord with external pressure. It lies near the pliable elasticity by which some persons take on the color of their surroundings while retaining

their own bent. But it is something deeper than this. It is essentially the ability to learn from experience; the power to retain from one experience something which is of avail in coping with the difficulties of a later situation. This means power to modify actions on the basis of the results of prior experiences, the power to *develop dispositions*. Without it, the acquisition of habits is impossible.

It is a familiar fact that the young of the higher animals, and especially the human young, have to *learn* to utilize their instinctive reactions. The human being is born with a greater number of instinctive tendencies than other animals. But the instincts of the lower animals perfect themselves for appropriate action at an early period after birth, while most of those of the human infant are of little account just as they stand. An original specialized power of adjustment secures immediate efficiency, but, like a railway ticket, it is good for one route only. A being who, in order to use his eyes, ears, hands, and legs, has to experiment in making varied combinations of their reactions, achieves a control that is flexible and varied. A chick, for example, pecks accurately at a bit of food in a few hours after hatching. This means that definite coördinations of activities of the eyes in seeing and of the body and head in striking are perfected in a few trials. An infant requires about six months to be able to gauge with approximate accuracy the action in reaching which will coördinate with his visual activities; to be able, that is, to tell whether he can reach a seen object and just how to execute the reaching. As a result, the chick is limited by the relative perfection of its original endowment. The infant has the advantage of the *multitude* of instinctive tentative reactions and of the experiences that accompany them, even though he is at a temporary disadvantage because they cross one another. In learning an action, instead of having it given ready-made, one of necessity learns to vary its factors, to make varied combinations of them, according to change of circum-

stances. A possibility of continuing progress is opened up by the fact that in learning one act, methods are developed good for use in other situations. Still more important is the fact that the human being acquires a habit of learning. He learns to learn.

The importance for human life of the two facts of dependence and variable control has been summed up in the doctrine of the significance of prolonged infancy.<sup>1</sup> This prolongation is significant from the standpoint of the adult members of the group as well as from that of the young. The presence of dependent and learning beings is a stimulus to nurture and affection. The need for constant continued care was probably a chief means in transforming temporary co-habitations into permanent unions. It certainly was a chief influence in forming habits of affectionate and sympathetic watchfulness; that constructive interest in the well-being of others which is essential to associated life. Intellectually, this moral development meant the introduction of many new objects of attention; it stimulated foresight and planning for the future. Thus there is a reciprocal influence. Increasing complexity of social life requires a longer period of infancy in which to acquire the needed powers; this prolongation of dependence means prolongation of plasticity, or power of acquiring variable and novel modes of control. Hence it provides a further push to social progress.

**2. Habits as Expressions of Growth.** — We have already noted that plasticity is the capacity to retain and carry over from prior experience factors which modify subsequent activities. This signifies the capacity to acquire habits, or develop definite dispositions. We have now to consider the salient features of habits. In the first place, a habit is a form of executive skill, of efficiency in doing. A habit means an ability

<sup>1</sup> Intimations of its significance are found in a number of writers, but John Fiske, in his "Excursions of an Evolutionist," is accredited with its first systematic exposition.

to use natural conditions as means to ends. It is an active control of the environment through control of the organs of action. We are perhaps apt to emphasize the control of the body at the expense of control of the environment. We think of walking, talking, playing the piano, the specialized skills characteristic of the etcher, the surgeon, the bridge-builder, as if they were simply ease, deftness, and accuracy on the part of the organism. They are that, of course; but the measure of the value of these qualities lies in the economical and effective control of the environment which they secure. To be able to walk is to have certain properties of nature at our disposal — and so with all other habits.

Education is not infrequently defined as consisting in the acquisition of those habits that effect an adjustment of an individual and his environment. The definition expresses an essential phase of growth. But it is essential that adjustment be understood in its active sense of *control* of means for achieving ends. If we think of a habit simply as a change wrought in the organism, ignoring the fact that this change consists in ability to effect subsequent changes in the environment, we shall be led to think of 'adjustment' as a conformity to environment as wax conforms to the seal which impresses it. The environment is thought of as something fixed, providing in its fixity the end and standard of changes taking place in the organism; adjustment is just fitting ourselves to this fixity of external conditions.<sup>1</sup> Habit as *habituation* is indeed something *relatively* passive; we get used to our surroundings — to our clothing, our shoes, and gloves; to the atmosphere as long as it is fairly equable; to our daily associates, etc. Conformity to the environment, a change wrought in the organism without reference to ability to modify surroundings,

<sup>1</sup>This conception is, of course, a logical correlate of the conceptions of the external relation of stimulus and response, considered in the last chapter, and of the negative conceptions of immaturity and plasticity noted in this chapter.

is a marked trait of such habituations. Aside from the fact that we are not entitled to carry over the traits of such adjustments (which might well be called *accommodations*, to mark them off from active adjustments) into habits of active use of our surroundings, two features of habituations are worth notice. In the first place, we get used to things by *first* using them.

