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TEACHING: A LOGICAL ANALYSIS AND AN
EPISTEMOLOGICAL INVESTIGATION

DISSERTATION

Presented in Partial Fulfillment of the Requirements
for the Degree Doctor of Philosophy
in the Graduate School of
The Ohio State University

By

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General Philosophy. Professors Lee Brown, Marvin Fox, Richard Garner, Charles Kielkopf, and Morris Weitz

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INTRODUCTION

Teaching may be compared to selling commodities. No one can sell unless someone buys. We should ridicule a merchant who said that he had sold a great many goods although no one had bought any. But perhaps there are teachers who think that they have done a good day's teaching irrespective of what pupils have learned. There is the same exact equation between teaching and learning that there is between selling and buying.\(^1\)

This statement by Dewey seems to have been well received and entertained during the long period that is known in the history of education as the "progressive education" era in American education. It was unchallenged until some thirty years later when the progressive education movement had lost its initial influence and when research on education in general and on teaching in particular emerged in the hope of discovering adequate answers to educational problems. One of the first educational philosophers who quarrels with Dewey over this statement is 3.O. Smith. To assimilate learning to teaching, Smith argues, may seem plausible at first but is really

unacceptable. To compare teaching to selling seems plausible because the analogy points out the common social element between the teacher and the pupil on the one side and the seller and the buyer on the other side namely, some sort of interaction. But the assimilation of learning to teaching is unacceptable because (1) the analogy breaks down and (2) teaching refers to a task whereas learning refers to an achievement. About the analogy, Smith writes:

Looking further we find that learning is not coordinate with buying, because the relation of pupil to learning is not the same sort of thing as buyer to buying. We can say that a buyer is to buying as a pupil is to "pupiling," but the parallel breaks down when we say "as a pupil is to learning." "Pupiling," if there were such a word, would be required by the analogy to mean receiving instruction just as "buying" means receiving something in return for an agreed-upon price.

Furthermore, the analogy breaks down because relation between selling and buying is not the same as that between teaching and learning. While selling, Smith points out, entails and is entailed by buying, teaching neither entails nor is entailed by learning. Smith says:

---


3 Ibid., "A Concept of Teaching," p. 231.
It would be contradictory to say "I am selling X but no one is buying it" or to say "I am buying X from so and so but he is not selling it." If you state "I am selling X" you are stating only part of what you mean, for implicit in this statement is the idea that someone is buying it. On the other hand, "I am teaching X (meaning, say, mathematics) to A and he is learning it" is not tautological. It is not contradictory to assert "A is learning X but no one is teaching it to him." 4

But what is teaching? To answer this question Smith borrows a distinction made by Ryle between 'tasks' and 'achievements.' In his illuminating book The Concept of Mind, Ryle seeks to draw attention two important types of episodes which he calls, respectively, 'tasks' and 'achievements.' 5 Ryle seeks to point out that certain verbs and verbal expressions fall into one or other of the two groups which he labels 'task verbs' and 'achievement verbs.' Among the instances that exemplify this contrast between tasks and achievements are 'running a race and winning it,' 'hunting and finding,' 'travelling and arriving,' 'looking and seeing,' 'listening and hearing.' The suggestion is that there are, in each pair not two activities, but one activity with a certain upshot or culmination. Each pair contains a task word and an appropriate achievement word. Faced with the question what

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4Ibid.

teaching is, Smith, following Ryle's suggestion, writes:

Teaching is a task word and learn is the parallel achievement word. Achievement words signify occurrence or episodes. Thus one wins, arrives, or finds at a particular time. Nevertheless, some achievement verbs express a continued process. A boat is launched at a particular instant but is held at dock for inspection. On the other hand, task verbs always signify some sort of activity or extended proceedings. We can say of a task such as play, treat, or teach that it is performed skillfully, carefully, successfully, or ineffectively. We may play the game successfully or unsuccessfully, but we cannot win unsuccessfully. We treat a patient skillfully or unskillfully, but the restoring of health is neither skillful nor unskillful. It makes sense to say that we teach unsuccessfully. But it is self-contradictory to say we learned French unsuccessfully.\(^6\)

If Smith wants to compare teaching and learning to listening and hearing respectively in the light of the distinction between tasks and achievements, the comparison is not correct. No doubt just as listening may or may not culminate in hearing so teaching may or may not result in learning. However, there is a radical difference between hearing and learning. And the difference is this: While 'hearing' may signify an episode or occurrence, 'learning' may signify some sort of activity. For while it makes no sense to ask for what someone hears something, it makes sense to ask for what he is learning how to do something. Thus just as one can choose or refuse to teach such and such so one can choose or refuse to learn to do or how to

\(^6\)B.O. Smith, op. cit., p. 232.
do something. Given this, it is simply incomplete to maintain that 'learn' is the parallel achievement word of the task word 'teach.' In any case, the question what teaching is remains.

In *The Language of Education* Israel Scheffler seeks to clarify the concept of teaching. Scheffler agrees with Smith that to teach is to engage in a certain kind of activity. Scheffler introduces, however, two different qualifications which, for him, must be present for any kind of activity to count as teaching. The first qualification has to do with the manner in which the activity may proceed. Scheffler writes:

Teaching may, to be sure, proceed by various methods, but some ways of getting people to do things are excluded from the standard range of the term 'teaching'. To teach, in the standard sense, is at some points at least to submit oneself to the understanding and independent judgement of the pupil, to his demand for reasons, to his sense of what constitutes an adequate explanation. To teach someone that such and such is the case is not merely to try to get him to believe it: deception, for example, is not a method or a mode of teaching. Teaching involves further that, if we try to get the student to believe that such and such is the case, we try also to get him to believe it for reasons that, within the limits of his capacity to grasp, are our reasons. Teaching, in this way, requires us to reveal our reasons to the student and,

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by so doing, to submit them to his evaluation and criticism.®

What Scheffler means by teaching is perhaps desirable and may be a standard meaning of teaching but is not the standard sense of teaching. Undoubtedly Scheffler would have to say that drill and conditioning are excluded from his definition of teaching for in drilling as well as conditioning no reasons are required of the teacher and no understanding of any reasons are required of the pupil. But this exclusion is arbitrary because it is common knowledge that children and even adults are taught a great many things through drill or conditioning. It is an established fact that we do teach young children to pronounce words, to spell, to count, etc. through drilling.

Furthermore, to adopt Scheffler's sense of teaching would involve us in some other difficulties. Suppose Leo teaches, in Scheffler's sense, X to Joe. This means that Leo has to give some reason (Y) which constitutes an "adequate explanation." The question arises: Can it be said of Leo that he teaches Y to Joe? Obviously not. For otherwise Leo would have to give some other reason or explanation of Y, say, Z to Leo. Given this, it seems difficult to say where or when teaching begins and where or when it ends.

®Ibid., pp. 60-61.
Again let us suppose that Joe is a young child who is unable to grasp the reasons that Leo gives (Y and Z) but is able to grasp X. Obviously the reasons that Leo offers to his pupil are immaterial insofar as his pupil's understanding is concerned. Shall we, in this case, deny that any teaching takes place?

Following Scheffler in upholding this condition to teaching, Richard Peters maintains that teaching must "involve discussion and explanation as methods for bringing about an ability to discuss and explain on the part of the learner." Consistent with this view, Peters denies that instruction and training are teaching activities unless they are undertaken with the intention of bringing about rational understanding and are tied to "appropriate encouragement and explanation." But this view of teaching, like Scheffler's, is untenable for the reasons we have pointed out above.

The second qualification Scheffler advances has to do with the goal which defines teaching. For any activity to count as teaching, it must be directed towards promoting learning. Scheffler says:

What does teaching have as its goal? What

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does a person engaged in teaching intend
or try to bring about? Obviously, an appro­
priate bit of learning.  

The qualification that teaching must be aimed
at learning, like the previous qualification of manner,
is restrictive and not in harmony with our understanding
of teaching. If we are to ask whether teaching must
always have as its objective the achievement of learning,
the answer is no. In teaching something, say, algebra,
teacher Leo may or may not intend that his pupil Joe learns
algebra; he may merely intend that his pupil Joe thinks
about the logical basis of algebra. Teaching may have
other goals than learning: the teacher may hope to get
his pupil to understand, appreciate, reflect on, entertain,
respond to, find fault with, or think about what he teach­
es.  

As such teaching does not necessarily have as its
goal merely the promotion of learning.

10Israel Scheffler, Conditions of Knowledge:  
An Introduction to Epistemology and Education, Keystone
of Education Series, (Glenview, Illinois: Scott, Foreman

11C.J.B. Macmillan and James E. McClellan, "Can
and Should Means-End Reasoning Be Used in Teaching?"  
Concepts of Teaching Philosophical Essays, (Chicago:

12No doubt the notion of learning may be broad­
ened to cover all conceivably enumerable objectives of
which a teacher can think. However 'learning' in such
a case may be so broad that it becomes useless.
The qualification that teaching must be aimed at learning perhaps reflects to a large extent the historical influence of Dewey's comparison of teaching to selling and Smith's analysis of teaching in terms of tasks and achievements. And the influence of this view seems so strong that some philosopher of education has even argued that any claim to teaching would become void without any evidence of success in learning.\(^{13}\)

To avoid some of these difficulties, some philosophers of education, instead of analysing teaching directly, have sought to contrast teaching with other concepts. Some have analysed the concept of conditioning and related it to teaching.\(^{14}\) Others have sought to analyse the concept of indoctrination in relation to that of teaching or instruction.\(^{15}\) However this approach would not tell us exactly what teaching is even though it


may heighten the contrast and similarity, if any, between teaching and related concepts.

The question what teaching is remains. It is here that this study begins. This study consists of five chapters. In the first chapter I shall analyse the concept of teaching in its various uses in the hope of showing that the concept of teaching is a polymorphous concept which includes teaching that, teaching how, and teaching to be.

In the next three chapters, I shall attempt to deal with three different questions:

(a) How is teaching that possible? (Chapter II).
(b) How is teaching how possible? (Chapter III).
(c) How is teaching to be possible? (Chapter IV).

In dealing with these questions, I shall not be concerned with the empirical question as to what processes, if any, must be present for each of these modes of teaching to be possible (e.g. What processes, if any, must be present for teaching that to be possible?). The question with which I shall be occupied is a limited and logical one: What is it that is necessary for each mode of teaching to occur? The procedure which I use to answer this question is throughout uniform: Given each mode of teaching, I shall seek to discover what is essential to it, that is, to find out what each mode of teaching consists.

And in the fifth chapter I shall recapture the results of the analysis and relate them to some problems
in educational discourse.
CHAPTER I

TEACHING AND ORDINARY LANGUAGE

I shall undertake to show that teaching is a polymorphous concept, that is one that is multi-dimensional in its uses.¹ Let us examine the following sentences:

(1) Leo teaches school.
(2) Leo teaches mathematics.
(3) Leo taught algebra.
(4) Leo taught himself algebra.
(5) The prolonged campus disturbances have evidently taught many educators that the disturbances cannot be explained away by pointing at what some people call the lack of communication.
(6) Leo taught Joe that reality is neither true nor false.
(7) Leo taught Joe how to paint.
(8) Leo taught Joe to be cautious.

¹The concept of education, for example, is polymorphous in that it spans over various other concepts such as instruction, training, teaching, learning, etc. The notion of polymorphous concept was, I believe, first introduced by Gilbert Ryle in The Concept of Mind, (London: Hutchinson, 1949).
The sentence "Leo teaches school," is not used to report what Leo "does" in the sense that we report what Leo does when we truly say of him that he engages in a specific activity such as smoking and drinking. This is to say that Leo does nothing in the above sense if it is true that he teaches school. It is inconceivable that one can do nothing and still teach school. From this it does not follow that to teach school is to do any number of things whose character is indeterminate. To teach school is to do the sort of things one is hired or asked to do, the kind of things for which one spends a considerable amount of one's time, and the kind of things by means of which at least part of human culture may be preserved and regenerated. What it means, then, to say of Leo that he teaches school is no more than to say that Leo is a school teacher, namely, he is employed to work as a teacher in some school.

Now we have in (2) a case different from (1). It is apparent that teaching mathematics and teaching school have something in common. To teach school, not unlike teaching mathematics, demands a considerable amount of time and energy from the teacher because presumably they are a serious kind of activity. They are work and not play. But even were we to find someone playing at being a school teacher or at teaching mathematics, it would not
mean that teaching school and teaching mathematics are play. Again for one person to teach school and another to teach mathematics, each must have someone who at some point is related to him as pupil. For it would be as senseless to insist that Leo teaches school but never teaches anyone as to say of him that he teaches mathematics but never has anyone to teach. There are, however, distinct differences between (1) and (2). In asserting (1), we may respond to the question "What does Leo do for a living?" Faced with the same question we may rightly respond by asserting (2). The assertion of (2), however, is a response to a different question, namely, "What does Leo teach?" The emphasis in (2) is upon what Leo is equipped to teach rather than upon what he does in general. And neither the assertion of one entails the assertion of the other. From "Leo teaches mathematics" we cannot derive in anyway "Leo teaches school," or vice-versa. As such, the joint assertion of (1) and (2) must be intelligible and not redundant. And whereas to say of Leo that he teaches school is to say that, in most contexts, he is employed as a member of the teaching staff of some school, to speak of him as teaching mathematics is, in most contexts, not to report where and by whom he is employed but to say what he can do --the special sort of work for which he has training and competence--as a teacher: it is to say in an emphatic way what is ordinarily conveyed by "Leo is a
teacher of mathematics."

With (3) we have what only appears to be simple. By this simple assertion, we mean, however, at least two different things. First, "Leo taught Joe algebra" may mean "Over some period in the past, Leo was teaching algebra to Joe." Second, "Leo taught Joe algebra" may also mean "At some point in the past Leo succeeded in his effort to teach Joe algebra." Let us take the second meaning first. The second meaning of (3) does not report the activity of Leo or how it took place but rather in what the alleged activity resulted. As an assertion, it claims to refer to the accomplishment of Leo as a teacher: an accomplishment which occurred at some point in the past. It is by the accomplishment of Leo that he may be evaluated as a good teacher of algebra. Only "may be" is acceptable because whether Leo was a good teacher of algebra would depend on other factors than his success. The evaluation of Leo as a teacher can with good reasons take into account the difficulty of the algebra taught relative to other comparable subjects and to his pupil Joe's abilities and most importantly, the length of time which culminated in Leo's pedagogic victory. It is quite appropriate in this instance to ask how long it took Leo to accomplish what he did. The answer to this question should determine to a considerable extent the kind of evaluation
that Leo deserved. Thus we may rightly consider Leo a poor teacher if his struggle with elementary algebra and his normal pupil Joe only climaxed in the victory after it spanned almost half a decade!

Teaching in this sense excludes as illegitimate such question as "How long did it happen?", "What was going on?", or "Why did Leo teach Joe algebra?" For an accomplishment of the kind that is attributable to Leo here is not what can be properly said to have happened over some length of time, to have been going on, or to have possessed a reason which could answer to a "why."

The meaning of "Leo taught Joe algebra" in the second sense (3-b), then, may be better conveyed by the expression "Joe was taught (or successfully taught) algebra by Leo."

The queries that are ruled out as absurd in (3-b) are perfectly proper in (3-a), however. The meaning of (3) in the first sense differs from (3-b) in several respects. In the first place, whereas "taught" in one case refers to an accomplishment, "taught" refers to an activity in the other case. Although "taught" in either sense suggests what was completed, "taught" in the first sense refers to what happened over some stretch of time, at the end of which the activity which it denotes might or might not result in an accomplishment. "Taught" in this sense denotes a process populated (constituted) by what Leo did and what could reasonably be called "teaching algebra."
If this granted, then this sense of teaching does admit of such questions as "How long did it happen?", "What was going on?", "Why did Leo teach Joe algebra?", and "What did his teaching lead to?" To those questions, the answers may be "Almost five years; Leo propounded the algebraic rules, principles and model answers all of which Joe had to commit to memory, and reproduce them on demand, every time they went to the supermarket; Leo prepared Joe for the college entrance examination; and it made Joe hate algebra all his life!" And it is in the answers to these questions lies that by which teaching may be evaluated.

But what exactly is "teaching" in this sense? And what exactly may be evaluated? Teaching in this sense (3-a) consists of the things that someone-as-teacher is engaged in, that happen somewhere, that may or may not take place for some reason, and that may or may not result in something desirable or undesirable, all of which may be subject to some pedagogic evaluation.

The differences in meaning between (3-a) and (3-b) are important at least for pedagogic discourse. To make the differences more easily recognizable, we may represent both (3-a) and (3-b) symbolically. If we replace "teaching" by "T" and let "<" stand for "precedes," we can formulate (3-a) as follows:

\[(E_x)(E_y)(E_z)(E_t)(T_{xyzt})\]  \((f_{1-0})\)
This formulation reads: "There are x, y, z, such that at some point t, x teaches y to z." As is clear from \( f_{1-0} \), "taught" in the sense exemplified by (3-a) ascribes simply an activity to Leo as teacher-of-algebra: an activity which happens in the past and is completed.

