

CHAPTER 2  
THE GENESIS OF EDUCOLOGY

George Maccia

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*TRANSITION: In the previous chapter, Professor Brezinka traced European contributions to the development of educology from the 12th century to the present. In Chapter 2, Professor Maccia sets forth an analysis of how different conceptions of the term, 'education' have influenced the kind of research that has been performed under the name of 'educational inquiry'. The different conceptions are characterized by Professor Maccia as "root suppositions. " A concept of education is a language habit of using the term 'education' to name some set of phenomena. Historically, different habits of using the term 'education' have developed. and they persist in current discourse. These different language habits have important consequences for educational inquiry. The term 'education' is being used to name different sets of phenomena, hence what one educational inquirer identifies as education differs from what another inquirer identifies. The ultimate result is that educational inquirers wind up talking and writing about quite different sets of phenomena, but continue to name these different sets with the term, 'education'. While Professor Brezinka's concern in Chapter 1 was with the kinds of knowledge about education that are possible, Professor Maccia treats the problem of what is the proper set of phenomena (or objects of inquiry) for educational inquirers and the related problem of what is knowledge about education.*

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. . . . . neither quickness of learning nor a good memory can make a man see when his nature is not akin to the object. (Plato: *VII Letter*)<sup>1</sup>

INTRODUCTION

This treatise presents neither a detailed chronological nor historical account of the concept named 'educology'. It presents an attempt to locate root suppositions bearing on epistemic attitudes that characterize education as an object of inquiry.

The treatment of educational inquiry or the possibility for such inquiry is examined within the conception and location of midwifery, education as happening, education as practical discipline, education as applied behavioral science, education as educology.....

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### EDUCATION AS MIDWIFERY

Plato's premise that one appears to learn, but is only remembering, is rooted in an ontological relation between the knower and the known and associated with the rule of thumb that "like dissolves like." If one holds a principle of coherence such as that represented in that Alchemists' rule, learning is not only a puzzle; it is a problem. Cognitive learning presupposes passage from ignorance to understanding. If some understanding is held to be knowledge and that knowledge is of universals, the problem emerges. Nothing in experience is of universals. It is only of instances which are in relation to each other. Coming to know, therefore, could not be a consequent of experiencing. Under such an interpretation, how is it possible for one to come to know?

Plato found the answer in anamnesis. In *Meno*, Socrates demonstrates his theory of recollection by bringing a boy to demonstrate a solution to a problem in geometry while denying any contribution through teaching.

*Meno:* Yes, Socrates. But what do you mean by saying that we do not learn, but what we call learning is remembering? Can you teach me how this is?

*Socrates:* You are a young rogue, as I said a moment ago, Meno, and now you ask me if I can teach you, when I tell you there is no such thing as teaching, only remembering. I see you want to show me up at once as contradicting myself. (Plato, *Meno*)<sup>2</sup>

Socrates' use of a criterion of coherence holds only for knowledge given *a priori*, by means of which knowledge claims are completely justified. Since knowledge that is justified *a priori* does not act on arguments defeasible through citation of events, nothing could be brought to a student, for, in principle, there is nothing that a student would not know. Thus, all that a "teacher" could do is help prepare for the birth of understanding. Like the midwife who does not bring a child into existence, a teacher merely assists in the emergence of understanding from amnesic wonderment.

Given such a view of teaching and learning there is no discipline that relates the two. Hence, there is no teaching-learning process to study. Teacher midwives have skills to employ, not knowledge to impart. Under this characterization, understanding of education is skills and rules of thumb required for such midwifery. This art is without substance, for it produces no products. It merely smoothes the way. If there is any inquiry at all, it is not of learners nor of teachers, but of collections. Educational midwives store up funds of cases to draw upon. By such means they develop the diagnostic and managerial insight whose hallmark is success.

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The premise that the understanding that counts *a priori* was announced again by St. Augustine. In his thesis, however, humans learn, and they are taught, but not by human teachers. Humans learn from within; from the teachings of the inner man who is Christ.

But then our hearer, if he also himself sees those things with his inner and pure eye, knows that of which I speak by means of his own contemplation, but not through my words. Accordingly, even though I speak about true things, I still do not teach him who beholds the true things, for he is taught not through my words but by means of the things themselves which God reveals within the soul. hence, if he is questioned he can answer about these. What could be more absurd than to think that he is taught by means of my speaking, when even before I speak he can express. (Augustine, Concerning the Teacher)<sup>3</sup>

The outward teachings from man to man are promptings, not tuitions. As Augustine's son Adeotatus stated it: ". . . I have learned through being reminded by your words that man is only prompted by words in order that he may learn. . . ." <sup>4</sup> It is patent that teacher as prompter does not bring understanding. A prompter only supplies the speaker with forgotten lines. A prompter does not devise dialogue. She or he facilitates its transmission.