Consider getting used to a strange city. At first, there is excessive stimulation and excessive and ill-adapted response. Gradually certain stimuli are selected because of their relevancy, and others are degraded. We can say either that we do not respond to them any longer, or more truly that we have effected a persistent response to them — an equilibrium of adjustment. This means, in the second place, that this enduring adjustment supplies the background upon which are made specific adjustments, as occasion arises. We are never interested in changing the *whole* environment; there is much that we take for granted and accept just as it already is. Upon this background our activities focus at certain points in an endeavor to introduce needed changes. Habituation is thus our adjustment to an environment which at the time we are not concerned with modifying, and which supplies a leverage to our active habits.

Adaptation, in fine, is quite as much adaptation *of* the environment to our own activities as of our activities *to* the environment. A savage tribe manages to live on a desert plain. It adapts itself. But its adaptation involves a maximum of accepting, tolerating, putting up with things as they are, a maximum of passive acquiescence, and a minimum of active control of subjection to use. A civilized people enters upon the scene. It also adapts itself. It introduces irrigation; it searches the world for plants and animals that will flourish under such conditions; it improves, by careful selection, those which are growing there. As a consequence, the wilderness blossoms as a rose. The savage is merely habit-

uated; the civilized man has habits which transform the environment.

The significance of habit is not exhausted, however, in its executive and motor phase. It means formation of intellectual and emotional disposition as well as an increase in ease, economy, and efficiency of action. Any habit marks an *inclination* — an active preference and choice for the conditions involved in its exercise. A habit does not wait, Micawber-like, for a stimulus to turn up so that it may get busy; it actively seeks for occasions to pass into full operation. If its expression is unduly blocked, inclination shows itself in uneasiness and intense craving. A habit also marks an intellectual disposition. Where there is a habit, there is acquaintance with the materials and equipment to which action is applied. There is a definite way of understanding the situations in which the habit operates. Modes of thought, of observation and reflection, enter as forms of skill and of desire into the habits that make a man an engineer, an architect, a physician, or a merchant. In unskilled forms of labor, the intellectual factors are at minimum precisely because the habits involved are not of a high grade. But there are habits of judging and reasoning as truly as of handling a tool, painting a picture, or conducting an experiment.

Such statements are, however, understatements. The habits of mind involved in habits of the eye and hand supply the latter with their significance. Above all, the intellectual element in a habit fixes the relation of the habit to varied and elastic use, and hence to continued growth. We speak of *fixed* habits. Well, the phrase may mean powers so well established that their possessor always has them as resources when needed. But the phrase is also used to mean ruts, routine ways, with loss of freshness, openmindedness, and originality. Fixity of habit may mean that something has a fixed hold upon us, instead of our having a free hold upon things. This fact explains two points in a common notion

about habits: their identification with mechanical and external modes of action to the neglect of mental and moral attitudes, and the tendency to give them a bad meaning, an identification with "bad habits." Many a person would feel surprised to have his aptitude in his chosen profession called a habit, and would naturally think of his use of tobacco, liquor, or profane language as typical of the meaning of habit. A habit is to him something which has a hold on him, something not easily thrown off even though judgment condemn it.

Habits reduce themselves to routine ways of acting, or degenerate into ways of action to which we are enslaved just in the degree in which intelligence is disconnected from them. Routine habits are unthinking habits; "bad" habits are habits so severed from reason that they are opposed to the conclusions of conscious deliberation and decision. As we have seen, the acquiring of habits is due to an original plasticity of our natures: to our ability to vary responses till we find an appropriate and efficient way of acting. Routine habits, and habits that possess us instead of our possessing them, are habits which put an end to plasticity. They mark the close of power to vary. There can be no doubt of the tendency of organic plasticity, of the physiological basis, to lessen with growing years. The instinctively mobile and eagerly varying action of childhood, the love of new stimuli and new developments, too easily passes into a "settling down," which means aversion to change and a resting on past achievements. Only an environment which secures the full use of intelligence in the process of forming habits can counteract this tendency. Of course, the same hardening of the organic conditions affects the physiological structures which are involved in thinking. But this fact only indicates the need of persistent care to see to it that the function of intelligence is invoked to its maximum possibility. The short-sighted method which falls back on mechanical routine and repetition to secure external effi-

ciency of habit, motor skill without accompanying thought, marks a deliberate closing in of surroundings upon growth.