Before representing (3-b) symbolically, we should say something about the notion of pedagogic accomplishment. Unlike (3-a), (3-b) not only specifies the activity performed by Leo as teacher-of-algebra but also what results from that activity—a pedagogic accomplishment. The pedagogic accomplishment referred by (3-b), a victory for teacher Leo, could be merely Joe's familiarity with a technique by which some simple problems involving two unknowns were solved. For Joe's familiarity with the above technique to count as a pedagogic accomplishment, at least two conditions must be satisfied:

a) Joe's familiarity with the technique must be of some duration;

b) At some point t preceding the pedagogic accomplishment, Joe was not familiar with the technique.

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"Pedagogic accomplishment" here refers to what is meant by some pedagogic criterion, by which the success, failure, or worth of teaching may be determined, and which is, in some respect, acceptable to educators or educationists. Thus pedagogic accomplishments may be memorization of a formula, the understanding of a proposition, the learning of a technique in calculation, etc. Here "A" stands for "pedagogic accomplishment."
The first condition (a) is important pedagogically if we are to keep in mind the educational principle that a good part of teaching activities is directed at helping the pupil remember or retain what is taught. For this reason, perhaps it would be futile for anyone to attempt to teach another anything were it a fact that not anyone could remember anything. The second condition (b) is necessary because it alone can help determine whether a claim to some pedagogic accomplishment is founded or unfounded. An unfounded claim to a pedagogic accomplishment in this case, for instance, would mean that Joe was already familiar with the technique at the time of Leo's teaching. Granted these, we can now give a precise representation to what is meant by pedagogic accomplishment:

\[(A_{xyt}) = \text{Df} (E_{t_0})(A_{xyt} \cdot \sim A_{xyto} \cdot t_0 < t) \quad (f_{1-1})\]

Now we can represent (3-b) as follows:

\[(E_x)(E_y)(E_z)(E_{t_0})(E_t)(T_{xyz} \cdot A_{zyto} \cdot t < t_0) \quad (f_{1-2})\]

Formulation (f_{1-2}) reads: "At some time t and some other time t_0, there are at least some x, y, and z such that x's teaching y to z at t precedes z's knowledge of y at t_0."

^3In (f_{1-1}), "A" could stand for "knowledge," "understanding," etc. "A_{xyt}" may read "x's knowing y at t."
As is clear from \( f_{1-0} \), "taught" in the sense exemplified by (3-a) makes no mention of any pedagogic accomplishment but simply ascribes an activity to Leo as teacher-of-algebra. Formulation \( f_{1-2} \), on the contrary, specifies both the activity performed by Leo as teacher and particularly what follows from that activity—a pedagogic accomplishment (e.g. Joe's knowledge of algebra). To get the force of "taught" in (3-b) as opposed to the sense of "taught" in (3-a), we may again represent (3-b) as follows:

\[
(E_x)(E_y)(E_z)(E_t)(E_{to}) \left( T_{xyzt} \cdot A_{zyto} \right) \cdot \left( T_{xyzt} \supset A_{zyto} \right) \\
(t < t_0)
\]

And \( f_{1-3} \) reads: "At some instant \( t \) and some other instant \( t_o \), there are at least some \( x, y, \) and \( z \) such that not only is it true that \( x \)'s teaching \( y \) to \( z \) at \( t \) precedes \( z \)'s knowledge of \( y \) at \( t_0 \) but it is also the case that if \( x \) teaches \( y \) to \( z \) at \( t \), then \( z \) knows \( y \) at \( t_0 \)."

We have shown, then, that "teaching" as used in (3) may refer to at least two distinct and perhaps equally important things. On the one hand, it may refer to the activity of someone-as-teacher; on the other hand, it may refer to the pedagogic accomplishment attributable to someone-as-teacher. And it is important to distinguish between these two senses.
In order to distinguish teaching referred to in (3-b) from that referred to in (3-a), we shall hereon let \( a^T \) stand for "accomplished-teaching" or "accomplished-teach" (3-b) and \( T \) for "teaching" or "teach" (3-a).

We can now introduce \( a^T xyzt \):

\[
a^T xyzt = \text{Df } (E_{to}) \left[ T_{xyzt} \cdot A_{zyto} \cdot t < t_0 \right] \quad (f_{1-4})
\]

Again we can define \( a^T \) as follows:

\[
a^T = \text{Df } (E_{t})(E_{x})(E_{y})(E_{z}) \left[ (T_{xyzt} \cdot A_{zyto})(t) \cdot (T_{xyzt} \supset A_{zyto}) \cdot (t < t_0) \right] \quad (f_{1-5})
\]

And now \((f_{1-3})\) may be written simply as follows:

\[
(E_{x})(E_{y})(E_{z})(E_{t})(a^T xyzt) \quad (f_{1-6})
\]

It may be said that teaching is what teachers are supposed to do but that only certain kind of teaching has some appeal to dedicated teachers. And what is this that has appeal to dedicated teachers other than accomplished-teaching. But what is accomplished-teaching? It is the teaching that can be expressed by \((f_{1-5})\) where "A" may stand for any of the following terms: "knowledge," "understanding," "learning," "invention," "discovery," "doing," to be followed by a term denoting some school
subject-matter and the like and where any of the former terms must refer to a pedagogic criterion whereby teaching may be assessed. Needless to say, even though particular assessments of teaching may vary from educator to educator or from one educationist to another, it may be said that there are some pedagogic criteria that are generally acceptable to the community of educators and educationists. And some of these criteria are referred to by the terms mentioned above.

Now if we grant that pedagogic criteria are different in degree one from the other, then we may hold that there are different degrees of accomplished-teaching. Again if we assume that the pedagogic criteria are different in kind, then we may maintain that there are different kinds of accomplished-teaching. And in what follows I should like to argue that both these positions are tenable.

Let us take \((f^1)^1\). Now the essential characteristic of accomplished-teaching is that it must have what is represented by \("A_{zy}"\). In our example \("A_{zy}\) may read "Joe's knowledge of algebra." Since \("A\) can refer to any of the pedagogic criteria mentioned earlier, there is no reason why \("A_{zy}\) may not read "Joe's understanding of algebra," "Joe doing algebra," "Joe's discovery of the logical basis of algebra," or "Joe's learning of algebra," and so on. Now Joe's understanding of algebra differs from his
learning of algebra in this crucial respect, namely, the latter may have a reason whereas the former does not. Again the learning of algebra may be something that Joe undertakes, completes or leaves undone and devotes his time to while the understanding of algebra is not anything of the kind. For the understanding of algebra may be deep, superficial, or profound and does not depend on specific procedures according to which the learning of algebra may proceed. Similarly the discovery of the logical basis of algebra is different in kind from doing algebra. It may be that one often has to do algebra to be able to discover its logical basis but it is absolutely possible that one can discover the logical basis of algebra without having to do algebra in the sense of working out problems and proving theorems with paper and pencil. Doing algebra comparable, in some respects, to learning algebra may be quick or slow, perfect or imperfect, may be undertaken today or abandoned tomorrow, and may follow certain procedures. Discovery of the logical basis of algebra is nothing of the kind; it cannot be perfect or imperfect, correct or incorrect, quick or slow. It happens despite our wishes, one way or the other. And yet learning algebra and doing algebra are not identical. In learning

4A more detailed discussion of understanding is forthcoming in Chapter II.
how to solve algebraic problems, one has to do algebra. In the same vein, both doing algebra and learning how to solve algebraic problems are what can be quick or slow, proper or improper. Both may be pursued for the same reasons and continued over a long period of time. But how do they differ? For one thing, one does not have to learn from anyone the principles or the theorems of algebra to do algebra. The learning of algebra may take radically different forms: memorizing algebraic principles, theorems, model algebraic solutions etc., learning the historic development in whole or in part of algebra, learning the meanings of certain algebraic expressions, learning how to solve certain problems algebraically, and so on. All of these forms of learning algebra, from the pedagogic viewpoint, differ from doing algebra in this important respect: they cannot go on without some sort of pedagogic assistance. In our example, if we describe Joe as having learned algebra, questions like "How?" and "From whom?" are legitimate. Thus, in response, we may say "Joe learned algebra from Leo" or "Joe learned algebra from a textbook." Now with doing algebra, the situation is different. We cannot ask from whom someone is doing algebra. Nor can we ask how he is doing algebra except with the hope of discovering the sequence of operations or the procedures of the activity. And more importantly, one
can spend a life time learning algebra in some sense with all the pedagogic assistance at one's disposal without being able to do algebra! One can remember and reproduce on demand the algebraic principles, theorems, and model solutions as well as the historic development in whole or in part of algebra without being able to do algebra. As such learning is indeed different from doing!

I hope to have established that if there is such a thing as accomplished-teaching, then it may be of several kinds.

Now I wish to show that there are also different degrees of accomplished-teaching where differences in degree mean differences in intensity. Take the encyclopedia in front of me and my writing. The encyclopedia which I use for references can be said to be heavy, thick or red on the cover and my reading of it may be described as slow or careful. Now what I mean by differences in degree may be illustrated by comparing the encyclopedia with a dictionary and my reading of the encyclopedia with my reading of the newspaper's headlines. Thus I find the encyclopedia heavy and thick, its cover red in comparison with the lightness and thinness of the dictionary and the latter's light redness. And my reading of the newspaper headlines is not as careful and not as slow as my reading of the encyclopedia. In a manner of speaking, then, there
seem to be degrees of redness, thickness, and heaviness, slowness and care. In this sense of differences in degree are there different degrees of accomplished-teaching? Let us take \((f_{1-1})\) again where "\(A_{zy}\)" may stand for "Joe's knowledge of algebra." Let us set aside the stipulated meaning of "knowledge" in epistemological discussions for the moment. Let us take one meaning of "knowledge" accepted in ordinary discourse: "familiarity." Now if "\(A_{zy}\)" means simply "Joe's familiarity with algebra," its meaning seems simple enough for most of us to grasp. However if we inquire as to what exactly may count a case of Joe's familiarity with algebra, several answers are forthcoming: that Joe can solve several algebraic problems, that Joe can recite some algebraic principles and theorems, that Joe can distinguish algebraic expressions from non-algebraic ones, etc. Let us take just one eligible candidate: Joe can solve several algebraic problems. Now if Joe were presented with different algebraic problems, and were able to solve them without any assistance, then this might be one meaning of what we mean when we say "Joe can solve several algebraic problems." Granted this, the question may be as follows: If Joe's familiarity with algebra is something inseparable from what is meant by Leo's accomplished-teaching Joe algebra \((a\text{-}xyz)\), and if part of Joe's familiarity with algebra is the fact that Joe can solve
several algebraic problems, does it not make sense to talk about degrees of accomplished-teaching? The answer is in the affirmative. Not only are there different degrees of familiarity with algebra but also there are different degrees in ability to solve algebraic problems. One can be so familiar with algebra as to be able to solve several problems mentally and at the twinkling of an eye. One may also be only familiar with it enough to be able to solve any problem given reasonable time to work with a pencil and paper. One may be only familiar with algebra only to the extent that one can solve any problem only if one is allowed ample time and some tips. And again one may be only familiar with algebra to the extent one can solve only simple and easy problems but not complex or difficult ones. And it is perfectly conceivable that in Joe's lifetime his familiarity with algebra moves from one stage to another. For this reason we are quite justified not only in talking about someone as being familiar with something but also slightly familiar, fairly familiar, or quite familiar, or very familiar with it. This will be more evident as we examine (4) below.

With (4) we have a highly interesting case. Grammatically "Joe taught himself algebra" is similar in structure to "Leo taught Joe algebra." A difference, however, is that "teaching" in (4) is a reflexive relation
which, if the statement is true, calls our attention to a fact in the world, namely, Joe was at once pupil and his own teacher. Now following our preceding analysis, we can say:

(4-a) "Joe taught himself algebra," is the same as "Joe studied algebra on his own."

(4-b) "Joe taught himself algebra" is the same as "Joe acquired knowledge of algebra on his own."

It is apparent that teaching in (4) is not the same as teaching in (3). Teaching in (4) can be said to be a special case of teaching referred to by "taught himself." Teaching in this special sense is meant to direct our attention to the special circumstance in which the teaching in (4) took place. What is special about this sort of 'teaching' is the fact that Joe was his own teacher while he was a pupil, that is, the fact that Joe had no teacher in the ordinary sense of having a teacher. In contrast with the school boys who expect instructions and assistance from their master who guides them in their study, the circumstance in which the teaching in (4) took place is indeed special. For this reason we can say that "taught" used in (4) is a misnomer. And the alternative formulations (4-a) and (4-b) are less misleading.

Why, it may be asked, there is such an expression as (4)? As pointed out earlier, the expression, if used correctly, points to a special pedagogic circumstance:
the absence of a pedagogue who may guide the studies of
the pupil in question. But this would not be adequate
as an answer. For it is entirely intelligible for one to
assert (4) despite the fact that Joe had Leo for his
teacher of algebra. And this assertion is true if and
only if Joe acquired knowledge of algebra on his own despite
the fact that Leo taught Joe algebra. So to say that
Joe taught himself algebra is, in one sense, to say that
he did not owe his knowledge of algebra to anyone who
could assist him to acquire it, particularly not any
teacher. This is the meaning of (4-b). On the other
hand to insist that Joe taught himself algebra is to
insist that there was really no teacher to help him at
all and, therefore, what Joe did cannot be properly called
"teaching" except in a special way. This is the meaning
of (4-a).

To put the matter differently, to say that Joe
taught himself algebra is, in one sense, to reject as
inapplicable or to prevent from arising such questions as
"Who taught Joe algebra?", "Which teacher taught Joe
algebra?" and "Where or by whom was Joe taught algebra?"
There may conceivably be a situation in which not anyone
who studies can find a teacher anywhere. Admittedly such
a situation is merely imaginary. On the other hand at
least for some period in the biography of some people such
a situation may be real. In any case were it known that Joe never had a formal education in any sense of the word, such questions as "Who or what teacher taught Joe algebra?" would be quite inappropriate. The assertion of (4), in one sense, signals, so to speak, something abnormal in the normal course of pedagogic events: the pedagogue was nowhere to be found. Again the flow of pedagogic events may be normal but the assertion is still appropriate. Given this, "taught himself" can no longer signal something abnormal. Joe would have a teacher of algebra as most school boys studying algebra; and the teacher would give instructions in algebra as expected. What is wrong, here? Nothing except the assertion, if true, is intended to point up a pedagogic failure on the part of the teacher. It is intended to rule out any claim that Joe's knowledge of algebra was due to his teacher's efforts: It signals the special nature of Joe's accomplished-teaching: the kind of accomplished-teaching where the teacher did not affect the pedagogic accomplishment. There are, then, at least two ways in which the assertions of the type (4) may function. First they may be employed to call our attention to something abnormal in a natural setting of education, the setting where there are at least two different people, one of whom teaches something to the other. Teaching referred to in assertions of the type (4)
is not to be attributed to any teacher in the ordinary sense, which is the abnormality. Second they may function in contexts where the emphasis is on the character of the pedagogic accomplishment, particularly upon a denial that the pedagogic accomplishment can be attributed to the teacher in the ordinary sense.

For brevity and precision, we may now formulate (4-a) and (4-b) respectively as follows:

\[(E_y)(E_z)(E_t)(T_{zyzt}) \quad (f_{1-7})\]
\[(E_y)(E_z)(E_t)(aT_{zyzt}) \quad (f_{1-8})\]

Formulation \((f_{1-7})\) tells us that there was only Joe studying on his own. Formulation \((f_{1-8})\) tells us that there was a teaching accomplishment; and that this accomplishment was attributable to Joe himself.

Now it is quite possible that Joe had a teacher of algebra at the time he studied algebra. If this were the case, it would not follow that the assertion "Joe taught himself algebra" as represented by \((f_{1-7})\) is contradicted. For to insist that Joe taught himself algebra despite the fact that Joe had a teacher of algebra may be a way of setting limits on possible teaching attributions to the teacher and a way of warning us that not all the normal teaching activities are burdened by
the proper authority and executed in the ordinary pedagogic circumstances, e.g., the teacher being overburdened with other tasks or being chronically ill. To insist that Joe taught himself algebra despite the fact that Joe had a teacher of algebra, then, is to say that for certain reasons the teaching of algebra could be described as a case of self-teaching exemplified by \((f_{1-7})\).

As mentioned earlier, \((f_{1-8})\) stresses not only the nature of the pedagogic accomplishment but also to the source from which the accomplishment is supposed to have originated: the pupil who is also his own teacher. Now it is possible that Leo was teaching algebra to Joe all the time the latter was the former's pupil. If this were the case, it would not follow that one could no longer claim that Joe taught himself algebra. The only way to show that the claim to be unfounded is by offering conclusive evidence that the claim to Joe's pedagogic accomplishment was an empty one or that if it were not, it could not be due to Joe's efforts himself.

The question that interests us at this point is this: What is the difference, from the viewpoint of pedagogic accomplishment, between teaching in (3) and (4)? Or to put the question in the framework of our analysis: What is the difference between \((f_{1-6})\) and \((f_{1-8})\) from the viewpoint of pedagogic accomplishment?
Now "(a<sub>xyz</sub>)" of (f<sub>1-6</sub>) can be expressed as "(T<sub>xyz</sub> A<sub>zyto</sub>) . (t<t<sub>0</sub>)". Similarly "(a<sub>Zyz</sub>)" can be expanded into "(T<sub>Zyz</sub> . A<sub>zyto</sub>) . (t<t<sub>0</sub>)". The answer is clear: there is in principle absolutely no difference between accomplished-teaching and accomplished-self-teaching from the viewpoint of pedagogic accomplishment. What we have established here is quite compatible with what we have found earlier, namely, teaching and self-teaching are different in many respects.