Given this notion of *a priori* understanding the inner man who teaches is hidden. Inquiry is hermeneutics, and the collection is not of cases, but of homilies. The task of the outward teacher is to catalogue the mysteries as means to prompt the learner whose inner vision is obscured by the veil of experience. The seeming clarity of perception is shown to be misleading. Inner experience, not outer experience, informs.

To whom should you entrust your son  
For further ed-u-ca-tion?  
Well, first of all, Lupus, I'd say,  
Keep him implacably away  
From pedagogies whose lectures stick  
*To Elements of Rhetortc*  
Let him adjure, forswear, ignore  
Vergil, and the profounder bore  
Named Marcus Tillius Cicero;  
If he writes verse, the little schmo  
Should be cut off without a cent,  
But if he's properly intent  
On piling up a mound of loot,  
Get him to play the harp or flute,  
If he is dull of intellect,  
He'd better be an architect  
Or find a lucrative carrot  
As a loud-bawling auctioneer.  
(Martial, *Selected Epigrams*)

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What Martial put so breezily, Luther bellowed. He distrusted those skilled in rhetoric and hated, ‘that damned heathen Aristotle,’ whose writings formed the core of University learning.

I venture to say that any potter has more knowledge of nature than is written in these books. . . . It grieves me to the heart that this damned, conceited, rascally heathen has with his false words deluded and made fools of so many of the best Christians. God has sent him as a plague upon us for our sins. . . . As though we had not the Holy Scriptures, in which we are abundantly instructed about all things, and of them Aristotle had not the faintest inkling! And yet this dead heathen has conquered and obstructed and almost suppressed the books of the living God, so that when I think of this miserable business I can believe nothing else than that the evil spirit has introduced the study of Aristotle.

Again, his book on *Ethics*, is the worst of all books. It flatly opposes divine grace and all Christian virtues. Away with such books! Keep them away from all Christians! Let no one accuse me of exaggeration, or of condemning what I do not understand! My dear friend, I know well whereof I speak. I lectured on him and heard lectures on him, and I understand him better than do St. Thomas or Scotus . . . . I care not that so many great minds have occupied themselves over him for so many hundred years. Such objections do not disturb me as once they did for it is plain as day that other errors have remained even more centuries in the world and in the universities. (Luther, *Open Letter*)<sup>6</sup>

The recovery of the writings of the ancients and the inventions of paper and of movable type converted mass communication from sounds to written symbols. Although Luther read the words, he heard voices. From the writing of St. Augustine, he heard how to attain true teaching. With Phillip Melancthon, he reformed the content of humanistic education so that it provided the tools and skills that would enable persons to hear the voice of Christ speaking as conscience. The languages, Latin, Greek, Hebrew, as languages of scriptures, provided the word uninterpreted. Aristotle's logic and Cicero's rhetoric provided the form and manner of commentaries. The function of commentaries was to remind and direct conscience. They were to be presented without comment. Everyman was to be his own prompter.

This return to Augustine purged education of outward teachings that were associated with experience. Understanding in Europe and Great Britain remained a priori. The commentaries of the great became the common places of the school room. They were expurgated, stripped of particularity and carnality. And presented as unambiguous distillations of the Word.....

realized in conscience.

Luther's return to inner teachings nipped the bud of an emerging conception of teaching sensitive to psychological processes and the consequences of experience. The reformation that referred understanding to the inner truth as manifest in conscience enabled Milton's argument for freedom in outward teachings presented in *Areopagitica* to echo that of Cluccio Salutati's defense of the *Liberal Arts* in 1378. Both writers were secure in their consciousness of the truth and in the immutable strength of conscience. Apparently, this security of conscience that supported calls for freedom in outward teachings so that everyone could achieve boundless understanding and soaring souls held up by the love of Christ and vindicated in the pastoral discussions of everyman was not widespread. The distillations of the wisdom of universal man were reduced to the commonplaces such as those in the New England Hornbook and McCuffey's Eclectic Readers. Students were compelled to recite them and only them.

These texts characterized early humanistic attitudes toward educational inquiry. Educational researchers, in early America, combed the scriptures and the commentaries of true believers and acceptable heathens (Luther's Gentiles) so that collections of proper common places would be available for prompting conscience and establishing moral decision for everyman. Apparently, this was the stuff of the Common School; secular, but Protestant in content.