**3. The Educational Bearings of the Conception of Development.** — We have had so far but little to say in this chapter about education. We have been occupied with the conditions and implications of growth. If our conclusions are justified, they carry with them, however, definite educational consequences. When it is said that education is development, everything depends upon *how* development is conceived. Our net conclusion is that life is development, and that developing, growing, is life. Translated into its educational equivalents, this means (i) that the educational process has no end beyond itself; it is its own end; and that (ii) the educational process is one of continual reorganizing, reconstructing, transforming.

1. Development when it is interpreted in *comparative* terms, that is, with respect to the special traits of child and adult life, means the direction of power into special channels: the formation of habits involving executive skill, definiteness of interest, and specific objects of observation and thought. But the comparative view is not final. The child has specific powers; to ignore that fact is to stunt or distort the organs upon which his growth depends. The adult uses his powers to transform his environment, thereby occasioning new stimuli which redirect his powers and keep them developing. Ignoring this fact means arrested development, a passive accommodation. Normal child and normal adult alike, in other words, are engaged in growing. The difference between them is not the difference between growth and no growth, but between the modes of growth appropriate to different conditions. With respect to the development of powers devoted to coping with specific scientific and economic problems we may say the child should be growing in manhood. With respect to sympathetic curiosity, unbiased responsiveness, and openness of mind, we may say that the adult should be growing in childlikeness. One statement is as true as the other.

Three ideas which have been criticized, namely, the merely privative nature of immaturity, static adjustment to a fixed environment, and rigidity of habit, are all connected with a false idea of growth or development, — that it is a movement toward a fixed goal. Growth is regarded as *having* an end, instead of *being* an end. The educational counterparts of the three fallacious ideas are first, failure to take account of the instinctive or native powers of the young; secondly, failure to develop initiative in coping with novel situations; thirdly, an undue emphasis upon drill and other devices which secure automatic skill at the expense of personal perception. In all cases, the adult environment is accepted as a standard for the child. He is to be brought up *to* it.

Natural instincts are either disregarded or treated as nuisances — as obnoxious traits to be suppressed, or at all events to be brought into conformity with external standards. Since conformity is the aim, what is distinctively individual in a young person is brushed aside, or regarded as a source of mischief or anarchy. Conformity is made equivalent to uniformity. Consequently, there are induced lack of interest in the novel, aversion to progress, and dread of the uncertain and the unknown. Since the end of growth is outside of and beyond the process of growing, external agents have to be resorted to to induce movement towards it. Whenever a method of education is stigmatized as mechanical, we may be sure that external pressure is brought to bear to reach an external end.

2. Since in reality there is nothing to which growth is relative save more growth, there is nothing to which education is subordinate save more education. It is a commonplace to say that education should not cease when one leaves school. The point of this commonplace is that the purpose of school education is to insure the continuance of education by organizing the powers that insure growth. The inclination to learn from life itself and to make the conditions of life such that all will learn in the process of living is the finest product of schooling.

When we abandon the attempt to define immaturity by means of fixed comparison with adult accomplishments, we are compelled to give up thinking of it as denoting lack of desired traits. Abandoning this notion, we are also forced to surrender our habit of thinking of instruction as a method of supplying this lack by pouring knowledge into a mental and moral hole which awaits filling. Since life means growth, a living creature lives as truly and positively at one stage as at another, with the same intrinsic fullness and the same absolute claims. Hence education means the enterprise of supplying the conditions which insure growth, or adequacy of life, irrespective of age. We first look with impatience upon immaturity, regarding it as something to be got over as rapidly as possible. Then the adult formed by such educative methods looks back with impatient regret upon childhood and youth as a scene of lost opportunities and wasted powers. This ironical situation will endure till it is recognized that living has its own intrinsic quality and that the business of education is with that quality.

Realization that life is growth protects us from that so-called idealizing of childhood which in effect is nothing but lazy indulgence. Life is not to be identified with every superficial act and interest. Even though it is not always easy to tell whether what appears to be mere surface fooling is a sign of some nascent as yet untrained power, we must remember that manifestations are not to be accepted as ends in themselves. They are signs of possible growth. They are to be turned into means of development, of carrying power forward, not indulged or cultivated for their own sake. Excessive attention to surface phenomena (even in the way of rebuke as well as of encouragement) may lead to their fixation and thus to arrested development. What impulses are moving toward, not what they have been, is the important thing for parent and teacher. The true principle of respect for immaturity cannot be better put than in the words of Emerson :

“Respect the child. Be not too much his parent. Trespass not on his solitude. But I hear the outcry which replies to this suggestion: Would you verily throw up the reins of public and private discipline; would you leave the young child to the mad career of his own passions and whimsies, and call this anarchy a respect for the child’s nature? I answer, — Respect the child, respect him to the end, but also respect yourself. . . . The two points in a boy’s training are, to keep his *naturel* and train off all but that; to keep his *naturel*, but stop off his uproar, fooling, and horseplay; keep his nature *and arm it with knowledge in the very direction in which it points.*” And as Emerson goes on to show this reverence for childhood and youth instead of opening up an easy and easy-going path to the instructors, “involves at once, immense claims on the time, the thought, on the life of the teacher. It requires time, use, insight, event, all the great lessons and assistances of God; and only to think of using it implies character and profoundness.”