There seems, however, to be a difficulty which may be expressed as follows: The case of a teacher accomplished-teaching his pupil is intelligible whereas that of a pupil accomplished-teaching himself seems doubtful for, it may be asked, how could the pupil in the example (4) who had no knowledge of algebra, acquired knowledge of algebra on his own. Let me explain. To say of someone that he acquired knowledge of algebra on his own is to say (1) that he had no knowledge of algebra at some point in the past (t<sub>1</sub>), (2) that he knew algebra at some other point (t<sub>2</sub>), (3) that (2) was brought about by his own doing, and (4) that t<sub>1</sub> preceded t<sub>2</sub>. Now the question is actually twofold. First how is it possible for the pupil to pass from the stage where he is ignorant of

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5See (f<sub>1-4</sub>), supra.
something (1) to the stage of 'awakening' where he knows that of which he was ignorant (2). This question is important and applicable to both cases of accomplished-teaching and cases of accomplished-self-teaching. We shall deal with this question in the next chapter. Second, granted that a teacher can accomplished-teach a pupil something, how is it possible for a pupil to accomplished-teach himself anything? The question is: How can a pupil by himself accomplished-teach himself anything? The question seems to place before us a dilemma: Either the pupil Joe in our example knew algebra or he had no knowledge of algebra. Only if he taught himself algebra, then he knew algebra. And Joe had to teach himself algebra only if he did not know algebra. But Joe, we are told, taught himself algebra. It follows that Joe did not know algebra. How could Joe teach himself algebra if he did not know algebra? The dilemma seems to be a real one. We shall examine this dilemma below.

Let us re-state what seems to be a dilemma as clearly and precisely as possible. First, we will grant that our pupil Joe knew algebra or he did not. Second, we will grant also that if Joe taught himself algebra,  

6Or the alternative formulation "And Joe had to acquire knowledge of algebra only if he did not know algebra."
then he knew algebra. Somehow it seems repugnant to our teaching profession that one can teach something of which one is ignorant. Finally, we will grant further that if Joe had to teach himself algebra, only if, at some point, he did not know algebra. For how are we to understand the assertion that Joe taught himself algebra even though he always knew algebra? Now Joe, we are told, taught himself algebra. It follows, then, that Joe knew algebra, which is contrary to the fact that Joe taught himself algebra only because he did not know it. If this is the case, then it follows from the third premise that Joe did not teach himself algebra, which is contrary to what we were told about Joe. This is the dilemma.

Now this dilemma, I believe, can be resolved. And the solution of this dilemma may result in something not readily accepted by the teaching community. Let us examine the third premise: Joe had to teach himself algebra only if at some point he did not know algebra. This premise, according to our analysis of (3), may mean a) Joe taught himself algebra if and only if he did not know algebra or b) Joe accomplished-taught himself algebra if and only if at some point before the accomplished-teaching, he did not know algebra.

7 Or formally: "\((E_y)(E_x)(E_t)(T_{zyt} \supset A_{zyt})\)".
The first formulation (a) is not the meaning of the third premise. For to say that Joe taught himself algebra if and only if he did not know algebra is simply not true. Even if it were true, the alleged truth of the third premise as expressed by (a) would be incompatible with the second premise. And in this case the dilemma requires us to retain the second premise and reject the first formulation of the third premise.

With the second formulation (b), we have, however, something acceptable. For it is an instance of a pedagogic truth: A person can only be said to have accomplished-taught himself something when and only when at some point before the accomplished-teaching, he did not know (was unfamiliar with, did not understand, etc.) that something. We can now formulate the third premise as follows:

\[(y)(z)(t)(E_{to}) [a \equiv (\sim A_{zyto}) \cdot (T_{zyto}) \cdot (A_{zyt}) . \cdot (t < t_o)] \quad (f_{1-9})\]

(That is: For any y and any z and at any time t whatever, there is at least some time t_o such that z accomplished-teaches himself y at t if and only if at some time t_o before t, z not only did not know (understand or was unfamiliar with, etc.) y but also engages in teaching himself y and at time t, z knows y.)
Now let us see if the dilemma still arises.

From \((f_{1-9})\), we obtain:

1. \((y)(z)(t) \left( a_{Tyzt} \supset T_{zyzt} \right) \cdot (t_o < t) \\
2. \((y)(z)(t) \left( a_{Tyzt} \supset A_{zyto} \right) \cdot (t_o < t) \\

The belief cherished by the teaching community may be called "The Wiseman Premise" and formulated as follows:

3. \((y)(z)(t) \left( T_{zyzt} \supset A_{zyt} \right) \\

Assuming \(a_{Tzyzt}\), we obtain:

4. \(T_{zyzt}\) by (1) \\
5. \(\sim A_{zyto}\) by (2) \\
6. \(\sim T_{zyzt}\) by (5) and (3) \\

What we are given in (4) and (6) are clearly contradictory. And the dilemma remains.

We see that the dilemma arises because of the Wiseman Premise. Let us see if the Premise is founded. The Premise states that if Joe taught himself algebra, then he knew algebra. We know that the Joe of our example did not know algebra at some point in the past. This was the reason why he had to teach himself algebra. Now
the dilemma is this: Since he taught himself, it follows that he knew algebra, which is contrary to what we know; and since he did not know algebra, he did not teach himself algebra, which is contrary to what we know. The solution of this dilemma means either (1) that we deny facts about Joe's intellectual history particularly the facts that he taught himself algebra because at some point he did not know algebra; or (2) that the Premise is false.

I believe that the latter alternative alone is acceptable. It is quite possible for someone to teach himself something without knowing the something that one teaches. This is to say that we cannot accept the Premise as true. Below will be an illustration to show that the Premise must be rejected altogether in order to account for the pedagogic facts which cannot be denied.

Suppose that Joe and Leo were colleagues in a mathematics department in some educational institution. And suppose from observing their behavior and evaluating their performance as teachers, someone declared: "Joe and Leo taught each other the theories of stimulating pupils into thinking mathematically." This assertion can, following the results of our analysis in (3), mean either 

"(E_x)(E_y)(E_z)(E_t)(T_{xyz} \cdot T_{zyt})" or "(E_x)(E_y)(E_z)(E_t) (aT_{xyz} \cdot aT_{zyt})". Now we know, from the previous analysis, that the second formulation entails the first but
not—vice-verse. What this means in this instance is that even if the assertion is what is expressed by the second formulation, it includes as part of its meaning the first formulation. Now if the Wiseman Premise is true, then it follows from the above assertion, if true, that both Leo and Joe knew the theories of stimulating pupils into thinking mathematically. Now let us suppose that the theories are two in number and let \( r \) and \( s \) stand for them. Since \( yz(r) . (s) \), we have:

1. \( (Ex)(Ez)(Et)(Er) . (s) \left[ Tx(r . s) xt \supset Ax(r . s) t \right] \)
2. \( (Ex)(Ez)(Et)(Er) . (s) \left[ Tz(r . s) xt \supset Az(r . s) t \right] \)

Now according to 1, if Leo taught Joe the theories, Leo knew what they were, according to 2, if Joe taught Leo the theories, Joe knew what they were. The antecedents of both 1 and 2 are given according to the assertion. The conjunction of these formulations is what follows from the assertion, granted the Premise. Consequently both Leo and Joe knew what the theories were. But this is absurd. For at least in one sense of teaching, one could not affirm the fact of teaching and deny lack of knowledge \( [Cf. \ (f_{1-9})] \). To do this would render the assertion meaningless. In one sense of teaching, then, the assertion implies at least that at some point both Joe and Leo did not know the theories of stimulating students. In the same sense
of teaching, this must be granted as a condition without which the assertion cannot be meaningful. Here the dilemma emerges. The skeleton of the dilemma is as follows. If the above assertion is true, then we have, at least in one sense of teaching, \((\neg A_x(r,z) \cdot \neg A_z(r,s))\); and given the assertion and the above premise, \((A_x(r,s) \cdot A_z(r,s))\) follows.

Thus we have shown that the Wiseman Premise is unfounded. For otherwise pedagogic facts such as self-teaching or mutual teaching would be merely fictions.

And the proof that the Wiseman Premise is false necessitates the following formulations:

\[
(y)(z)(t) \sim (T_{zyzt} \supset A_{zyt}) \quad \text{(f}_{2-0})
\]
\[
(x)(y)(z)(t) \sim (T_{xyzt} \cdot T_{zyxt}) \supset (A_{xyt} \cdot A_{zyt}) \quad \text{(f}_{2-1})
\]

Both \((f_{2-0})\) and \((f_{2-1})\) are incompatible with the Wiseman Premise and are representations of two general pedagogic truths. \((f_{2-0})\) represents the truth about self-teaching whereas \((f_{2-1})\) represents the truth about mutual teaching.

Now let us examine (5). The statement can naturally be formulated in other ways. Thus it can be said that (5) may mean any of the following:

a. The recent campus disturbances have convinced
many educators that the disturbances cannot be explained away by pointing to the so-called 'lack of communication.'

b. The recent campus disturbances have made many educators aware that the disturbances cannot be explained away by pointing to the so-called 'lack of communication.'

c. Many educators have learned from the recent campus disturbances that the disturbances cannot be explained away by pointing to the so-called 'lack of communication.'

Let me introduce at this point the notion of a pedagogic transformation. Now there is a class of expressions which refers to what I shall call pedagogic transformations. Let us consider the following statements:

1. Joe is better informed about world affairs than ever before.
2. Joe acquired a scholarly knowledge of formal logic.
3. Joe learned from his teacher that "America" is the name of a continent.
4. Joe became convinced, after having watched a number of television programs, that the only good Indian is a dead one.
Now all these statements are different from one another. What they have in common, however, is the expressions that refer to pedagogic transformations. Specifically the expression "is more informed than" implies "has been pedagogically transformed;" "acquired a scholarly knowledge of formal logic" implies "has been pedagogically transformed;" "learned from his teacher" implies "has been pedagogically transformed;" and "became convinced" implies "had been pedagogically transformed." For brevity let us call all statements and expressions which refer to pedagogic transformations "transformation statements" and "transformation expressions." It is necessary to note that transformation expressions and statements are those that can be expressed in part by \( A_{zy} \) or \( A_{xy} \) such as in (f\(_{1-1}\)). Specifically as is clear from (f\(_{1-1}\)), any transformation statement or expression may be translated into the form \( (A_{zyt} \sim A_{zyto} : t_0 < t) \). What this means in effect is that in affirming "Joe is better informed about world affairs now than ever before," we imply that at least there was some point in the past Joe was less informed about world affairs than he is now. Or briefly, in affirming 1 we suggest that Joe has somehow been pedagogically transformed.

Now we see that all the alternative formulations of (5) share something, namely, they all imply that some
pedagogic transformation has occured. This, however, does not suggest that all these formulations refer to the same pedagogic transformation. Specifically, the pedagogic transformation referred to in (a) is in the nature of a belief about the relationship between the lack of communication and the campus disturbances; that referred to in (b) is roughly in the nature of understanding the relationship between the lack of communication and the campus disturbances; and the transformation referred to in (c), though difficult to point out due to the ambiguity of the term "learned," may be the same as that referred to by (b) or may be a different pattern of behavior and a different attitude towards students and teaching.

I wish to argue that, from the viewpoint of pedagogic accomplishment, there is in principle no difference between teaching in (5) and teaching in (4) or in (3). It should be noted that I do not wish to argue there are no differences whatever between teaching referred to by statements of type (5) and that referred to by either (4) or (3). For this is consistent with my previous analyses of (3) and (4). The view I wish to defend is this: Given any pedagogic transformation, there is conceivably no reason why the pedagogic transformation cannot be obtained by teaching referred to by either (3) or (4) or (5).
Let us call the proposition that the campus disturbances cannot be explained away by pointing to the so-called lack of communication \( p \). Hence we can write:

a. Leo taught Joe \( p \) or \( a_T xyzt \).

b. Joe taught himself \( p \) or \( a_T zpzt \).

c. The recent campus disturbances taught Joe \( p \) or \( a_T dpzt \).

I wish to show now that \( a_T xpzt \), \( a_T zpzt \), and \( a_T dpzt \) can be instances of the general formulation \( (f_{1-3}) \). The question is what would be a case of 1. Fortunately our imagination is not overtaxed by this question. Suppose Leo was a professor of sociology actively engaged in contemporary social issues and specialized in the problems of dissent on college campuses. Suppose further that Joe was a student of sociology working with Leo who delivered two lectures every year, one of which was on what seemed to be a timely topic: "College Campus Disturbances: Causes and Solutions." If professor Leo claimed to show in his lecture that there was no such thing as lack of communication and that the disturbances were deeply rooted in the conflicting expectations, anxieties, and frustrations of a young generation in a society which changed rapidly in the direction with which they do not want and if Joe was in a habit of taking down every word of Leo's in the manner a devout
medieval Christian took down the words of the Gospel, we have here what is reasonably a case of \((a^T_{xpzt})\). In this connection we truly can assert: "Leo taught Joe p." And to say this we mean at least, in one sense, that Joe may have at one time believed that the lack of communication was the cause of the recent college campus disturbances, but that at a later time he no longer so believed. Thus "\((a^T_{xpzt})\)" may be expanded, according to \((f_{1-9})\), into "\((a^T_{xpzt}) \supset (\sim A_{zp to} \cdot A_{zp t}) \cdot (t_0 < t)\)" where "\(A_{zp t}\) may refer to the pedagogic transformation that Joe underwent and that was mentioned above.

The question now is what would be a case of \((a^T_{zpzt})\) which is the same as \((a^T_{xpzt})\) from viewpoint of pedagogic accomplishment. Let us suppose now that Joe was a student on some major college campus where occurred frequent demonstrations, which, he believed at one time were occasioned by the lack of communication between administrators, faculty, and students. However, carefully observing the events on the campus and following news reports and screening newspaper reports on the disturbances, Joe found out that there was no such thing as the lack of communication, and started to look elsewhere for what he believed to be the cause of the disturbances. This, then, would be a clear case of \((a^T_{zpzt})\) which is the same as the previous case of \((a^T_{xpzt})\) from
the viewpoint of pedagogic accomplishment.

What would be a case of \( a_{Txpzt} \)? We could imagine that Joe was a student leader on the same campus where he led several demonstrations and represented the student body in various subsequent meetings and discussions with the university administration. As in the previous instances, Joe entered the discussions and meetings with the belief that only the lack of communication between the administration and the students occasioned the demonstrations. He later discovered however, that despite the fact that representatives of both sides understood each other—the students' representatives knew what problems the administration was faced with and the administration's representatives knew what wrongs the students are experiencing—the discussions and meetings reached an impasse. Joe found out to his dismay, for example, that the educational institution is not run according to any theory of education as it should be, in which case rational discourse would presumably be honored, but that it was administered by academic businessmen who believed more in practical politics than any theory of instruction propounded in the university. This, then, would be a case of \( a_{Tdmpz}\).

What I hope to have shown is that from the viewpoint of pedagogic transformation there are in prin-
ciple no differences between teaching as referred to by (3), that referred to by (4), and that referred by (5).

It does not follow that the same teaching always produces the same pedagogic transformation in the same pupil. We can, for instance, suppose that Joe who, on the one hand, firmly believed that most organized political demonstrations were part of the communist scheme for world domination and who, on the other hand, thought that the campus demonstrations were due to a lack of communication, might later become convinced that they were "communist-inspired" when he heard his beloved professor discrediting the view that the disturbances were caused by a lack of communication. But this Joe would be different from the Joe's of the other instances in that he might likely go hunting communists from among student leaders in the way some people used to hunt witches!

Neither does it follow that the teaching referred to by (5) is of the same type as that referred to by (3). In fact they are very different from each other. Of the teaching expressed by (3) we can ask "Where did the teaching take place and for what purpose?", "How long did it last?", "Did it accomplish anything?" and "How long did it take to teach?". None of these questions, however, can be asked of (5). The crucial difference is this: To talk about teaching as in (5) is always to talk about some pedagogic transformation. In fact, the teaching
referred to by (5) is nothing but some pedagogic transformation. Specifically to affirm: "The recent campus disturbances taught many educators p" is equivalent to affirming: "Many educators became aware of p." As such, any analysis of teaching expressed by (5) into the form 

\[(a^T \text{dep} \supset T_{\text{dpe}} \cdot A_{\text{ep}})\]

would be incorrect. For the presence of "T_{\text{dpe}}" in this case would necessarily equate teaching referred to by (5) with that referred to by (3), which is inconsistent with what our previous examination has shown.

Part of what has been said of (5) is applicable to (6). An point to remember with regard to (6) is that (6) can be formulated as "(T_{xpz})" where "p" stands for "that really is neither true nor false." Where (6) differs from (5) is that (6) can also be formulated as "(T_{xpz})". What is of interest to us pedagogically, however, is what can be said of (6) in contrast with (7) and (8).

Let us look at (6) more carefully. We will agree that p is a relatively abstract judgment in the

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8 One difference between a pedagogic accomplishment and a pedagogic transformation is this: Every pedagogic accomplishment is a pedagogic transformation but not vice-versa; another difference is that every pedagogic accomplishment requires teaching in the ordinary sense as a condition for its possibility.