In 19th century America, Rousseauian perspectives began to take hold. Such perspectives appeared revolutionary. Yet, the conception of education as midwifery was not brought to question. It was reinforced. The voice of God was replaced by the Force of Nature, Understanding and learning remained a priori.

Like Socrates, Augustine, and Luther, Rousseau heard a voice from within. The inspiration for Rousseau was not of oracles, or sermons of conscience, but of intense and undeniable feeling.

One day I took the *Mercure de France* and, glancing through it as I walked, I came upon this question propounded by the Dijon Academy for the next year's prize: Has the progress of the sciences and arts done more to corrupt morals or improve them?

The moment I read this I beheld another Universe and became another man. . . What I remember quite distinctly about this occasion was that when I reached

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\*Obviously, here lies a tale. Galileo and Copernicus survived so that Kepler and Newton had shoulders to stand upon. What happened to Vives and Campanella?

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Vincennes I was in a state of agitation bordering on delirium. . . . My feelings rose with the most inconceivable rapidity to the level of my ideas. All my little passions were stifled by an enthusiasm for truth, liberty, and virtue; and the most astonishing thing is that this fermentation worked in my heart for more than four or five years as intensely perhaps as it has ever worked in the heart of any man on earth. (Rousseau, Confessions)<sup>7</sup>

Like Luther, Rousseau sought to reform education. Unlike Luther, Rousseau rejected institutional learning. His school house would be the pasture and the woodlands and the garden. "I felt that I was born for retirement and the country: it was impossible for me to live happily anywhere else."<sup>8</sup>

For Rousseau, there are three sources of education: Nature, man, and things. Nature provides inner growth. Man provides uses of inner growth. And things provide experience. Education is beyond human control, for the goal of education is the Nature within.

Forced to combat either nature or society, you must make your choice between man and the citizen. You cannot train both . . . . The natural man lives for himself; he is the unit, the whole, dependent only on himself and on his life. The citizen is but the numerator of a fraction, whose value depends on its denominator; his value depends on the whole, that is, on the community. Good social institutions are those best fitted to make a man unnatural, to exchange his independence for dependence. . . .<sup>9</sup>

Since Nature imposes duties, the only virtue is to do one's duty. To understand such duties, the tutor and the learner must be indistinguishable. A tutor must guide rather than instruct. "He must not give precepts, he must let the scholar find them out for himself."<sup>10</sup>

Rousseau's tutor is not the agent of a learner's education. Like the midwife or prompter, the Rousseauian tutor diagnoses and manages educational occasions. In this view, educational inquiry is a study of natural development of personality and the arrangements of environmental contexts.

Treat your scholar according to his age. Put him in his place from the first and keep him in it, so that he no longer tries to leave it. Then before he knows what goodness is, he will be practicing its chief lesson. Give him no orders at all, absolutely none. Do not even let him think that you claim authority over him; only know that he is weak and you are strong, that his condition and yours puts him at your mercy;.....

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let this be perceived, learned and felt. Let him early find upon his proud neck, the heavy yoke of necessity, under which every finite being must bow. Let him find this necessity in things, not in the caprices of man; let this be perceived, learned and felt.<sup>11</sup>

As suggested, Rousseau did see and mention an inquiry associated with education. That study was developmental psychology. In a way, he foresaw Piaget. Yet it is patent that the study of cognitive development is not equivalent to the study of tutorial processes. Rousseau's use of his developmental psychology was managerial, not instructional. Contrary to the claim of Frederick Eby, Rousseau did not advance a Copernican revolution in education.<sup>12</sup> He merely replaced feelings for words as the medium for ascertaining the truth within.

The sudden, internal realization of a profound truth was repeated in *The Mind That Found Itself*. In noting this event, Clifford Beers wrote:

This was the culminating moment of my gradual re-adjustment. The molecules of my mental magnet had at last turned in the direction of right thinking. In a word my mind had found itself. That this apparently instantaneous return to reason was for me an epoch making event, no one will deny. . . . The very instant I caught sight of my letter in the hands of my brother, all was changed. The thousands of false impressions recorded during the seven hundred and ninety-eight days of my depressed state seemed at once to correct themselves. Untruth became Truth.<sup>13</sup>

For Beers, his recovery from mental warfare' was like a miracle, a flash of divine enlightenment. Beers' successful resolution of a man against himself in August, 1902, that he reported in 1908 led to the publication of the first yearbook on mental hygiene in 1917.