**Summary.** — Power to grow depends upon need for others and plasticity. Both of these conditions are at their height in childhood and youth. Plasticity or the power to learn from experience means the formation of habits. Habits give control over the environment, power to utilize it for human purposes. Habits take the form both of habituation, or a general and persistent balance of organic activities with the surroundings, and of active capacities to readjust activity to meet new conditions. The former furnishes the background of growth; the latter constitute growing. Active habits involve thought, invention, and initiative in applying capacities to new aims. They are opposed to routine which marks an arrest of growth. Since growth is the characteristic of life, education is all one with growing; it has no end beyond itself. The criterion of the value of school education is the extent in which it creates a desire for continued growth and supplies means for making the desire effective in fact.

*activity + consequences*

## CHAPTER XI

### EXPERIENCE AND THINKING

1. **The Nature of Experience.** — The nature of experience can be understood only by noting that it includes an active and a passive element peculiarly combined. On the active hand, experience is *trying* — a meaning which is made explicit in the connected term experiment. On the passive, it is *undergoing*. When we experience something we act upon it, we do something with it; then we suffer or undergo the consequences. We do something to the thing and then it does something to us in return: such is the peculiar combination. The connection of these two phases of experience measures the fruitfulness or value of the experience. Mere activity does not constitute experience. It is dispersive, centrifugal, dissipating. Experience as trying involves change, but change is meaningless transition unless it is consciously connected with the return wave of consequences which flow from it. When an activity is continued *into* the undergoing of consequences, when the change made by action is reflected back into a change made in us, the mere flux is loaded with significance. We learn something. It is not experience when a child merely sticks his finger into a flame; it is experience when the movement is connected with the pain which he undergoes in consequence. Henceforth the sticking of the finger into flame *means* a burn. Being burned is a mere physical change, like the burning of a stick of wood, if it is not perceived as a consequence of some other action.

Blind and capricious impulses hurry us on heedlessly from one thing to another. So far as this happens, everything is

writ in water. There is none of that cumulative growth which makes an experience in any vital sense of that term. On the other hand, many things happen to us in the way of pleasure and pain which we do not connect with any prior activity of our own. They are mere accidents so far as we are concerned. There is no before or after to such experience; no retrospect nor outlook, and consequently no meaning. We get nothing which may be carried over to foresee what is likely to happen next, and no gain in ability to adjust ourselves to what is coming — no added control. Only by courtesy can such an experience be called experience. To “learn from experience” is to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; the undergoing becomes instruction — discovery of the connection of things.

Two conclusions important for education follow. (1) Experience is primarily an active-passive affair; it is not primarily cognitive. But (2) the *measure of the value* of an experience lies in the perception of relationships or continuities to which it leads up. It includes cognition in the degree in which it is cumulative or amounts to something, or has meaning. In schools, those under instruction are too customarily looked upon as acquiring knowledge as theoretical spectators, minds which appropriate knowledge by direct energy of intellect. The very word pupil has almost come to mean one who is engaged not in having fruitful experiences but in absorbing knowledge directly. Something which is called mind or consciousness is severed from the physical organs of activity. The former is then thought to be purely intellectual and cognitive; the latter to be an irrelevant and intruding physical factor. The intimate union of activity and undergoing its consequences which leads to recognition of meaning is broken; instead we have two fragments: mere bodily action

on one side, and meaning directly grasped by 'spiritual' activity on the other.

It would be impossible to state adequately the evil results which have flowed from this dualism of mind and body, much less to exaggerate them. Some of the more striking effects, may, however, be enumerated. (a) In part bodily activity becomes an intruder. Having nothing, so it is thought, to do with mental activity, it becomes a distraction, an evil to be contended with. For the pupil has a body, and brings it to school along with his mind. And the body is, of necessity, a wellspring of energy; it has to do something. But its activities, not being utilized in occupation with things which yield significant results, have to be frowned upon. They lead the pupil away from the lesson with which his 'mind' ought to be occupied; they are sources of mischief. The chief source of the 'problem of discipline' in schools is that the teacher has often to spend the larger part of the time in suppressing the bodily activities which take the mind away from its material. A premium is put on physical quietude; on silence, on rigid uniformity of posture and movement; upon a machine-like simulation of the attitudes of intelligent interest. The teachers' business is to hold the pupils up to these requirements and to punish the inevitable deviations which occur.