9 Hence "T_{dpe}" cannot be used to represent transformation statements of type (5).
sense that p is more difficult to grasp than what is conveyed by "Socrates was a Greek." Now to teach Joe this abstract judgment, Leo might do one of several things. For one thing Leo might deliver lectures on the question what reality is. In this connection he might try to show that all theses which are incompatible with p are for one reason or another untenable; and that the only defensible position was p. For another, Leo might require Joe to do selected readings which dealt with the question. But the important criterion by which the readings were selected might be that they tended to argue strongly in favor of p or weakly for -p. However this need not be so. As a third alternative, Leo might ask Joe to write a paper on the question. If this were the case, Joe might have to do some research. This would mean that Joe had to read and examine carefully, as he should, various philosophical positions on the question before issuing a verdict. Again if Leo was a professor who had learned how to economize on words after he acquired the arts of "nonverbal" communication, he might not choose any of the alternatives. Were this the case, Leo might ask his pupil Joe to comment on the problem whether reality is true by coordinating his finger movements with certain facial expressions. But if Joe was not skillful at the arts of non-verbal communication as his professor, Joe would have to resort to ordinary language
as a medium for expressing his views. While listening to his pupil, Leo would expectedly either raise his eye-brows to show his disapproval with what was expressed and nod his head to indicate his agreement with what was said until such a time as Joe could see no more eye-brow raising and only nodding instead. At such a time Joe presumably might have succeeded in showing, according to Professor Leo, that p is the most defensible view.

It should be said, however, that no matter how Leo went about teaching Joe p, Leo could never guarantee that he would not ever fail. In other words, Leo might not accomplished-teach Joe p: Joe might not pedagogically know p.\textsuperscript{10} If this was the case, Leo might ask himself: "Where did I go wrong?" when in fact what he meant was "Why is it that I did not accomplished-teach Joe p?" or "Why is it that Joe did not pedagogically acquire p?"

On the other hand if Leo is fortunate to have accomplished-taught Joe p, then Joe would pedagogically know p, which might range all the way from Joe's mere ability to reproduce verbatim what Leo professed p to be through Joe's ability to give some reasons for holding

\textsuperscript{10}"Pedagogically know p" means roughly "knowing p in such a way that satisfies the pedagogue or that comes up to the standard or standards that the pedagogue sets for his pupil or pupils."
p to Joe's critical understanding of p and how p relates to other philosophic issues.

If Leo did not accomplished-teach Joe p, the pedagogic barrier to the expected pedagogic accomplishment might lie in any or all of three places. First, it might lie with Leo. It could be that Leo did not allow Joe to question ambiguities in Leo's lectures or that Leo assigned Joe the kinds of readings that did not argue conclusively or convincingly enough in favor of p, or that Leo took for granted that by asking Joe to do research on p, Joe would pedagogically know p. Second, the pedagogic barrier might rest with Joe. It could be that Joe was not at all interested in p or that Joe slept through Leo's lectures or that Joe did little of what he was asked to do. Third, the pedagogic barrier might lie in what Leo taught. It could be that the problem was too difficult for Joe to grasp or that any representation of the problem, for Joe, seemed meaningless.

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11 By "pedagogic barrier" is meant anything that, if present, prevents some pedagogic transformation or specifically some pedagogic accomplishment. The pedagogic barriers to teaching someone may be his prejudices about the world if we wish to accomplished-teach him some truths about it. In this connection, it is interesting to note that accomplished-teaching of falsities is itself the source of pedagogic barriers if the standard or criterion of pedagogic accomplishment or transformation is knowledge in the strict sense.
Now on grounds of the first sort, we might say of Leo that he was "an inexperienced teacher" or that he did not know how to "communicate" with his pupil. We might, however, not want to lay the blame on Leo. If this was the case, we might say, on grounds of the second sort, that Joe was "lazy" or that he was "dull and stupid." And on the grounds of the third sort, we might say that what Leo taught was too "abstract and difficult" or simply "meaningless."

How is (6), then, different from (7)? It seems evident that most of what was said in connection with (6) is applicable here. Leo could, in teaching Joe how to dance, give instructions to Joe by means of lecturing. Leo could require of Joe to observe professional dancers in action and to pick out movements that Joe considered best. Again Leo could request Joe to dance according to specific lessons which might be given verbally or nonverbally e.g. by hand signals and facial expressions.

Not unlike the situation expressed by (6), Leo might or might not accomplished-teach his pupil Joe how to dance. Similar to the situation in (6), if Leo failed to teach Joe how to dance, Leo's failure could be attributed to either Leo's performance as a teacher or Joe's performance as a pupil or what Leo taught. Hence there are conceivably good grounds on which we might say of Leo that he was "inexperienced," of Joe that he was
"clumsy" or of what Leo taught that it was "difficult."

We cannot, however, conclude that the teaching referred to by (6) is the same as that referred to by (7). In other words, these similarities between the teaching referred to by (6) and that referred to by (7) must not deceive us into concluding that they are of the same type. First of all, whatever Leo might do in teaching Joe how to dance he must set a pedagogic requirement very different from that he must when he taught Joe as in (6). Joe might be required to understand what dancing is or how it came about or even how it related to the rest of human activities. This, however, is not the fundamental pedagogic requirement imposed on Joe. The most fundamental pedagogic requirement imposed on Joe here should be that Joe ought to dance or that Joe ought to practice dancing: Joe's dancing here was supposed to be his main concern and that of the teacher. Joe's knowledge of what dancing was might be required but presumably with a hope of helping Joe's dancing. It might be that Joe was given lectures on dancing, instructed in different techniques of dancing or required to watch professional dancers in action. But the point of all this was not to enable Joe to have an "appreciation" of dancing but to pedagogically know how to dance. To be sure Joe had to understand what Leo propounded in his lectures, and had to remember the techniques of dancing or some outstanding
movements performed by professional dancers. This may be necessary but not sufficient to satisfy the pedagogic restriction inherent in teaching Joe how to dance. To satisfy the pedagogic restriction inherent in teaching Joe how to dance, Joe had to pedagogically know how to dance. His dancing might be performed in accordance with the rules of instruction or patterned after some professional dancer's techniques; and his dancing might be considered to be daring, innovative, or simply poor. But what was judged had to do less with his familiarity with the rules of instructions or some professional dancer's paradigms than with his performance as a dancer.

It would be, then, inconceivable to affirm, on the one hand, that Leo taught Joe how to dance and deny, on the other, that Joe never practiced dancing or that Joe was never expected by Leo to practice dancing.

In contrast, the pedagogic requirement imposed on Joe in (6) is radically different. And it is roughly this: Joe ought to pedagogically know p. Joe's attendance at the lectures, his perusal of selected readings, and his research on the problem were presumably bound up with the pedagogic restriction mentioned above. To find out whether Joe had been taught p, Leo could not merely look at Joe's attendance records, examine the readings Joe had done or ask whether Joe had done any research: Leo had to find out whether Joe's attendance records,
readings, or research satisfied the pedagogic restriction namely, whether Joe pedagogically knew p.

Suppose now that the Leo in (6) pedagogically knew p and the Leo in (7) pedagogically knew how to dance. How, it may be asked, are the pedagogic accomplishments really different in kind? The question is that if both (6) and (7) were cases of accomplished-teaching, then how exactly would the pedagogic accomplishment of (6) differ from that of (7)? We have shown that the pedagogic requirement of (6) differs from that of (7). We hope to show now that the pedagogic accomplishment of (6) is also different from that of (7).

If we grant that Leo accomplished-taught Joe p, then Joe pedagogically knew p. That Joe knew p is no doubt a pedagogic accomplishment. If p is true, the pedagogic accomplishment can be said to have increased Joe's knowledge of the world. However, if p is false, the pedagogic accomplishment can be said to have misinformed Joe about the world. In either case the pedagogic accomplishment in (6) may happen in the world but does not bring anything into it. This is not to say that Joe did not have to do anything to satisfy his master's pedagogic requirement but that even if he had to burn midnight's oil, the pedagogic accomplishment in question is a case of his being informed about the world or a case of his
being misinformed about it.

Now if we grant that Leo accomplished-taught Joe how to dance, then Joe pedagogically knew how to dance. Joe's pedagogic accomplishment here can also be said to have increased his knowledge. This knowledge, however, differs from that of (6) in that it can neither be true nor false in the sense that p can. Joe's pedagogic accomplishment in (7) is not about the world but in the world. It brings something into the world in the way that the pedagogic accomplishment in (6) does not. This knowledge can be corrected or improved in a manner different from the knowledge in (6) can. And although in time both accomplishments might be forgotten, the forgetting of one would result in a case of ignorance whereas the forgetting of the other would constitute a case of clumsiness.

Hence the pedagogic accomplishment which results from the teaching of (6), if any, would be different in kind from the teaching of (7). Let us term the accomplishment of (6) "contemplative" and that of (7) "artistic."

Now let us consider (8): "Leo taught Joe to be careful." Is this sort of teaching different from that referred to by (7)? At first it seems that the answer is yes. It may be argued, for example, that to say that Leo taught Joe to be careful is really an abbreviatory way of saying that Leo taught Joe how to do something carefully. If this is granted, then it follows that to
teach someone how to do something carefully is not to do two things but one. Therefore, teaching someone to be careful is merely a case of teaching someone how to do something.

The above view seems to rest on the belief that to attribute care to someone is really to say that some hypothetical proposition like "If he did x, whatever x may be, he would do x carefully" is true of him. The above view seems, however, to be in error. It may be that sometimes we do talk in the way described above. It does not follow from this we must always talk in this way. If this is true, then there must be times when we say of someone that he is careful, we do not merely want to say that he is careful in doing something. In fact even if Joe does not do anything at all, we still want to say that Joe is careful. And in spite of the fact doing something carefully is doing one thing and not two different things, it does not follow that to say that Joe is careful is the same as saying that anything that is done by Joe is done with care. For clearly in asserting that Joe is careful, we want to claim that something is true of Joe, not merely that something hypothetical about Joe may be true.

12 Gilbert Ryle, op. cit.
13 A more detailed examination of "dispositional" statements is forthcoming in Chapter IV.
Again, let us examine the following:

(8) Leo taught Joe to be careful.

(a) Leo taught Joe to be careless.

(b) Leo taught Joe to do x carefully.

(c) Leo taught Joe not to do x.

(d) Leo taught Joe to do x carelessly.

Let us examine these as instances of accomplished-teaching. First, (8) and (a) are incompatible. If (8) is true, then (a) must be false. Second, (8) and (c) are compatible. There are surely cases in which we will agree that preventing someone from doing something is a way of teaching him to be careful. Third, (b) cannot be affirmed in conjunction with either (c) or (d). It would follow that (8) cannot be the same as (b).

It would seem, then, (8) cannot be reduced to (7), namely teaching someone to be careful cannot be merely a case of teaching someone to do something. Granted this, it is legitimate to ask (1) What is the pedagogic requirement of teaching someone to be careful? and (2) What is the pedagogic accomplishment, if any, of teaching someone to be careful?

Now the first question. Let us suppose that Leo taught Joe to be careful in driving. Leo might resort to different tactics. For one thing, Leo, knowing that Joe was afraid of being involved in a car accident, showed Joe some statistical evidence to the effect most car accidents
are caused by careless driving. For another, Leo might take Joe out driving and constantly correcting every wrong move the latter made until Joe eventually drove "carefully" namely, Joe consistently observed every traffic law, always maintaining a certain speed limit even when the road was deserted, never crossing an intersection without first slowing down and looking in both directions, never passing other moving cars no matter how slow they might be, always yielding to a pedestrian, etc. What, then, is the pedagogic requirement of teaching Joe to be careful? It is this: Joe ought to know how to be careful. This requirement is different from that of teaching Joe how to do something. For to say that Joe ought to know how to be careful is different from saying Joe ought to know how to do something. To say that Joe ought to know how to be careful is to say something over and beyond what is expressed by "Joe ought to know how to do something." It is to say at least that whatever Joe might be engaged in doing, Joe should do it carefully. The pedagogic requirement of (8), then consists really in some pedagogic rules which Joe's behavior must exhibit.

Now the second question. The pedagogic accomplishment of teaching someone to be careful consists in his knowing how to be careful. Now this knowledge is not to be mistaken for the knowledge which resulted from the accomplished-teaching of (7) above. Like the
pedagogic accomplishment in (6), this knowledge may involve knowledge about the world. Like the pedagogic accomplish­ment in (7), this knowledge may be in the world. This knowledge differs from that of (6) in that the pupil may choose to submit himself to it or reject it. Joe might affirm or deny p but there is no sense in which he must submit himself to p. On the contrary, knowing the rule that driving slowly is safer than speeding still left Joe with the choice of submitting himself to the rule or breaking it.

Now it may be that both the pedagogic accomplish­ment in (7) and that in (8) are publicly observable. How­ever, it may be said that the pedagogic accomplishment in (8) is publicly observable in such ways as the pedagogic accomplishment in (7) cannot. If Joe was taught how to dance by Leo, Joe would have danced at least once. Now it is perfectly conceivable for someone to describe Joe's dancing in terms of movements of the body, the arms, and the legs, etc. On the other hand, if Joe was doing a ballet, some observer might describe Joe's performance in terms of bodily movements that defied gravity, bodily movements that exalted the bodily curves, bodily movements that exhibited the relation of symmetry, etc. It is im­portant to note, again, that Joe's knowing how to dance would be quite independent of Joe's knowledge of how his bodily movements were co-ordinated or what curves and re-
lations his bodily movements exhibited. To put the matter differently the observer who could describe Joe's dancing flawlessly might have been a reject from some dancing school.

The picture is different, however, with the case of Joe's careful driving. Now it is entirely possible to describe Joe's driving in terms of the driven car's movements, relative to other moving bodies on the road and relative to traffic signs posted on the road. But Joe's careful driving cannot be described in this way. For how are we to know whether Joe drove carefully without knowing anything concerning Joe's knowledge of traffic rules, of driving conditions, his judgments regarding driving, etc.? To put it in another way, to drive carefully is to drive "with an eye on the road," where the "eye" means the "mind" and the road is nothing less than "the traffic conditions of the driving field."

As such I hope to have shown that the pedagogic accomplishment of (8) is of a different type from that of (7). And let us call this accomplishment "social."

I hope to have shown (1) there are several senses of teaching, (2) many of these senses of teaching are distinct one from the other, (3) accomplished-teaching cannot be equated with teaching, (4) there are different types of accomplished-teaching, (5) it is possible for different modes of teaching to result in the same pedagogic trans-
formation, (6) what is referred as teaching in (6), (7) and (8) are really distinct types of teaching and (7) a much cherished belief which I termed the "Wiseman Premise" is unfounded. In the next chapter I shall be concerned with the logical possibility of contemplative teaching.
The question with which we shall be concerned in this chapter is how it is possible for the teaching referred to by (6) to take place. The question can be put simply: How is teaching that possible?

It has been established in the last chapter that there is a logical distinction between teaching in the ordinary sense (activity teaching) and accomplished-teaching. The question can, consequently, be interpreted to mean either

1. How is activity-teaching that possible? or
2. How is accomplished-teaching that possible?

Now the first question seems uninteresting and trivial for it would require little imagination to answer it. What interests us is the second question.

Before attempting an answer to this question, we shall examine a possible argument that teaching—that is not possible at all. Though it is not easy to trace the origin of this argument, I shall try to construct the argument as best as I can. Suppose Leo claims to have taught Joe that reality is neither true nor false. Let
us call the proposition beginning with "that" p. Now at
the time that Leo taught Joe p, Joe either knew p or did
not know p. If at the time of teaching Joe knew p already,
then there is at least one sense of teaching in which Leo
cannot claim to have taught Joe p. For this would con­
tradict the results of our previous analysis. However,
if at the time of teaching Joe did not know p, then in
the sense of accomplished-teaching Leo could be mean­ing­
fully said to have taught Joe p. But the question is
how comes it that Joe knew p if he did not know p. The
dilemma, briefly stated, seems to be as follows: Either
Joe knew p or Joe did not. If Joe knew p, Leo's teaching
was futile. But if Joe did not know p, Joe could not be
taught p. It would seem, therefore, that teaching is
really not possible. ¹

The dilemma does not throw doubt on whether
teacher Leo could perform his duties as teacher; what it

¹Perhaps traces of this argument may be found in
at least two of Plato's dialogues (e.g. the Meno and the
Euthydemus) and in St. Augustine's "The Teacher." In Meno
the question was raised as to whether virtue or goodness
could be taught. In the Euthydemus, one of the questions
was whether the wise, those who know, learn or whether the
ignorant, those who do not know, learn. And St. Augustine
attempted to establish in one of his dialogues that the
teacher cannot really be said to teach his pupil on the
grounds that the teacher's words can have no meaning for
the pupil who does not know that to which the former's words
refer. See Ancient Christian Writers, No. 9, St. Augustin,
"The Teacher," ed. by J. Quasten and J.C. Plumpe,
translated and annotated by J.M. Colleran, Newman Press,
Westminster, Maryland: 1950.
throws doubt on is whether we could attribute Joe's knowledge of p to Leo's efforts as a teacher. In what follows I shall try to show that the latter doubt is really based on a mistaken assumption.

Let us examine the argument.

(1) Either Joe knew p or Joe did not know at the time of Leo's teaching \((t_1)\).