The nervous strain and fatigue which result with both teacher and pupil are a necessary consequence of the abnormality of the situation in which bodily activity is divorced from the perception of meaning. Callous indifference and explosions from strain alternate. The neglected body, having no organized fruitful channels of activity, breaks forth, without knowing why or how, into meaningless boisterousness, or settles into equally meaningless fooling — both very different from the normal play of children. Physically active children become restless and unruly; the more quiescent, so-called conscientious ones spend what energy they have in the negative task of

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keeping their instincts and active tendencies suppressed, instead of in a positive one of constructive planning and execution; they are thus educated not into responsibility for the significant and graceful use of bodily powers, but into an enforced duty not to give them free play. It may be seriously asserted that a chief cause for the remarkable achievements of Greek education was that it was never misled by false notions into an attempted separation of mind and body.

(b) Even, however, with respect to the lessons which have to be learned by the application of 'mind,' some bodily activities have to be used. The senses — especially the eye and ear — have to be employed to take in what the book, the map, the blackboard, and the teacher say. The lips and vocal organs, and the hands, have to be used to reproduce in speech and writing what has been stowed away. The senses are then regarded as a kind of mysterious conduit through which information is conducted from the external world into the mind; they are spoken of as gateways and avenues of knowledge. To keep the eyes on the book and the ears open to the teacher's words is a mysterious source of intellectual grace. Moreover, reading, writing, and figuring — important school arts — demand muscular or motor training. The muscles of eye, hand, and vocal organs accordingly have to be trained to act as pipes for carrying knowledge back out of the mind into external action. For it happens that using the muscles repeatedly in the same way fixes in them an automatic tendency to repeat.

The obvious result is a mechanical use of the bodily activities which (in spite of the generally obtrusive and interfering character of the body in mental action) have to be employed more or less. For the senses and muscles are used not as organic participants in having an instructive experience, but as external inlets and outlets of mind. Before the child goes to school, he learns with his hand, eye, and ear, because they are organs of the process of doing something from which

meaning results. The boy flying a kite has to keep his eye on the kite, and has to note the various pressures of the string on his hand. His senses are avenues of knowledge not because external facts are somehow 'conveyed' to the brain, but because they are *used* in doing something with a purpose. The qualities of seen and touched things have a bearing on what is done, and are alertly perceived; they have a meaning. But when pupils are expected to use their eyes to note the form of words, irrespective of their meaning, in order to reproduce them in spelling or reading, the resulting training is simply of isolated sense organs and muscles. It is such isolation of an act from a purpose which makes it mechanical. It is customary for teachers to urge children to read with expression, so as to bring out the meaning. But if they originally learned the sensory-motor technique of reading — the ability to identify forms and to reproduce the sounds they stand for — by methods which did not call for attention to meaning, a mechanical habit was established which makes it difficult to read subsequently with intelligence. The vocal organs have been trained to go their own way automatically in isolation; and meaning cannot be tied on at will. Drawing, singing, and writing may be taught in the same mechanical way; for, we repeat, any way *is* mechanical which narrows down the bodily activity so that a separation of body from mind — that is, from recognition of meaning — is set up. Mathematics, even in its higher branches, when undue emphasis is put upon the technique of calculation, and science, when laboratory exercises are given for their own sake, suffer from the same evil.

(c) On the intellectual side, the separation of 'mind' from direct occupation with things throws emphasis on *things* at the expense of *relations* or connections. It is altogether too common to separate perceptions and even ideas from judgments. The latter are thought to come after the

*of the perceptions and ideas, and then the judgments.*

former in order to compare them. It is alleged that the mind perceives things apart from relations; that it forms ideas of them in isolation from their connections — with what goes before and comes after. Then judgment or thought is called upon to combine the separated items of 'knowledge' so that their resemblance or casual connection shall be brought out.

\* As matter of fact, every perception and every idea is a sense of the bearings, use, and cause, of a thing. We do not really know a chair or have an idea of it by inventorying and enumerating its various isolated qualities, but only by bringing these qualities into connection with something else — the purpose which makes it a chair and not a table; or its difference from the kind of chair we are accustomed to, or the 'period' which it represents, and so on. A wagon is not perceived when all its parts are summed up; it is the characteristic connection of the parts which makes it a wagon. And these connections are not those of mere physical juxtaposition; they involve connection with the animals that draw it, the things that are carried on it, and so on. Judgment is employed in the perception; otherwise the perception is mere sensory excitation or else a recognition of the result of a prior judgment, as in the case of familiar objects.