(2) If Joe knew p at \(t_1\), then Leo cannot claim to have accomplished-taught Joe p.

(3) If Joe did not know p at \(t_1\), then Joe could not be accomplished-taught p by Leo at \(t_1\).

Now (1) is true. In some sense of "know" Joe could be found to know p at the time of Leo's teaching. But whether or not anything definitive could be established about Joe's knowledge of p at \(t_1\), it must be the case that either Joe knew p or did not know p at \(t_1\). (2) is acceptable for it is consistent with our previous analysis. And the ground for accepting (2) is precisely the fact that there is no sense in which one can claim to have accomplished-taught someone something which the latter already knew. The dilemma, then, it seems, must rest upon (3). Let us see if (3) is true.

Suppose that (3) is true. It would follow that Joe's knowledge about the world could not be attributed to his formal education if he had any. And if we suppose further that formal education is the only means whereby
culture can be preserved, it would follow that Joe was either born culturally-endowed or culturally-deprived. And if he was born culturally deprived, he would forever be condemned to be ignorant and uncouth. However I think (3) is false. (3) tells us that if Joe did not know p, then Joe could not be accomplished taught p. But the question is whether it is possible for Joe not to know p but to understand p at t₁. The question is whether it is compatible to say truly of Joe at t₁ that he did not know p and that he could understand p. The answer is in the affirmative. If this granted, then we can ask the question: If Joe did not know but could understand p at t₁, could Joe be accomplished taught p? The answer is yes. For Joe did not know p but could understand p, Leo could enable Joe to know p by certain pedagogic operations like stating, showing, and explaining p to Joe. Formally we can say if Joe did not know but could understand p at t₁, then Joe could be accomplished-taught p.

We could arrive at the above conclusion by considering the following:

(a) Joe did not know p at t₁.
(b) Joe could understand p at t₁.
(c) Leo taught Joe p at t₁
(d) Joe could be accomplished-taught p at t₁.

Now as the conjunction of (a), (b), and (c) entail (d),
it follows that (3) is unacceptable. The dilemma, then, rests upon a false assumption. And the argument leading to the dilemma fails to establish that teaching is not possible.

It may be objected that the dilemma remains if instead of (3), we reformulate (3) into (3a) to read:

(3a) If Joe did not understand p at t₁, Joe could not be accomplished-taught p.

Is (3a) true? Like (3), (3a) is unacceptable. For it is possible that Joe did not understand p at t₁, but that he could understand p at t₁. That Joe did not understand p could be due to the fact Leo's teaching was too pedantic, the fact that Leo's choice of words misled Joe etc. And if Leo could choose words that were unambiguous, speak clearly, be less pedantic, Joe would understand p. If this is true, then there is no ground for denying that Joe could be accomplished-taught p.

The view here that no matter how many attempts on the part of Leo to teach Joe p may be made, the persistent failures by Leo to accomplished-teach Joe p do not constitute sufficient ground for denying Joe can understand p, may encounter an objection.² It may be

²This view is here accepted. The truth of this view which I dogmatically assume for the time being is crucial to my argument put forth above. Against the objection which embraces (3) or (3a), I shall argue that acceptance of this view is at least logically unobjectionable.
argued that from experience Leo can legitimately conclude, after several various attempts to teach Joe p, which result only in Joe's failure to understand p, that Joe cannot understand p. The plausibility of this objection can be appreciated only if we keep in mind the fact that we often hold uncritically the belief that some people are naturally more intelligent than others. Given this belief, it would seem plausible to maintain that at some level of instruction, there are certain propositions or sets of propositions which only the most intelligent pupils can understand and which the least intelligent pupil cannot ever understand. Let us examine this objection.

We may re-state the objections as follows: Granted that some people are more intelligent than others, it is legitimate for teacher Leo to conclude with regards to his pupil Joe that Joe cannot understand p if Leo has accomplished-taught p to his other pupils but failed to accomplish-teach Joe p despite Leo's several various attempts. It should be noted that the conception of intelligence implicit in the objection is radically different from what we mean by intelligence. What is meant by intelligence in the objection is presumably something that can be in some sense measured. Now let us assume in the first place that Leo has three pupils named A, B, and C, and in the second place that A is more intelligent
than B who is in turn more intelligent than C (or specifically A is known to have an I.Q. exceeding 160, B one between 130 and 135, and C below 75.) The question arises if it is justifiable for Joe to declare that C cannot understand p after he accomplished-taught p to A and B upon the first trial but failed to accomplished-teach p to C upon several consecutive trials. The answer to this question may take us far afield into different cases. First, it is justifiable for Leo to declare that C cannot understand p if Leo knows that C has not acquired the necessary linguistic tools to enable C to grasp p. Thus it would seem that C cannot understand what is conveyed by "Borrowing and stealing are two different modes of social intercourse" if, for example, C does not know what property is. Second, it is justifiable for Leo to declare that C cannot understand p if Leo knows that p is expressed in $L_1$ unfamiliar to C, and is not translatable into $L$ familiar to C. Third, it is justifiable for Leo to declare that C cannot understand p if Leo knows that C's intelligence is hampered by some physio-chemical condition, e.g. C is an imbecile. Now in none of these cases, to say of C that he cannot understand p means the same as saying that C cannot understand p no matter what. If after several attempts at teaching p to C which result in failures, Leo's declaration that C cannot understand p, Leo's declaration would be unjustifiable if he means by it that
C cannot grasp \( p \) no matter what. And the reason why it is unjustifiable is that Leo's declaration denies the fact that \( C \) is intelligent in the sense here accepted. But as we have seen, all attempts at teaching would become pointless, were we to deny the fact that there is intelligence.\(^3\)

We are in a position to deal with the question: How is accomplished-teaching that possible? In the framework of our analysis, the question is the same as the question: How is contemplative accomplished-teaching possible? Below shall be my attempt to defend as the answer to this question the following thesis: For any case of contemplative accomplished-teaching there must be at least (1) a proposition \( p \), (2) something I shall term intelligence \( i \), and a relation of intelligibility \( I \) which holds between \( p \) and \( i \).

Two pertinent questions arise. One, what is intelligence? Two, what is a proposition? We shall try

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\(^3\)The not uncommon but often irrational attitude of some teachers is their somewhat arbitrary ranking of their pupils as "intelligent" or "unintelligent" in the sense of "endowed with intelligence" or "lacking in intelligence" respectively, perhaps does more harm than good to the overall development of their pupils. The attribution of intelligence to some pupils by their teachers, not unlike the attribution of unintelligence to others, is often a poor substitute for an adequate or honest explanation of what has happened pedagogically. Thus a teacher's attribution of unintelligence to some pupil could be an excuse for his own failure as a teacher or an indication that he did not care to find out or did not know what the pedagogic barrier was.
to deal with the second question first. We shall not be occupied with the metaphysical question with regard to the nature of a proposition, which is properly a question of primary philosophy. We shall be concerned merely to state what we mean by proposition.

A proposition is not to be confused with a sentence. The proposition that reality is neither true nor false is not the same as the sentence which expresses the proposition. For the sentence "Reality is neither true nor false" belongs to the English language whereas what is expressed by the sentence does not. The sentence can be correctly or incorrectly constructed whereas what is expressed by it cannot. Again the sentence, since it belongs to a particular language, may be translated into other languages but what is translated is not the sentence but what the sentence expresses. Furthermore the sentence can be written, spoken, uttered, seen, and heard whereas what is expressed by the sentence cannot in the same sense. And what is expressed by the sentence, what is retained in the translation and what can be said to

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4There has been a considerable amount of literature on this subject. Perhaps the reader should be reminded of Russell's discussion in *An Inquiry into Meaning and Truth* (Pelican Books, Baltimore, Maryland: Penguin Books, 1962), and of G.E. Moore's paper "Propositions" from his work *Some Main Problems of Philosophy*, (New York: The Macmillan Company, 1953).
be understood, believed or known when the sentence is spoken, heard or read is what is meant by a proposition.

It may be said that natural language is a means by which propositions are conveyed. The sentence "Reality is neither true nor false" may be reconstructed either as "Reality is not true and reality is not false" or as "What is real is neither true nor false." All these different sentences convey the same proposition. A person who is unfamiliar with the workings of the English language may say "Reality are neither true or false." We would not say that this sentence does not convey anything but rather that it is not well constructed: it violates some rules of the English language. However, if the same person, after saying "In my opinion reality are neither true or false," proceeds to say "But I strongly believe that what is real must be true," we would not merely say of him that he was unfamiliar with some of the rules of the English language but also that he had a contradictory belief. What is contradictory here is not attributable to the different sentences he utters but to what the different sentences convey. It would seem fairly safe to say, then, that sentences in natural language may be used to convey propositions and that propositions but not sentences are capable of being contradictory or non-contradictory.

It has been said that natural language is a
means by which propositions are conveyed. This would leave open the question whether propositions may also be conveyed by other means than natural language. I am inclined to believe that there are other means whereby propositions can be conveyed. Seeing the glowing sun on the Eastern horizon from the earth, we know that the day is just begun. Hearing the bell, we stop lecturing because we know that the class period is over. Smelling unpleasant smoke, we know that something is burning.

It may be objected that there is no need for proposition here to account for the above cited facts of life. Thus it may be objected that the paradigm of the Pavlovian dog will suffice. We, not unlike Pavlov’s dog, the objection might run, are conditioned. Our being conditioned lies in the fact that we learn to associate the glowing sun in the East with daybreak, the sound of the bell with the end of the period, and the unpleasant smoke with something burning. What in fact happens in these examples, the objection continues, is that we learn to link one event with another event.

There is no denying that the Pavlovian paradigm does well to illuminate our understanding of much of our behavior. I do not think, however, that the paradigm can itself establish that there is no need for propositions.

Let us take the case of a professor who stops lecturing when he hears the bell. Now if the professor
has spent over half of a century lecturing in the same university where the bell is always used to signal the beginning and the end of each period, it is perfectly feasible to say that the professor has been conditioned to some extent by the bell. But let us suppose that on some day while the professor was totally inspired and lost in his lecture, the bell did not ring at the end of the period due to an electric power failure. Let us suppose further that someone in the audience informed him at the moment the bell was supposed to ring, that the period was over. And needless to say, the professor immediately stopped lecturing. The question arises whether the professor's action in this instance can be described as a case of conditioning. I think not. For if the bell did not ring, by what could he be conditioned? It would be absurd to say his action was "conditioned" by what a member of the audience informed him! For his action could be intelligibly explained by taking into account the fact that someone informed him that the period was over. The way in which he was informed might vary: a wink, a spoken word, a pretended cough, or even the entire spoken sentence "Professor! The period is over!" Now if instead of stopping, the aged professor who never breaks any university rule no matter how insignificant, kept on lecturing as usual, shall we say that he was not properly conditioned by the wink, the spoken word, or the
pretended cough, or shall we say that he did not see the wink, hear the spoken word and the pretended cough? But let us suppose that he saw the wink. Clearly in this instance we could not say that he was not properly conditioned by the wink. We would have to say rather that he did not understand what the wink meant. We would have to say that he did not know that by the wink, the winker meant "Dear old professor, the period is over!"

This is to say, then, that the wink, the pretended cough like the words and sentences of ordinary language can be used to convey propositions. And this is also to say that there are other means than ordinary language by which propositions can be conveyed.

A proposition is not to be confused with a fact or a truth. A fact is what is. That China is more populous than Vietnam is a fact. That the Russian Revolution occurred in 1917 is a fact. "Fact" and "truth" are interchangeable in some contexts. Thus if a statement is true, the statement expresses a fact. However, facts but not truths are expressed and discovered. And truths but not facts are spoken, known and told. The sentence "I am Bertrand Russell" uttered by Russell is a spoken truth but not fact. That Russell's life spanned almost a century is a fact but Russell might never have told the truth to anyone. Teacher Leo, charged with battery for having applied a weighty punch on little and talkative
Joe, may plead in court that he only wanted Joe to be a good boy. The prosecutor for the plaintiff may counter "The fact of the matter is that teacher Leo hit Joe because he did not like Joe and Joe's talkativeness was only an excuse Leo used to rationalize an irrational act." No matter what the verdict, the truth of Leo's defence may be forever hidden but not the facts.

Now the proposition that the Russian Revolution takes place in 1917 is neither true nor false before 1917. However the proposition is now true for it is a fact that the Russian Revolution took place in 1917. Thus a proposition may be verified or falsified by a fact or facts. If a proposition corresponds to a fact, it is true; if it does not, it is false.

It may be asked whether there are different kinds of propositions. Let us consider the following sentences:

(a) Bertrand Russell was born in England.
(b) Bertrand Russell disagreed with Whitehead.
(c) Metals are conductors.
(d) All men are created equal.
(e) To produce steel sheets one has to melt iron.
(f) Honesty is the best policy.

Now these sentences express different propositions. The proposition expressed by (a) must be true or false but not both. For Russell could not be born both in England and
in France. And Russell could not be born more than once. Let us call propositions of this type particular propositions. With (b) we have a different case. The proposition expressed by (b) can be both true and false. Thus Russell could have disagreed with Whitehead more than once on certain issues and could also have agreed with Whitehead more than once on certain issues. What gives this proposition this characteristic is the occasion, e.g. the point in time and space without which we could never determine the truth-value of (b). Let us call propositions of this type, to borrow an expression from Von Wright, generic propositions. With regard to (c) we have propositions which populate scientific literature. Propositions of this type are true regardless of occasions. Let us call this type of propositions "general." Now with (d) we have a different case. In all appearance it does not differ from (c). However the truth value of this proposition can neither be conclusively established nor conclusively refuted. Perhaps we will never know whether (d) is true or false. Perhaps we should never ask if (d) is true. Maybe at times the question whether (d) is true might be inappropriate. What can be said about (d) is that there may be convincing reasons for or against

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the affirmation of the proposition, that one can believe or disbelieve it, but that one cannot be indifferent to it. Let us call this type of propositions "speculative." Now concerning (e), we have a type of propositions that is radically different from all the previous types. One may be tempted to say that (e) is true and, thus, like (c). This would be not strictly correct, however. I think, with respect to propositions like (e), it would seem out of place to ask whether they are true or false. The questions that may be asked are perhaps: Are they applicable? Are they acceptable? For unlike the previous propositions, the proposition expressed by (e) does not report or claim to report about the world. One may accept or reject (e) because (e) is acceptable or applicable for certain reasons. One cannot, however, say that (e) is false even when no one can be found melting iron to produce steel sheets. Let us call this type of propositions "directive." Finally the proposition expressed by (f). Like (e), (f) does not report on the world. Unlike (a), (b), and (c), (f) cannot be true or false in the same sense. The proposition expressed by (f) can be said to be "right" or "wrong", but not true or false. But what does it means to say that (f) can be right or wrong? It is to say several things over and beyond our approval or disapproval of (f). It is to say how one
ought or ought not to conduct oneself in relation to others. It is to say whether or not honesty is a duty among men in society. It is to say whether (f) is applicable or inapplicable, appropriate or inappropriate and be ready to give reasons for or against being honest. Propositions of type (f) can be wrong or right. What makes them wrong or right is not the occasion as in the case of generic propositions but the circumstance. Thus in the course of everyday life we can say that the proposition expressed by (f) is right, e.g. in the normal course of social conduct one is obligated to be honest with others and with oneself. It is arguable, however, the proposition is still right when honesty results in injury to innocent life. But if (f) is wrong in this case, as I think this is a tenable position, then what makes propositions like (f) wrong or right lies in the circumstance.

Now we are in a position to deal with the first question: What is intelligence? I should like to say what I mean by intelligence by showing first what it is not and second what it is.

What I mean by intelligence is not the same as what some psychologists mean by intelligence in that the former cannot quantified or measured as the latter. To put it differently, what I mean by intelligence, unlike what some psychologists mean by intelligence, does not admit of degrees of difference. Let us take Leo and
Joe. Now in the way I wish to use term intelligence, the first two of the following statements are admissible but the others are inadmissible.

(a) Leo is intelligent.
(b) Joe has no intelligence.
(c) Leo is more intelligent than Joe.
(d) Joe is more intelligent now than before.

This is not to say that (c) and (d) are not meaningful but only to say that in (c) and (d) the meaning of intelligence is different from what I mean by intelligence in (a) and (b).

But what is the intelligence $i$? I shall try to show what it is by showing what is attributed to a subject $S$ when it is said of $S$ that $S$ is intelligent. Let us take the particular proposition that Bertrand Russell is born in England ($p_1$). In general $S$ can be said to be intelligent or to have intelligence if $S$ can affirm or deny $p_1$, commit to memory or forget $p_1$, prove or disprove $p_1$, infer from something to $p_1$, confirm or disconfirm $p_1$, express $p_1$, believe or disbelieve $p_1$, know or be ignorant of $p_1$, understand or misunderstand $p_1$, think $p_1$, and so on.

Now it should be noted that affirming and denying, committing to memory or forgetting, proving or disproving, expressing, believing or disbelieving, knowing
and being ignorant, all these presuppose either some notion of truth or some notion of reality. If Leo accomplished-taught Joe $p_1$, then Joe knew $p_1$. However we could not attribute knowledge of $p_1$ to Joe unless either it is true that Russell was born in England or there is such a thing as the birth of Russell in England. Knowing $p_1$, Joe may declare $p_1$ to be true: he affirms $p_1$. If knowing $p_1$, Joe denies $p_1$, he can be said to lie, e.g. Joe declares as false something he knows to be true. After having been taught $p_1$, Joe might forget $p_1$, and thus, cannot express $p_1$. Joe's forgetting is similar to Joe's expression of $p_1$ in that they both presuppose some notion of reality: they both resemble someone's discovery. As one cannot discover what is not there, so one can neither express nor forget what is not. Joe's expression and forgetting, then, must be his forgetting something and his expression of something! It could be the fact that Russell was born in England but it must be at least the proposition that Russell is born in England. The same can be said of proving or disproving. For Leo to prove $p_1$ to Joe, Leo must demonstrate beyond doubt that $p_1$ is true or expose the fact that $p_1$ expresses. And Leo could not intelligibly declare $p_1$ to be true and in the same breath try to disprove it.

The situation is similar with inferring. Although whenever knowing and arguing, and inferring are
rightly attributed to a subject $S$, it can be said that $S$ has intelligence, inferring is still different from knowing and arguing. For one to infer that $p$, one has to infer from something. In inferring $p$, one does not know $p$. This is to say, of course, that one may know $p$ by inferring $p$. And unlike arguing, inferring does not have to move from a premise to a conclusion. It is possible to infer that Bertrand Russell was born in England from the proposition that Russell's mother never travelled outside England. It does not follow, however, inference has to move from one proposition to another. Leo could infer from Joe's smile that Joe was pleased without being able to express Joe's smile in any way. And if one can believe $p$, one can also disbelieve $p$. Believing is different from knowing. One cannot know something without somehow being prepared to show that what one knows to be true. In other words, whereas it is possible for one to believe falsely it is not possible for one to know falsely. Again, if one can believe $p$, one can also believe it strongly or blindly. Furthermore if it is possible for one to believe $p$ strongly, it is also possible for one to be indifferent to $p$. And to believe $p$ is, in a sense, to take $p$ to be true whether or not one can justify $p$.

Finally understanding and thinking $p$. "Thinking" $p$ is perhaps the most general term which could be used as a stand-in for "knowing," "believing," "inferring"
and the whole range of terms mentioned above. Thus even though thinking may appear in such diverse contexts as thinking about something, thinking something out, thinking something over, and thinking up something, there is a place for using thinking in such a way as whenever it is said of someone that he thinks p, "he thinks p" may mean "he doubts p," "he believes p," "he remembers p," "he infers p from something," etc. And it is this sense of thinking that we shall use here unless specified otherwise. Now understanding p is, it may be argued, knowing what to do with p. It may be said that a person understands p if and only if he knows how to identify p, how to express p in one way or another, how to answer questions raised about p, etc. I shall not attempt to show whether this view is strictly correct except to advance certain remarks on what it means to say of someone that he understands p. It is perfectly reasonable to say of someone that he understands p even when there are grounds for denying that he can express p in different forms and that he can identify p when he is presented with some expressions of p. Thus even if it is true that our Joe cannot express p in any natural language (English, Chinese, French, etc.) or that Joe fails to identify p when p is expressed to him in the language he speaks, it would be no sufficient ground for denying that Joe understands p. Particularly whether Joe can say "Bertrand Russell was
born in England," or "Bertrand Russell est né en Angleterre" or whether Joe fails to identify "The birthplace of Bertrand Russell is England," as $p$ constitutes no sufficient ground for denying that Joe understands $p$. If this is granted, we must distinguish three things:

(a) $p$

(b) understanding $p$

(c) expression of $p$

Now according to our previous analysis only (a) can be true or false, right or wrong, applicable or inapplicable. (c) may be correct or incorrect, appropriate or inappropriate, clear or unclear. All of what can be said of (a) and (c) cannot be said of (b). Therefore understanding $p$ cannot be confused with the expression of $p$. The question, however, remains: What is understanding $p$? We shall deal with this question below.

Suppose it to be true that Joe understands $p$. We have seen that Joe's understanding of $p$ cannot be confused with his expression of $p$. But to say truly of Joe that he understands $p$ is to presuppose that Joe can understand $p$. This, of course, is not to say that what is termed "Joe's understanding of $p" is identical with what is termed by "Joe can understand $p." This is to say, however, that if it is false or meaningless to assert that Joe can understand $p$, then it is also false or meaningless to say that Joe understands $p$. The question
arises: What does it mean to say of Joe that he can understand p?

It may be argued that to say of someone that he can understand p is to say in an elliptical manner what can be expressed by "He understands p if q" where p stands for some proposition referring to either the circumstance surrounding Joe or to Joe's ability. Thus to say of Joe that he can talk is to say either (1) that there is nothing to prevent Joe from talking or (2) that Joe has the ability to talk. Let us see if this view can be maintained. First if to say of Joe that he can talk is the same as to say that there is nothing to prevent Joe from talking, then if there is something that prevents Joe from talking, it would be sufficient ground for us to deny that Joe can talk. This is to say if to say that Joe can talk is to affirm what is expressed by (1), then when Joe, for example, is gagged, it cannot be said of Joe that he can talk. Is this really the case? No doubt there are times when we use "can talk" to refer to a situation like this. Thus we may legitimately deny that Joe can talk by saying "Joe cannot talk" when we find Joe gagged. What "Joe cannot talk" refers to in this instance is a situation which can be characterized by saying that there is something (the gagging) which prevents Joe from talking. The question, however, is whether we must deny that Joe can talk every time it is established that some-
thing prevents Joe from talking. The answer is no. Since it is neither contradictory nor meaningless for us to affirm that Joe can talk when we know that Joe is gagged, it would follow that to say of Joe that he can talk is not merely to say that there is nothing to prevent Joe from talking.

What about (2)? Is it the case that to say of Joe that he can talk means that Joe has the ability to talk? I am not really sure what exactly "the ability to talk" means. But let us suppose that having the ability to talk is the same as being able to talk. It would mean that to say Joe can talk is the same as saying Joe is able to talk. However if and when we know that Joe is gagged, we can truly deny that Joe is able to talk. If this granted, then it would seem there is hardly any difference between (1) and (2).

By analogy we cannot accept the view that to say of Joe that he can understand p is to say of him either that there is nothing to prevent him from understanding p or that he has the ability to understand p. But what exactly does it mean to say that Joe can understand p? It means nothing less than this: Joe has the intelligence to grasp p. But Joe cannot be said to have the intelligence to grasp p unless it can be said of Joe that he has intelligence. The question arises: What is the latter intelligence? To ask this question is to ask
the question we posed at earlier: What is intelligence i? Now we are in a position to meet this question head on: Intelligence i is that without which there would be no such things as Joe's doubting or believing p, Joe's knowing or proving p, Joe's inferring p from something, Joe's recalling or forgetting p, affirming or denying p, and so on.

Now in what follows I wish to show that for every case of contemplative accomplished-teaching, there must be at least a proposition p, intelligence i, and a relation of intelligibility I which holds between p and i.

Let p stand for the proposition that Bertrand Russell is born in England. Let us examine the following given the fact Leo accomplished-taught Joe p:

(1) p
(2) expression of p
(3) Joe's intelligence
(4) Joe's understanding p
(5) p is intelligible to Joe = Joe has the intelligence to grasp p.
(6) Some expression(s) of that p is(are) intelligible

Although it may said, with Alfred Tarski, that (1) means p is true (See Alfred Tarski, "The Semantic Conception of Truth" from Readings in Philosophical Analysis (New York: Appleton-Century-Crofts, Inc., 1949), (1) here shall simply stand for the proposition that Bertrand Russell is born in England, true or false.
to Joe.

(7) Some expression of p is presented to Joe (at some point in time).

The relation between (1) and (2) is this: (2) entails (1). As we have discussed (1) at some length earlier, we shall consider (2). It seems clear that there cannot be any expression of any proposition whatever unless there is some proposition which is to be expressed. It seems equally clear that p can be expressed in a variety of languages and at various moments. Thus we may write;

(2a) "Bertrand Russell was born in England" uttered by Leo at t\textsubscript{1}.
(2b) "Bertrand Russell sinh tren dat Anh" uttered by Leo at t\textsubscript{2}.

With respect to (3) and (4), we note that (4) entails (3). This has been shown earlier in our analysis. In addition, it should be noted that while it is senseless to ask when (3) happens, it is quite legitimate to ask when (4) takes place. To put it differently, it is out of the question whether one can affirm (3) at one time and deny (3) at another whereas it is quite legitimate to do so with (4).

A crucial question at this point is: What exactly is the relationship between (3) and (4), that is, between Joe's intelligence and Joe's understanding p? It
has been implied earlier that (3) is the ground on which (4) rests, that is, there cannot be Joe's understanding p without Joe's intelligence. It should be noted, however, that the reverse does not hold, that is, it is possible for Joe to have intelligence without understanding p. And this is also to say that like (1), (3) is a necessary condition for the possibility of any case of contemplative accomplished-teaching.

Now the relation between (4) and (5) may be stated simply as follows: For any case of contemplative accomplished-teaching of the kind referred to in (4), (5) is entailed by (4). But what does it mean to say that p is intelligible to Joe? Certainly it cannot be that "p is intelligible to Joe" means "p is intelligible to Joe's understanding p" for the reason that Joe's understanding p, as we have seen, presupposes p's intelligibility to Joe. I think, however, that (5) means what can be expressed by saying Joe has the intelligence to grasp p. This grasping is one of the basic operations of intelligence. It is basic in the sense that Joe's grasping of p is presupposed by other operations of intelligence by Joe such as Joe's certainty, if Joe truly grasps p, that, say, for at least some period of time Russell spent his life in England. What is important to note is that (5) is also a necessary condition for any case of contemplative accomplished-teaching.
Now the distinction between (5) and (6) must be kept. The relation between these is this: (5) is entailed by (6) but not \textit{vice-versa}. It may be asked what would be a case of (6)? The answer is: Either (2a) or (2b). It is quite possible for Joe to understand (2a) but not (2b) if he knows English only or (2b) but not (2a) if he knows Vietnamese only. But it is also quite possible that no matter how many instances of (2) may be generated, Joe still fails to grasp p. And even if this were established, it would not follow that we can deny (5). For, as noted earlier, what is (5) but one of the necessary conditions indispensible to any case of contemplative accomplished-teaching. Therefore to deny (5) while insisting upon teaching Joe p would be foolish precisely because it would be to attempt the impossible.

Now (4) must be kept distinct from (6). First, any affirmation of (6) entails (4) but any denial of (6) does not entail a corresponding denial of (4). That is, if Joe understands (2a), then Joe understands p and if Joe fails to understand (2a), it does not follow that Joe has no understanding of p. Second, any confusion of (4) with (6) or \textit{vice-versa} is liable to generate pragmatic or behavioristic explanations of (4).

Finally (7). It appears that (7) is the same as (6). They are contrary to appearance, distinct.

Granted that Leo accomplished-taught Joe p, (4) presupposes
both (6) and (7), that is, there must be at least one expression of p such that Leo presents that p to Joe intelligibly. However it might be that Leo presents (2b) to Joe without knowing that Joe knows English only. And Leo's presentation of (2a) at some other time may succeed in bringing about a contemplative pedagogic accomplishment of the kind referred to by (4). As such we must not confuse (6) with (7).

It may be objected that if Joe is accomplished-taught p, then there must be at least one expression of p that is intelligible to Joe. If this is granted, then the distinction between (6) and (7), the objection continues, would seem useless. This line of objection is in principle correct if we can assume that all teachers always accomplished-teach their pupils on the first trial. However if we are to face the pedagogic facts of school life—many teachers hardly succeed on their first trial and some never do even after several trials—the question immediately arises as to what accounts for these pedagogic facts. And it is when we face this question squarely that the distinction between (6) and (7) becomes indispensable. For how else could we account for Leo's repeated failures to accomplished-teach Joe p but to say that Leo presented several expressions of p to Joe but that none of Leo's expressions of p was intelligible to Joe?
I hope to have shown that:

(a) for every instance of contemplative accomplished-teaching to occur, it is sufficient that there be at least one expression of p that is presented to the pupil in the way which he understands, and

(b) for every instance of contemplative accomplished-teaching to occur, it is necessary that there be at least (i) a proposition p, (ii) an intelligence \( i \), and (iii) a relation of intelligibility \( I \) such that \( I \) holds between p and \( i \).

Before concluding our discussion in this chapter, I should like to turn to the question: What is intelligibility? It may have been apparent that intelligibility is a polyadic relation e.g. some one thing p is intelligible to some other thing \( i \) (Joe's intelligence). Here we can ask two questions: (a) How is intelligibility related to intelligence? and (b) How is intelligibility related to p? We have seen that intelligibility is the ground for any justifiable claim of contemplative accomplished-teaching. For this reason intelligibility presupposes intelligence but not vice-versa. This is the answer to (a). We have also seen that intelligibility also presupposes p, without which presupposition the ground for claiming contemplative accomplished-teaching becomes hollow. It should be noted that intelligibility \( I \) must be confused with the intelligibility referred to
in the statement "Leo's expression of p became intelligible to Joe." The intelligibility referred to in this statement can be called Joe's p-understanding. This intelligibility is different from intelligibility I in that the former is not possible without the latter.

In conclusion I hope to have shown that for contemplative accomplished-teaching to be possible there must be at least

(i) a proposition p;
(ii) an intelligence i; and
(iii) a relation of intelligibility I which presupposes i and p.
CHAPTER III
ACOMPLISHED-TEACHING HOW: SOCIAL TEACHING.

The question with which we are concerned in this chapter is: How is accomplished-teaching how to possible?

In normal circumstances the question how someone can be accomplished-taught to do something hardly arises. Our teacher Leo, for example, would not ask how he could accomplished-teach Joe to walk, to climb mountains, to dance or to talk in normal circumstances. Questions of this nature arise more often than not from special circumstances, which may lie partly in teacher Leo's doubt as to whether Joe could walk, climb mountains, dance or talk, or partly in Leo's belief that there is some way in which one can learn to walk, to climb mountains, to dance or to talk. For it would be silly of Leo to ask how he could accomplished-teach his pupil to do A if Leo knew that his pupil could do A or if there is no sense in which one can talk about a way of doing A. It seems, therefore, safe to say that questions as to how someone can accomplished-teach someone else how to do A, can arise only when there is some doubt whether the pupil could do A or only when it can be assumed that there
is some way of doing A.

Let us examine the following:

(1) Leo accomplished-teaches Joe how to walk (climb mountains, to dance, to talk).

(2) At some time t, Joe knows how to walk (climb mountains, to dance, to talk).

Now suppose (1) is true. It would follow that Leo scored several pedagogic accomplishments. And these pedagogic accomplishments are referred to in (2). The relationship between (1) and (2) is that (1) entails (2) but not vice-versa. This means at least two things. One, it would be impossible on the one hand for Leo to accomplish-teach Joe how to do anything and on the other for Joe not to know how to do it at some later time. Second, it is possible for Joe to be pedagogically transformed in the way mentioned in (2) without the guidance of any teacher.

The question arises in what accomplished-teaching how to consists. In this connection the question asks in what (2), if true, consists. That is, the question asks us to identify that in which Leo's accomplished-teaching Joe how to walk, (climb mountains, etc.) consists. Since (1) entails (2), the same question can be raised in a simplified way. In what does Joe's knowing how (e.g. to walk, to climb mountains, etc.) consists? In an attempt to answer this question I shall examine
below two different views and propose a third one.

The first view may be termed the "intellectualist's view," which may be stated as follows. A person who truly knows how to do something must know something: he must know the do's and don't's of what he does. Thus for someone to walk, to dance or to solve a problem in algebra, he must know in some sense that he must walk on something, preferably a solid surface, and that he must not walk on slippery grounds; he must know that dancing is not running or crawling; he must know that only by obeying algebraic principles can he arrive at a solution. According to the intellectualist's view, then, one who does not knows what he is doing cannot know how to do what he is doing.

The intellectualist's view seems plausible with regard to some sorts of knowing-how such as knowing how to construct a wireless transmitter or knowing how to operate on the brain. It seems contrary to our ordinary experience for an engineer who knows how to construct a wireless transmitter not to know anything about electronic principles. Similarly it also seems contrary to our ordinary experience for a brain surgeon not to know

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1A representation of this view may be found in Max Black's "Rules and Routines," The Concept of Education, R.S. Peters, ed., (New York: Humanities Press), 1967, pp. 92-103.
anything about neurology. Granted this, it does not follow, however, that the engineer and the brain surgeon must know something about electronic principles and neurology respectively if the former is to know how to construct a wireless transmitter and the latter is to know how to operate on the brain. Indeed there is nothing inconceivable about a person who is ignorant of electronic principles but who, through trial and error succeeds in constructing a wireless transmitter. Again it is quite conceivable for a person to be at once a successful brain surgeon and an ignoramus on neurology. Similarly we learn how to walk, to climb, to dance often long before we know, if at all, what it is that constitutes our walking, climbing or dancing. All this is consistent with what we have established earlier: accomplished-teaching that and accomplished-teaching how to are logically distinct from each other. The intellectualist's view in so far as it rests on the assumption that, to speak with Ryle, propositional knowledge is necessarily related dispositional knowledge, clearly becomes untenable once we recognize that the two are distinct.