Words, the counters for ideas, are, however, easily taken for ideas. And in just the degree in which mental activity is separated from active concern with the world, from doing something and connecting the doing with what is undergone, words, symbols, come to take the place of ideas. The substitution is the more subtle because *some* meaning is recognized. But we are very easily trained to be content with a minimum of meaning, and to fail to note how restricted is our perception of the relations which confer significance. We get so thoroughly used to a kind of pseudo-idea, a half perception, that we are not aware how half-dead our mental action is, and how much keener and more extensive our observations and ideas would be if we formed them under conditions of a

vital experience which required us to use judgment: to hunt for the connections of the thing dealt with.

There is no difference of opinion as to the theory of the matter. All authorities agree that that discernment of relationships is the genuinely intellectual matter; hence, the educative matter. The failure arises in supposing that relationships can become perceptible without *experience* — without that conjoint trying and undergoing of which we have spoken. It is assumed that 'mind' can grasp them if it will only give attention, and that this attention may be given at will irrespective of the situation. Hence the deluge of half-observations, of verbal ideas, and unassimilated 'knowledge' which afflicts the world. An ounce of experience is better than a ton of theory simply because it is only in experience that any theory has vital and verifiable significance. An experience, a very humble experience, is capable of generating and carrying any amount of theory (or intellectual content), but a theory apart from an experience cannot be definitely grasped even as theory. It tends to become a mere verbal formula, a set of catchwords used to render thinking, or genuine theorizing, unnecessary and impossible. Because of our education we use words, thinking they are ideas, to dispose of questions, the disposal being in reality simply such an obscuring of perception as prevents us from seeing any longer the difficulty.

**2. Reflection in Experience.** — Thought or reflection, as we have already seen virtually if not explicitly, is the discernment of the relation between what we try to do and what happens in consequence. No experience having a meaning is possible without some element of thought. But we may contrast two types of experience according to the proportion of reflection found in them. All our experiences have a phase of 'cut and try' in them — what psychologists call the method of trial and error. We simply do something, and when it fails, we do something else, and keep on trying till we hit upon

something which works, and then we adopt that method as a rule of thumb measure in subsequent procedure. Some experiences have very little else in them than this hit and miss or succeed process. We see *that* a certain way of acting and a certain consequence are connected, but we do not see *how* they are. We do not see the details of the connection; the links are missing. Our discernment is very gross. In other cases we push our observation farther. We analyze to see just what lies between so as to bind together cause and effect, activity and consequence. This extension of our insight makes foresight more accurate and comprehensive. The action which rests simply upon the trial and error method is at the mercy of circumstances; they may change so that the act performed does not operate in the way it was expected to. But if we know in detail upon what the result depends, we can look to see whether the required conditions are there. The method extends our practical control. For if some of the conditions are missing, we may, if we know what the needed antecedents for an effect are, set to work to supply them; or, if they are such as to produce undesirable effects as well, we may eliminate some of the superfluous causes and economize effort.

In discovery of the detailed connections of our activities and what happens in consequence, the thought implied in cut and try experience is made explicit. Its quantity increases so that its proportionate value is very different. Hence the quality of the experience changes; the change is so significant that we may call this type of experience reflective — that is, reflective *par excellence*. The deliberate cultivation of this phase of thought constitutes thinking as a distinctive experience. Thinking, in other words, is the intentional endeavor to discover specific connections between something which we do and the consequences which result, so that the two become continuous. Their isolation, and consequently their purely arbitrary going together, is cancelled; a unified

developing situation takes its place. The occurrence is now understood; it is explained; it is reasonable, as we say, that the thing should happen as it does.

Thinking is thus equivalent to an explicit rendering of the intelligent element in our experience. It makes it possible to act with an end in view. It is the condition of our having aims. As soon as an infant begins to *expect* he begins to use something which is now going on as a sign of something to follow; he is, in however simple a fashion, judging. For he takes one thing as *evidence* of something else, and so recognizes a relationship. Any future development, however elaborate it may be, is only an extending and a refining of this simple act of inference. All that the wisest man can do is to observe what is going on more widely and more minutely and then select more carefully from what is noted just those factors which point to something to happen. The opposites, once more, to thoughtful action are routine and capricious behavior. The former accepts what has been customary as a full measure of possibility and omits to take into account the connections of the particular things done. The latter makes the momentary act a measure of value, and ignores the connections of our personal action with the energies of the environment. It says, virtually, 'things are to be just as I happen to like them at this instant,' as routine says in effect 'let things continue just as I have found them in the past.' Both refuse to acknowledge responsibility for the future consequences which flow from present action. Reflection is the acceptance of such responsibility.