The second view may be termed the commonsense view, which may be stated as follows. In accomplished-teaching a pupil how to do something, what results from the teaching is that the pupil acquires a skill of some
sort. If we are to ask *what* it is the teacher teaches a pupil when the teacher accomplished-teaches his pupil how to do something, the commonsense answer is clear and simple: a *skill* of some sort.

This view seems plausible precisely because it *agrees* somewhat with commonsense. Thus we hear of talk about "teaching knowledge and skills" or "learning the requisite skills." It may be believed that if one can learn a skill of some sort, someone else can also teach one the skill in question. It is perhaps the popular acceptance of this belief, I think, that partially explains why the commonsense view is plausible.

I wish to show that there are some difficulties with the commonsense view. First, the commonsense view rests on the assumption that in accomplished-teaching a pupil how to do something the teacher succeeds in transmitting to the pupil a skill of some sort. This assumption is, I believe, untenable. Now suppose Leo accomplished-teaches Joe that Socrates died before Christ. Let us suppose further that Leo accomplished-teaches Joe how to paint. Given the first supposition, we can say that Leo communicates, (or transmits) in some sense, to Joe that Socrates died before Christ. Now given the second supposition, can we say that Leo communicates in the same sense (or transmits) to Joe the skill of dancing? The answer is clearly in the negative. For in the first
case what is communicated is a piece of information, a fact, the fact that Socrates died before Christ. What is communicated is something public. The fact communicated is not anyone's fact: it is simply a fact. This fact remains unaltered and unchanging no matter how many times and no matter to whom it may be communicated. The same cannot be said of a skill, however. A skill, unlike a piece of information, is always someone's skill. There is no such thing as a skill which is nobody's. As such a skill cannot have the "public" character of a fact: one cannot ever describe or evaluate any skill without describing or evaluating someone who is skillful at something.

No doubt people sometimes talk of the "skills of the future," of "training the young in the skills of tomorrow," etc. It should be noted, however, that if it is legitimate for someone to talk about the "skills of the future" or of "training the young in the skills of tomorrow," then it is also legitimate to ask "Who should have these skills?", "Who should train the young in these skills?", or "Who has thoughts or conceived of the skills of the future?" and so on. The reason for this is that it seems inconceivable that there should be a skill which no one has ever had, has or ever will have, or of which no one can or will conceive. Again it should be noted that the expressions "the skills of tomorrow" and "the skills of the future" are often used to mean what may be better
expressed by "the techniques of tomorrow" and "the techniques of the future," respectively. This points up once more what may be called the public character of techniques as opposed to what perhaps may be termed the "uniqueness" of each skill.

If the preceding is true, it follows that we cannot talk about transmitting or communicating some skill and about transmitting or communicating some fact in the same way. And even when we insist upon "transmitting," "communicating," or "teaching" skills, we should recognize that there is no way by which we can determine whether the pupil who has been accomplished-taught how to paint, for example, has at some time the same skill as that of his teacher.

Second, the commonsense view rests upon the assumption that if it is true that someone is accomplished-taught how to do something, there must be a teacher (or teachers), without whom there can be no transmission of any skill. This assumption is inconsistent with our analysis in the first chapter. The example of the lone pupil Joe teaching himself how to solve algebraic problems is a case in point. Given this case, we would have to say, consistent with the commonsense view that in accomplished-teaching how a skill of some sort is transmitted from one person to another, that Joe transmits his own skill of solving algebraic problems to himself. This,
however, would be absurd. For what would be the point of teaching oneself how to solve algebraic problems if one has already had the skill?

Third, the commonsense view assumes that the teacher, if he is to accomplished-teach his pupil how to do A, must have the skill of doing A. To put it in another way, the commonsense view assumes that for a teacher to teach someone how to do A, he must know how to do A. This assumption must be rejected, however, for it contradicts the results we have arrived at in resolving the Wiseman Dilemma.

Fourth, the commonsense view assumes that once someone is accomplished-taught how to do something, he at some point has a skill of some sort. This seems far from the truth. The most we can affirm, given the case of someone who is accomplished-taught how to do A, for example, is either that he has learned how to do A or that he knows how to do A. Both to have learned how to do A and to know how to do A are, however, not the same as having a skill for doing A. A person who has learned how to do A may do it fairly well or well. Neither of them, however is the same as the person who has the skill for doing A.

Fifth, let us imagine that our friend Joe who is accomplished-taught how to drive by Leo and is later involved in a car accident which results in Joe's broken
leg. Suppose, as the commonsense view would have it, Joe's knowing how to drive is nothing but a skill of some sort. There are at least two questions that can be raised here.

(a) Can it be said of Joe that he has the skill to drive but that he is unable to drive?
(b) What does Joe's broken leg adversely affect, his skill to drive or his knowing how to drive?

With respect to (a), the answer is in negative. For to say whenever that he has the skill to x is to say at least that he is able to x. Thus it is impossible for Joe to have the skill to drive but is unable to drive. With respect to (b), it is clearly the case that Joe's broken leg adversely affects his ability to drive rather than his knowing how to drive for the simple reason that one's knowing how to drive cannot be impaired by one's sustaining a serious leg injury but only one's ability to drive can. Granted this, Joe's broken leg must adversely affect Joe's skill to drive in the way his broken leg cannot affect his knowing how to drive. We must conclude, therefore, that Joe's knowing how to drive is either something other than or something more than Joe's skill at driving.

On these grounds, I think, the commonsense view must be rejected.

If accomplished-teaching how consists neither in a skill of some sort or propositional knowledge of some
kind, in what, then, does it consist? We have seen that if someone is accomplished-taught how to dance, for example, it follows that at some point in time either he knows how to dance or he has learned how to dance. If we are to ask in what knowing how to dance or having learned how to dance consists, the answer would be: the pupil who is accomplished-taught how to dance is accomplished-taught an art.

In ordinary discourse we hear of "fine" arts and "useful" arts. The phrases "fine arts" and "useful arts" seem to be indicative of what we may call an aristocratic attitude towards labor and its fruits.\(^3\) The same perhaps can be said of the phrases "arts and crafts." Carving a statue out of stone, putting on a play, painting and the like are examples of "fine" arts. Weaving baskets, making bricks, building houses and the like are examples of "useful" arts. Activities of the first category are at times termed the "arts" while those of the second category are termed the "crafts." The person who is engaged in the "arts" is presumably less concerned with making a living, with "soiling" his hands and more inclined towards producing objects of aesthetic value.

The person who works in the "crafts" is presumably more concerned with producing objects of a practical nature, that is, objects which can be of use. The arts of craftsman are, then, presumably not "fine" because it is believed that they are less concerned with beauty and form and more with usefulness.

It should be pointed out, however, that the distinction between the "fine" arts and the "useful" arts, in addition to being reflective of an aristocratic attitude towards labor, is arbitrary. For whether something should count as a product of the "fine" arts or as one of the "crafts" depends primarily upon its use. Thus we find that various products of craftsmen of a different age or from a different culture are on display in private homes and in the galleries of "fine" arts as well. As such, whether a person is engaged in "useful" arts or "fine" arts or "crafts," he is engaged in arts, nevertheless. And it is in this sense of art that I shall use the term.

How is art, then, different from skill? Art, like skill, has to do with activity. A person who has a skill of some sort is one who has the skill to do something. A person who has the carving skill, then, is one who is skillful at carving. This does not mean, however, that to have the carving skill is always to be able to carve well. Similarly a person who knows an art is one
who knows the art of something. The person who claims to know the art of carving but who, when put to test, does not know how to carve, does not know the art.

One difference between art and skill is this: an art is something independent of the practitioner whereas a skill is always someone's skill. A person who knows the art of carving, for example, may know how to carve with skill. What the skillful carver knows is not the skill but the art of carving. If the carver dies, the skill of carving which is his is forever lost. What remains, if the carver dies, however, is the art of carving. The skill of carving waxes and wanes with the man who has it, but the art of carving cannot in the same sense. For, unlike the skill of carving, the art of carving is something independent of the carver. Let us examine this a bit further.

For any art there are at least three components:
(a) the person who practices the art namely, the practitioner;
(b) what the practitioner produces namely, the art product; and
(c) the way (or ways) in which the art product can be made namely, the technique.

Now the difference between art and skill can be expressed as follows. The art of carving consists not only of individual practitioners and their carvings but also of
of the technique or techniques by which their carvings are made. The skill of carving is not the way but the manner in which a particular practitioner produces his carvings. A practitioner skillful at carving can pass on the techniques by which his carvings are made; what he cannot pass on, however, is his carving skill. For the techniques can be discovered, improved and communicated in a way the skill cannot.

To the question, "In what does accomplished-teaching how consist?" we can answer: Accomplished-teaching how consists in accomplished-teaching an art of some sort. This is to say that when someone is accomplished-taught how to do something, whether it be walking, talking, or painting, what he is accomplished-taught is an art of some sort e.g. the art of walking, talking, painting, etc.

It may be objected that accomplished-teaching how consists not in accomplished-teaching an art of some sort but in the pupil's imitation of his teacher (or by trial and error). That is, if Joe is accomplished-taught how to walk or to talk, it is true that (either that) Joe imitates his teacher when his teacher walks or talks (or that Joe practices talking or walking). This is to say if Joe does what his teacher does, we can say that Joe is accomplished-taught how.

Granted that accomplished-teaching Joe how to
walk, for example, consists in Joe's imitation of his teacher Leo, it does not follow that accomplished-teaching how consists in the pupil's doing what his teacher does. This is so because for Joe to imitate Leo, it is not sufficient that Joe does what Leo does. For Joe to imitate Leo, it would be sufficient, however, that Joe does in the way Leo does it. For to imitate someone is not to do what he does but to do what he does the way he does it. When a pupil is accomplished-taught how to walk by imitation, what he is accomplished-taught is not merely walking but a way of walking. When a pupil is accomplished-taught how to talk, what he is accomplished-taught is not merely talking but a way of talking. When a pupil is accomplished-taught how to paint, what he is accomplished-taught is not merely painting but a way of painting. But since the person who knows some way of doing something is the same one who knows how to do it, to say of someone that he knows some way of walking or some way of talking is to say of him that he knows how to walk or how to talk. In brief the objection is correct in pointing out that accomplished-teaching how may consist in the pupil's imitation of the teacher. If we are to ask, however, what it is the pupil can imitate, it becomes clear that the pupil can imitate not what his teacher does but the way the teacher does what he does—an art of some sort.

This is not to deny that the person who is
accomplished-taught how—the person who knows an art of some sort—may know the art with different degrees. The pupil who is accomplished-taught how to paint may be at first a novice who has to weigh carefully every stroke of the brush. Gradually he may, through practice, learn how to master the art of painting, that is, he knows how to paint with the unique skill of an expert.

It should be noted that we learn how to do many things naturally, that is, either by imitation or through trial and error. Thus we learn to do a great many things which cannot really be attributed to some teacher. Teaching someone how to do things, in the strict sense, then, is not a pedagogic invention but something that complements what happens naturally. Accomplished-teaching how is possible not because pedagogy invents the arts but because there are the arts which we can learn, despite pedagogic intervention. The pupil who is accomplished-taught how to do something is either shown or told a way of doing things. And the teacher who accomplishes this task is often the one who knows instinctively not only what to show and what to tell but also what cannot be shown and what cannot be told. He knows instinctively when a picture is worth a thousand words and when a simple instruction may alleviate his pupil's memory from the burden of a thousand exhibitions: he has to know the art and understand the child.
CHAPTER IV

TEACHING TO BE: SOCIAL ACCOMPLISHED-TEACHING

In this chapter we shall undertake to examine the question: In what does accomplished-teaching to be consists? To discover the answer to this question is to discover the clue to the question: How is accomplished-teaching to be possible? For here we are not concerned with the question what processes which, if they occur, are responsible for cases of accomplished-teaching to be, which is an empirical question, but rather with the question what are the conditions without which accomplished-teaching to be cannot ever occur. And to know in what it is accomplished-teaching to be consists is to know that without which accomplished-teaching to be cannot occur.

Suppose our friend Leo claims truly to have accomplished-taught Joe to be kind. It would follow, from this, that for some time Joe was kind. The qualification "for some time" is necessary because it is possible that Joe's kindness did not last very long. The question we are concerned with here asks in what this supposed instance of teaching consisted. To this question, there is an answer in Ryle's fashion that the supposed
instance of teaching consisted in a behavioral disposition
of some sort. According to this view, to say that Joe
was kind is not to report anything but to make a disposi­
tional statement which has the value of a hypothetical
or semi-hypothetical statement about Joe's overt be­
havior. For Ryle says:

Dispositional statements are neither reports
of observed or observable states of affairs,
nor yet reports of unobserved or unobservable
states of affairs. They narrate no incidents.
But their jobs are intimately connected with
narratives of incidents, for, if they are
true, they are satisfied by narrated incidents.

To say of Joe that he was kind, then, is merely to say
how he would have behaved in certain circumstances. The
statement that Joe was kind is a dispositional statement
which, according to Ryle, functions as an "inference­
ticket" that "licenses" us to "predict, retrodict, explain
and modify" Joe's actions and reactions. Ryle writes:

Dispositional statements about particular
things and persons are also like law state­
ments in the fact that we use them in a
partly similar way. They apply to, or they
are satisfied by, the actions, reactions and
states of the object, they are inference­
tickets, which license us to predict, retro­
dict, explain and modify these actions,

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2 Ibid., pp. 33-46.
3 Ibid., p. 125.
reactions and states.\(^4\)

Let us see if this view is tenable. Consider:

(a) Joe is kind
(b) If Joe sees someone in need, he will help the person in need.

Now (a) is clearly a dispositional statement and (b) a hypothetical statement which we are "licensed" to make if given (a). The question arises as to whether what is expressed in (a) is the same as what is expressed in (b). We shall try to show, contrary to the above view, that (a) and (b) are logically different statements.

Now (b) is equivalent to "Either Joe does not see anyone in need or he will help someone in need" (c). And the contradictory of (b) is "If Joe sees someone in need, he will not help the person" (d). Now if (a) is equivalent to (b), then to know, for instance, that Joe helps someone in need is sufficient for us to assert that Joe is kind and to know of Joe's failure to help someone in need when he sees one constitutes good ground for denying that Joe is kind. But this is absurd. For Joe's helping someone in need when he sees one or his failure to do so cannot in itself constitute good ground for us to affirm or deny Joe's kindness (that is, to affirm or deny (a)) without somehow taking for granted

\(^4\)Ibid., p. 124.
the needs and wants of Joe. Indeed I cannot say of Joe that he is kind, knowing that Joe helps people in need and that Joe believes that he should help the needy in so far as it improves his public image and enhances his chance for re-election into public office. We may conclude, therefore, that statements of type (a) and those of type (b) are logically distinct.

This is not to deny that in normal circumstances the utterance of (a) may lead us to expect certain hypotheticals to be fulfilled by Joe. It is to deny that statements of type (a) are equivalent to or reducible to hypotheticals of type (b). Indeed, as Geach points out, when two agents differ in their behavior, we look for some actual, not merely hypothetical difference between them to account for this.\(^5\) In the same vein, Geach writes:

> A physicist would be merely impatient if somebody said to him: "Why look for, or postulate, any actual difference between a magnetized and an unmagnetized bit of iron? Why not just say that if certain things are done to a bit of iron certain hypotheticals become true of it?" He would be still more impatient at being told that his enquiries were vitiated by the logical mistake of treating "x is magnetized" as categorical, whereas it is really hypothetical or semi-hypothetical.\(^6\)

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\(^6\)Ibid., p. 6.
Similarly the absurdity of the view under consideration is revealed if we see how it forces us to interpret Leo's claim that he has accomplished—taught Joe to be kind. For, according to this view, Leo's claim, even if true, is merely an assertion of some hypothetical or semi-hypothetical about Joe's overt behavior, not a statement about Leo's actual accomplishment as a teacher!

What, then, does it mean to say of Joe that he is kind? It is to say that Joe has a certain character-trait in the sense that "he is kind" can be an answer to the question "What kind of person is Joe?"

But this character-trait is not to be confused with a skill, a know-how. To have a skill is to be in possession of the skill whereas to have a character-trait is not to be in possession of the character-trait but to be possessed by it. Although it is sometimes said that so-and-so does not know how to be kind, this must not mislead us into thinking that being kind is a skill such as writing. To know how to write, as we have seen in the last chapter, is to know an art. "I know how to write" may be an answer to the question "What can you do?" but "I know how to be kind" is hardly an answer to the same question. More importantly the person who has a skill can exercise or refuse to exercise the skill as he pleases and when he pleases, but there is no sense in which the person who is kind can be said to have the
liberty to decide to exercise or not to exercise his kindness: the person who is kind cannot help being kind. Skills, as Plato remarked, are "capabilities for opposites." As such they can be used for good or for evil. And the man who uses his skills solely for evil cannot be the man who is kind.

But what precisely is a character-trait? A character-trait is what Ryle calls an inclination. It is to Ryle's credit that he pointed out the difference between inclinations and feelings. Ryle correctly pointed out that the man who is vain does not necessarily have the experience of feeling vain popping up within him. This, however, should not be taken to mean feelings are not logically related to inclinations in any way. On the contrary feelings and inclinations, it will be shown, are logically related in some important ways.