The starting point of any process of thinking is something going on, something which just as it stands is incomplete or unfulfilled. Its point, its meaning lies literally in what it is going to be, in how it is going to turn out. As this is written, the world is filled with the clang of contending armies. For an active participant in the war, it is clear that the momentous thing is the issue, the future consequences, of this

and that happening. He is identified, for the time at least, with the issue; *his* fate hangs upon the course things are taking. But even for an onlooker in a neutral country, the significance of every move made, of every advance here and retreat there, lies in what it portends. To *think* upon the news as it comes to us is to attempt to see what is indicated as probable or possible regarding an outcome. To fill our heads, like a scrapbook, with this and that item as a finished and done-for thing, is not to think. It is to turn ourselves into a piece of registering apparatus. To consider the *bearing* of the occurrence upon what may be, but is not yet, is to think. Nor will the reflective experience be different in kind if we substitute distance in time for separation in space. Imagine the war done with, and a future historian giving an account of it. The episode is, by assumption, past. But he cannot give a thoughtful account of the war save as he preserves the time sequence; the meaning of each occurrence, as he deals with it, lies in what was future for *it*, though not for the historian. To take it by itself as a complete existence is to take it unreflectively.

Reflection also implies concern with the issue — a certain sympathetic identification of our own destiny, if only dramatic, with the outcome of the course of events. For the general in the war, or a common soldier, or a citizen of one of the contending nations, the stimulus to thinking is direct and urgent. For neutrals, it is indirect and dependent upon imagination. But the flagrant partisanship of human nature is evidence of the intensity of the tendency to identify ourselves with one possible course of events, and to reject the other as foreign. If we cannot take sides in overt action, and throw in our little weight to help determine the final balance, we take sides emotionally and imaginatively. We desire this or that outcome. One wholly indifferent to the outcome does not follow or think about what is happening at all. From this dependence of the act of thinking upon a sense of sharing in the

consequences of what goes on, flows one of the chief paradoxes of thought. Born in partiality, in order to accomplish its tasks it must achieve a certain detached impartiality. The general who allows his hopes and desires to affect his observations and interpretations of the existing situation will surely make a mistake in calculation. While hopes and fears may be the chief motive for a thoughtful following of the war on the part of an onlooker in a neutral country, he too will think ineffectively in the degree in which his preferences modify the stuff of his observations and reasonings. There is, however, no incompatibility between the fact that the occasion of reflection lies in a personal sharing in what is going on and the fact that the value of the reflection lies upon keeping one's self out of the data. The almost insurmountable difficulty of achieving this detachment is evidence that thinking originates in situations where the course of thinking is an actual part of the course of events and is designed to influence the result. Only gradually and with a widening of the area of vision through a growth of social sympathies does thinking develop to include what lies beyond our *direct* interests: a fact of great significance for education. ✓

To say that thinking occurs with reference to situations which are still going on, and incomplete, is to say that thinking occurs when things are uncertain or doubtful or problematic. Only what is finished, completed, is wholly assured. Where there is reflection there is suspense. The object of thinking is ~~to help reach a conclusion~~, to project a possible termination on the basis of what is already given. Certain other facts about thinking accompany this feature. Since the situation in which thinking occurs is a doubtful one, thinking is a process of inquiry, of looking into things, of investigating. Acquiring is always secondary, and instrumental to the act of *inquiring*. It is seeking, a quest, for something that is not at hand. We sometimes talk as if "original research" were a peculiar prerogative of scientists

or at least of advanced students. But all thinking is research, and all research is native, original, with him who carries it on, even if everybody else in the world already is sure of what he is still looking for.

It also follows that all thinking involves a risk. Certainty cannot be guaranteed in advance. The invasion of the unknown is of the nature of an adventure; we cannot be sure in advance. The conclusions of thinking, till confirmed by the event, are, accordingly, more or less tentative or hypothetical. Their dogmatic assertion as final is unwarranted, short of the issue, in fact. The Greeks acutely raised the question: How can we learn? For either we know already what we are after, or else we do not know. In neither case is learning possible; on the first alternative because we know already; on the second, because we do not know what to look for, nor if, by chance, we find it can we tell that it is what we were after. The dilemma makes no provision for *coming* to know, for learning; it assumes either complete knowledge or complete ignorance. Nevertheless the twilight zone of inquiry, of thinking, exists. The possibility of *hypothetical* conclusions, of *tentative* results, is the fact which the Greek dilemma overlooked. The perplexities of the situation suggest certain ways out. We try these ways, and either push our way out, in which case we know we have found what we were looking for, or the situation gets darker and more confused — in which case, we know we are still ignorant. Tentative means trying out, feeling one's way along provisionally. Taken by itself, the Greek argument is a nice piece of formal logic. But it is also true that as long as men kept a sharp disjunction between knowledge and ignorance, science made only slow and accidental advance. Systematic advance in invention and discovery began when men recognized that they could utilize doubt for purposes of inquiry by forming conjectures to guide action in tentative explorations, whose development would confirm, refute, or modify the guiding con-

jecture. While the Greeks made knowledge more than learning, modern science makes conserved knowledge only a means to learning, to discovery.