It may be granted that to say of two men A and B that A is kind and B cruel necessarily does not imply that A from time to time experiences kindly feelings and B experiences feelings peculiar to a cruel man. This does not mean, however, that feelings are independent of character-traits. Suppose A makes it a practice to help anyone in need who asks for it. Suppose further that A

8Ibid., pp. 84-85.
cannot feel displeased, sad, or shocked when A sees injury done to innocent people. Again suppose A has no desire whatever to do anything for the good of anyone else other than himself or is incapable of such a desire. Can we say of A that he is kind? The answer is no. For is it not true that an essential part of what is meant by being kind is being able to feel displeased or sad at the sight of evil or wrongdoing and being able to feel pleased or excited when the opposite occurs? Again, is it not the case that part of what we mean when we say of B that he is cruel is that B is capable of feeling joy where the kind man does not or when the kind man should not? In fact a cruel man is often one who derives pleasure from the pain he inflicts on others. But this is not only true of cruelty and kindness. This is also true of courage and cowardice, selfishness and altruism, pride and vanity, dedication and devotion. For just as we cannot ascribe courage or cowardice to one who is incapable of fear so we cannot attribute selfishness or altruism to one who is incapable of loving anything. Similarly just as we cannot impugn pride or vanity to anyone who cannot feel shame so we cannot crown dedication or devotion on anyone who is incapable of loving or desiring anything. From this, we may conclude: For some inclinations or character-traits, their existence presupposes the existence in man of some capacity for feeling or desiring. To put
it differently, it is impossible for some character-traits to be formed without some capacity for feeling or desiring.

Perhaps it may be said that the thesis I am here advancing runs counter to an established view of morality, namely, Kant's. Thus it may be countered that feelings are, on Kant's view, immaterial to virtue. It is true that Kant at times appears to have maintained that a rational man would wish to be totally free from the trappings of inclinations. In the *Groundwork* Kant declared,

Inclinations themselves as the sources of needs, are so far from having an absolute value to make them desirable for their own sake that it must rather be the universal wish of every rational being to be wholly free from them.

It would seem to be an error, however, to think that feelings, for Kant are not necessary for virtue. For emphatically Kant says elsewhere: "Duty is the necessity to act out of reverence for the law."\(^9\) Of this assertion, H.J. Paton made two comments both pertinent here. First, moral action, for Kant, has an "emotional aspect," that is, "reverence." Second, in moral action, for Kant, we have a duty to follow a law which we reverence.\(^11\) Again

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\(^10\)Ibid., p. 68.

contrary to a common misconception, Kant saw the necessity of some sort of feelings for virtue as Paton pointed out:

As he (Kant) himself says of moral feeling, 'no man is wholly destitute of moral feeling; for if he were totally unsusceptible to this sensation, he would be morally dead.'

The capacity for feeling or desiring, to recapitulate, is necessary not only for the formation of virtues but also for the formation of other character-traits. This is an important pedagogic principle to remember for we cannot overlook the intrinsic connection between a person's capacity for feelings or desires and the development of his character. It is the recognition of this pedagogic principle that is revealed through Plato's declaration that education consists in training of the young to love (what they ought to) and to hate what they ought to.

Let us call the human capacity for feelings and desires "the life of the emotion." We have shown that the life of the emotion is essential to the development of certain character-traits. We must recognize, however, that intelligence, in the sense we use it, is also indispensable to the development of those character-traits. This is what I hope to show in what follows.

Let us suppose that A is both courageous and kind. We have shown above that courage and kindness, as

\[12\text{Ibid., p. 118.}\]
character-traits, are grounded upon the life of emotion. The question arises: In what else does A’s courage and kindness consist? To this question it may be answered in a Rylean manner: Kindness and courage, like all inclinations, are merely a "certain proneness to do certain kinds of things, make certain kinds of plans" and so on. 13 Thus according to this view, the kind man is one who has a certain proneness to do r or p (e.g. helping the needy or donating money to the poor) and the courageous man is one who has a certain proneness to do s or t (e.g. rescuing people from being burned or facing a wild animal). But if we are to ask: Why does the man do r or p? The answer is to be: He has a certain proneness to r or p. Indeed, we must say that not much has been explained in this way.

This is not to deny that the kind man may have the proneness to do r or p and that the courageous man may have the proneness to do s or t. This is to deny that having the proneness to do r or p and s or t is all what we mean when we attribute kindness to someone and courage to someone else. Suppose A does r (e.g. helping the needy). Suppose further that A does not believe and has no doubt that there is utterly no difference whatsoever between doing r and doing not-r (e.g. refusing to help the needy) as far as the needy are concerned. Given this, should

we not be reluctant to say that A is kind or that A's doing \( \text{r} \) is a kind act? The answer is in the affirmative. For any attribution of kindness to A can be rightly challenged by invoking what is given in the second supposition. Similarly, B who does \( \text{s} \) (e.g. rescuing people from being burned) cannot be said to be courageous if it is known that B has no doubt whatever that flames can cause him no harm but that to rescue people from being burned is a chance for him to become immortal. For any man who does \( \text{s} \) but has the same conviction as B is not a courageous man but is perhaps more aptly described as a mad man.

Now I wish to show in a different way the intrinsic connection between intelligence and the capacity for action on the one hand and some character-traits on the other hand. Let us examine the following sentences:

(1) A is kind.
(2) A does \( \text{r} \) (e.g. helping the needy).
(3) A can understand (believe, be persuaded) that doing \( \text{r} \) would make a difference from doing not-\( \text{r} \) as far as the needy are concerned (e.g. that doing \( \text{r} \) is better, in some sense, for the needy than doing not-\( \text{r} \)).

It is fairly obvious that (1), (2) and (3) are compatible with one another. For it is quite possible that A is a kind person who does \( \text{r} \) and can understand (or be persuaded) that doing \( \text{r} \) makes a difference from doing not-\( \text{r} \) as far
as the needy are concerned. In addition, we note the following relations. First, (1) and (2) are logically independent. Indeed A can be kind without doing \( r \) and A can do \( r \) without being kind. Second, (2) and (3) are also logically independent. For A can help the poor without being able to understand what he does and A can understand what doing \( r \) means to the needy without doing it. Third, (1) entails (3). This means it is impossible for A to be kind without being able to understand that doing \( r \) is better for the needy than doing not-\( r \).

Suppose we add (1'), (2') and (3') as follows:

(1') A does \( r \) from kindness.
(2') It is possible for A to do something.
(3') A understands (believes, is persuaded) that doing \( r \) would make a difference from doing not-\( r \) as far as the needy are concerned.

We obtain the additional following important relations. Fourth, (1') entails not only (2) and (3) but also (2') and (3'). This is the case because for A to do \( r \) from kindness it must be the case that A does something and has the capacity to understand what his doing \( r \) means to the people involved but because A's doing \( r \) also presupposes A's capacity for such action (doing \( r \)) and his actual understanding that his doing \( r \) makes a difference to the needy. Fifth, (1) entails (2') and (3). This is to say that to attribute kindness to A presupposes
not only A's intelligence (e.g. his ability to understand, be persuaded, etc.) but also A's capacity for action. Thus to make a claim that someone is kind, knowing that he, for some reason, lacks the capacity to act is to make an unfounded claim.

We have shown earlier in this chapter that to ascribe kindness to someone is also to ascribe to him a certain want or desire. What we have just established above is this: a correct attribution of kindness to anyone is meaningless unless it is also correctly assumed that the person to whom kindness is attributed is endowed with intelligence and a certain capacity for action. There can be kindness, then, only if there are

(i) certain wants or desires
(ii) intelligence, and
(iii) a certain capacity for action

What we have established above with the character-trait kindness can be similarly established with other character-trait: devotion, dedication, generosity, conscientiousness, honesty, veracity, justice, temperance, courage, prudence, and industry.¹⁴

We are now in a position to answer the question

raised at the beginning of the chapter: **Accomplished-teaching to be** consists in the development of the pupil's intelligence, in the fostering of his life of the emotion, and in the cultivation of his capacity for action. As such **accomplished-teaching to be** is impossible if the pupil's intelligence, his life of emotion, and his capacity for action can neither be fostered nor cultivated nor developed.
What has our analysis established and what can be said on the basis of what has been established? The conclusion we have arrived at in the first chapter that teaching is a polymorphous concept means not merely that teaching refers not to one activity but to various kinds of activity but also that we must reject the old habit of looking for one single common meaning which is assumed to be hidden behind the term teaching. To attempt to discover what teaching is and be bound by this habit is in fact to prescribe what teaching is. This, I believe, is what is wrong with some contemporary writers on the subject, typical of whom are Scheffler and Peters.\footnote{See Richard Peters, \textit{Ethics and Education}, (New York: Allen & Unwin, 1966), p. 40. Also see Israel Scheffler, "Philosophical Models of Teaching," \textit{Harvard Educational Review}, Vol. 35, No. 3, (1965), p. 131} I do not mean that it is wrong to prescribe what teaching is but it is wrong to confuse prescription with description.

Consistent with our conclusion, some research has been carried out to discover the complex activities...
that constitute teaching. While research of this kind is desirable in itself, it is important to keep in mind what it can and cannot do. Research of this sort can tell us what activities constitute what we call teaching and how they are likely to affect the pupil. It cannot, however, tell us what necessarily happens to each pupil every time such and such teaching activities occur. It cannot because research of this kind responds to the question "What does X do when X teaches?," not to the question "What does X accomplished-teach?" To see the limits of this kind of research is, in some sense, to see the difference between describing teaching as an activity and teaching as an accomplishment which we have established earlier.

To see the difference between teaching as activity and teaching as accomplishment is to see the way out of John Dewey's controversial view that teaching is to learning what selling is to buying. The controversy is redressed by Scheffler in the form of the question: "Does teaching imply learning?" And the way out

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of Dewey's controversy is to recognize that not teaching but only accomplished-teaching may be to learning what selling is to buying. This distinction is crucial in helping us to grasp the relationship between teaching on the one hand and conditioning or indoctrination on the other. Teaching as activity does not rule out conditioning and indoctrination as accepted methods. And being conditioned and being indoctrinated may be merely different forms of accomplished teaching.

Again what is of interest to pedagogy is not teaching in itself but teaching in so far as it relates to accomplished-teaching. As such the pedagogic value of research on teaching lies not so much in what the research reveals about teaching but rather in whether anything is discovered about accomplished-teaching.

We have also shown that to teach something does not mean knowing it. What we have shown to be false and, hence, must be rejected is the Wiseman Premise. It is perhaps impossible to over-exaggerate certain false beliefs

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about education stemming from the Wiseman Premise. For one thing, the uncritical acceptance of the Wiseman Premise is responsible for the equally uncritical view that to teach is to impart knowledge. Such a view of teaching is expressed in the Conant report of teacher education. For another, the acceptance of the Wiseman Premise tends to enable one to equate ability to teach with knowing. From this, it seems plausible to argue that educational failures are due to the inadequate preparation of teachers in matter of knowledge. To avert certain educational failures, particularly those relating to teaching, the argument goes, we have to see to it that teachers master all the requisite academic disciplines. But as we see how these ways of thinking are intrinsically connected with the Wiseman Premise, we must reject them as we rejected the Premise.

Acceptance of the Wiseman Premise and the erroneous identification of teaching with activities combined characterize a popular way of thinking about teach-


7 Thus in California it was recently argued in the legislature by certain authorities that the mastery of the liberal arts and sciences would guarantee effective teaching. Cited in Hilda Taba, "Teaching Strategy and Learning," *California Journal for Instructional Improvement*, (December, 1963), pp. 3-11.
ing in teacher training institutions, namely, teaching consists essentially in knowing what to do or what methods to apply. Thus according to this way of thinking, effective teaching consists essentially in mastering one or several alternative correct "strategies." But as we have shown, to teach is not necessarily to know and teaching does not always refer to activities of any sort especially accomplished-teaching, this conception of teaching is really a misconception.

Our analysis has also established that there are three logically distinct modes of teaching: contemplative teaching (teaching that), artistic teaching (teaching how) and social teaching (teaching to be). Contemplative teaching is founded upon the intelligence of the pupil and the possibility of his grasping some proposition. To over-emphasize contemplative teaching by making it synonymous with teaching would be to make education intellectualistic.

The possibility of artistic teaching is grounded upon the public character of art and upon the pupil's

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intelligence. To over-emphasize artistic teaching by equating it with teaching would be to make education a social matter.

Social teaching presupposes the possibility of developing the pupil's intelligence, his life of the emotion and his capacity for action. To make social teaching synonymous with teaching could be to make education moralistic.

To recognize that teaching and accomplished-teaching presuppose the intelligence of the child is important. The history of education amply testified to the cruelty and brutality inflicted upon children by well-intentioned men in the name of goodness, primarily due to some misconception of the child or of teaching. Thus the practice of taming or molding the child which has since earlier times been socially sanctioned betrays at least two objectionable misconceptions of the child and, hence, the function of teaching: For who should be tamed but not a wild animal or what should be molded but not a thing? Today some are asking whether conditioning and indoctrination can count as teaching. This is indeed an open-ended question. But if we recognize that

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teaching is grounded upon the intelligence of the child, then we must face the fact that to condition, indoctrinate, or brainwash the child is objectionable not because these are improper methods of instructions or because these methods do not value truth but precisely because they disregard and abuse the intelligence of the child.

Accomplished-teaching is possible only because it is possible for the pupil to be pedagogically transformed. The pedagogic transformation which occurs to a pupil and can be attributed to some teacher in the literal sense is a pedagogic accomplishment. As such it seems safe to assume that pedagogic accomplishments are a sub-class of pedagogic transformations.

That the pupil may be pedagogically transformed one way or another despite the good intentions of the teacher is a naked fact we cannot deny.

It is partly because of the failure to see the difference between a pedagogic transformation and a pedagogic accomplishment that we tend to exaggerate the role of the teacher in the educational process. An example is the current belief that there is always some organized body of knowledge which, if transmitted to the child, will necessarily make him the person we want him to be. Behind this belief is the consciousness that is

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10 From hereon accomplished-teaching shall be referred to simply as teaching.
haunted by such queries as "What should we teach?" or "What curriculum should we develop?" every time some failure in schooling is brought to its attention.

What kind of person a child becomes depends in part upon the pedagogic transformations of which the pedagogic accomplishments constitute only a minor part. To recognize this is to recognize the futility of the age-old question what the goal of education is from the viewpoint of the child's development. The goal of education, whether it be the good life, wisdom or citizenship, cannot in principle be realized unless it is known how each child can be or is pedagogically transformed.11 For the question how a child may be pedagogically transformed in such and such a way is a critical question which must arise in the process of education and the solution for which does not depend on the solution of the question what the goal of education is.

Just as pedagogic accomplishments may or may not be educative so teaching may or may not be educative. The child who learns to hate the poor, reflecting the sentiments of his community can in principle be the same child who, through his civic instruction, learns to regard every member of his own race as superior to every member of the other races. Educative teaching is what

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produces educative pedagogic accomplishments. Educative pedagogic accomplishments are desirable ones.

Educative teaching is not to be confused with effective teaching. Both educative teaching and effective teaching imply some pedagogic accomplishment. But this is where they part. Educative teaching depends on the kind of accomplishments whereas effective teaching does not. Effective teaching implies the efficiency which characterizes the realization of a certain pedagogic standards or the process by which certain pedagogic barriers are overcome whereas educative teaching does not. To put it formally, the question as to whether someone is an educative teacher involves a normative judgment of some sort whereas the question as to whether someone is an effective teacher is a technical question which can be answered with reference to certain pedagogic accomplishments and the time it takes for the pedagogic transformations to occur. In short, we should not confuse effective teaching with educative teaching for such a confusion equates two dissimilar things: teaching what is desirable and being good at teaching what one teaches.

With respect to the matter of teaching, the learning of truth, in contemplative teaching, is desirable whereas the learning of falsity is not. In the case of artistic teaching, desirable are those pedagogic accomplishments that equip one with useful or beautiful arts.
And for social teaching, the learning of virtues is more desirable than the learning of vices.

With respect to the manner of teaching, the pedagogic accomplishment that occurs to the pupil may be something committed to memory, something believed or something thoroughly understood. Although understanding is more desirable than mere belief and rote memory, understanding cannot always be achieved without blind faith. In the case of artistic teaching, the pedagogic accomplishment that transforms the pupil may be sheer drill, a simple reproduction, an improvement or even a creation going beyond the teacher's original conception. In the case of social teaching, although it may seem tempting and easy for the teacher to stress conformity to social conventions or imitation of socially acceptable behavior patterns, it would be far more desirable to help the pupil grasp the essential link between moral behavior and rationality.

In no mode of teaching does a great teacher wish that he re-live in the person of his pupil. A great teacher does not wish his pupil to see the world exactly as he does; he inspires his pupil's intelligence into seeing the world in a new light. He does not merely wish to see an art preserved but to see it improved. He does not wish his pupil to be a conformist but to act on the basis of the pupil's reason. A great teacher does
not seek to re-live in the person of his pupil but seeks to foster his pupil's intelligence so that the latter may live a better and different life which he himself is not capable of living.

The secret of educative teaching for the teacher, then, seems to lie not in the number of pedagogic accomplishments he can bring about but rather in his estimate of the kinds of pedagogic accomplishments that must occur to his pupil for him to be pedagogically transformed in a desirable way.
BIBLIOGRAPHY


_________. "Truth," *Analysis*, IX, No. 6 (1949).