To recur to our illustration. A commanding general cannot base his actions upon either absolute certainty or absolute ignorance. He has a certain amount of information at hand which is, we will assume, reasonably trustworthy. He then *infers* certain prospective movements, thus assigning meaning to the bare facts of the given situation. His inference is more or less dubious and hypothetical. But he acts upon it. He develops a plan of procedure, a method of dealing with the situation. The consequences which directly follow from his acting this way rather than that test and reveal the worth of his reflections. What he already knows functions and has value in what he learns. But will this account apply in the case of the one in a neutral country who is thoughtfully following as best he can the progress of events? In form, yes, though not of course in content. It is self-evident that his guesses about the future indicated by present facts, guesses by which he attempts to supply meaning to a multitude of disconnected data, cannot be the basis of a method which shall take effect in the campaign. *That is not his* problem. But in the degree in which he is actively thinking, and not merely passively following the course of events, his tentative inferences will take effect in *a* method of procedure appropriate to *his* situation. He will anticipate certain future moves, and will be on the alert to see whether they happen or not. In the degree in which he is intellectually concerned, or thoughtful, he will be *actively* on the lookout; he will take steps which although they do not affect the campaign, modify in some degree *his* subsequent actions. Otherwise his later "I told you so" has no intellectual quality at all; it does not mark any testing or verification of prior thinking, but only a coincidence that yields emotional satisfaction — and includes a large factor of self-deception.

The case is comparable to that of an astronomer who from given data has been led to foresee (infer) a future eclipse. No matter how great the mathematical probability, the inference is hypothetical — a matter of probability.<sup>1</sup> The hypothesis as to the date and position of the anticipated eclipse becomes the material of forming a method of future conduct. Apparatus is arranged; possibly an expedition is made to some far part of the globe. In any case, some active steps are taken which actually change *some* physical conditions. And apart from such steps and the consequent modification of the situation, there is no completion of the act of thinking. It remains suspended. Knowledge, already attained knowledge, controls thinking and makes it fruitful.

So much for the general features of a reflective experience. They are (i) perplexity, confusion, doubt, due to the fact that one is implicated in an incomplete situation whose full character is not yet determined; (ii) a conjectural anticipation — a tentative interpretation of the given elements, attributing to them a tendency to effect certain consequences; (iii) a careful survey (examination, inspection, exploration, analysis) of all attainable consideration which will define and clarify the problem in hand; (iv) a consequent elaboration of the tentative hypothesis to make it more precise and more consistent, because squaring with a wider range of facts; (v) taking one stand upon the projected hypothesis as a plan of action which is applied to the existing state of affairs; doing something overtly to bring about the anticipated result, and thereby testing the hypothesis. It is the extent and accuracy of steps three and four which mark off a distinctive reflective experience from one on the trial and error plane. They make *thinking* itself into an experience. Nevertheless,

<sup>1</sup> It is most important for the practice of science that men in many cases can calculate the degree of probability and the amount of probable error involved, but that does not alter the features of the situation as described. It refines them.

we never get wholly beyond the trial and error situation. Our most elaborate and rationally consistent thought has to be tried in the world and thereby tried out. And since it can never take into account all the connections, it can never cover with perfect accuracy all the consequences. Yet a thoughtful survey of conditions is so careful, and the guessing at results so controlled, that we have a right to mark off the reflective experience from the grosser trial and error forms of action.

*Hand book*  
*summary*

**Summary.** — In determining the place of thinking in experience we first noted that experience involves a connection of doing or trying with something which is undergone in consequence. A separation of the active doing phase from the passive undergoing phase destroys the vital meaning of an experience. Thinking is the accurate and deliberate instituting of connections between what is done and its consequences. It notes not only that they are connected, but the details of the connection. It makes connecting links explicit in the form of relationships. The stimulus to thinking is found when we wish to determine the significance of some act, performed or to be performed. Then we anticipate consequences. This implies that the situation as it stands is, either in fact or to us, incomplete and hence indeterminate. The projection of consequences means a proposed or tentative solution. To perfect this hypothesis, existing conditions have to be carefully scrutinized and the implications of the hypothesis developed — an operation called reasoning. Then the suggested solution — the idea or theory — has to be tested by acting upon it. If it brings about certain consequences, certain determinate changes, in the world, it is accepted as valid. Otherwise it is modified, and another trial made. Thinking includes all of these steps, — the sense of a problem, the observation of conditions, the formation and rational elaboration of a suggested conclusion, and the active experimental testing. While all thinking results in knowledge,

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ultimately the value of knowledge is subordinate to its use in thinking. For we live not in a settled and finished world, but in one which is going on, and where our main task is prospective, and where retrospect — and all knowledge as distinct from thought is retrospect — is of value in the solidity, security, and fertility it affords our dealings with the future.