For the mental hygienist, the focus is the environment and experience of persons rather than that of things and societies. For Rousseau, the corruptions of society frustrated Nature. For the mental hygienist, the corruptions of interpersonal relations divorced the self from itself. For Freud, sexual relations within the context of a family was the demon that split the self. The schism in the psyche was generated by the conflict between inner seekings and outer voices; the id and the super ego disturbed the ego. Whether or not the relation between the split self and the whole self is characterized in Freudian terms or in the more generalized terms expressed by Karen Horney, natural Than (organismic drives) and conscientious man (social norms) must be mediated by the inner man, the self. Thus, the self is a priori. It is not determined by nature or society, but by the manner through which the self orchestrates the demands of nature and social coalition.

Unless the self can realize itself, it is frustrated. To be a self,.....

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one must be free. The free self is not only independent of drives and mores. It is also free to become what it desires to be. It is educated through freedom. In the mental hygiene perspective, the teacher is a therapist, freedom's healer. And the management of interpersonal relations characterizes tutorial practice.

Educational inquiry is the collection of cases and the evaluation of clinical discourse. The educational therapist practices so that the self can emerge free and in control.

A. S. Neil's education at Summerhill exemplifies both practice and inquiry in educational therapy, but Carl Rogers enunciated the epistemological stance of such a view.

- (a) I may as well start this one in view of the purposes of this conference. My experience is that I cannot teach another person how to teach. To attempt it is for me, in the long run, futile.
- (b) It seems to me that anything that can be taught to another is relatively inconsequential, and has little or no significant influence on behavior. That sounds so ridiculous that I can't help but question it at the same time that I present it.
- (c) I realize increasingly that I am only interested in learning which significantly influences behavior. Quite possibly this is simply a personal idiosyncrasy.
- (d) I have come to feel that the only learning which significantly influences behavior is self-discovered, self-appropriated learning.
- (e) Such self-discovered learning, truth that has been personally appropriated and assimilated in experience, cannot be directly communicated to another. As soon as an individual tries to communicate much experience directly, often with a quite natural enthusiasm, it becomes teaching and its results are inconsequential. It was some relief recently to discover that Soren Kierkegaard, the Danish philosopher, had found this too, in his own experience, and stated it clearly a century ago. It made it seem less absurd.
- (f) As a consequence of the above, I realize that I have lost interest in being a teacher.
- (g) When I try to teach, as I do sometimes, I am appalled by the results, which seem a little more than inconsequential, because sometimes the teaching appears to succeed. When this happens I find that the results are damaging. It seems to cause the individual to distrust his own experience, and to stifle significant learning.<sup>16</sup>

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The frontier of educational midwifery has not yet been reached. The explorer of this frontier would examine the terrains and constituents of language. With Noam Chomsky, as leader, and Kohlberg as follower, such expeditions would locate a priori truths that make language possible. Such explorers

. . . . must investigate specific domains of human knowledge or systems of belief, determine their character, and study their relation to the brief and personal experience on which they are erected. A system of knowledge and belief results from the interplay of innate mechanisms, genetically determined maturational processes, and interactions with the social and physical environment. The problem is to account for the system constructed by the mind in the course of this interaction.<sup>17</sup>

It seems patent that the epistemic stance taken by Noam Chomsky directs understanding to language. The educational midwife would examine sentential structures for the truths within them. She or he would diagnose a linguistic disorder and arrange linguistic contexts so that the knowledge given in mind could be surfaced and expressed.

Whether or not Chomsky's thesis foretells the future of an a priori theory of knowledge in education, there were perturbations in conceptions of education as mental hygiene that heralded its demise.

In his discussion of children and ourselves, Rogers concluded:

- (a) Such experience would imply that we would do away with teaching. People would get together if they wished to learn.
- (b) We would do away with examinations. They measure only the inconsequential type of learning.
- (c) The implication would be that we would do away with grades and credits for the same reason
- (d) We would do away with degrees as a measure of competence partly for the same reason. Another reason is that a degree marks an end or a conclusion of something and a learner is only interested in the continuing process of learning.
- (e) It would imply doing away with the exposition of conclusions, for we would realize that no one leans significantly from conclusion.

I think that I had better stop here. I do not want to become too fantastic. I want to know primarily whether anything in my inward thinking, as I have tried to describe it, speaks to anything in your experience in the classroom as you have lived

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it, and if so, what the meanings are that exist for you in your experience.

Rogers' wonderings regarding the contact between the inwardness of mind with that of another suggest that understanding is not ushered into being, but rather it happens. Outward teachings are without significant effect. Meetings of mind are fortuitous events.

## EDUCATION AS HAPPENING

Rousseau's romantic ideal that presupposed the good was shattered by events that dominated the relation of human to human in the first half of the 20th century. Rousseau's prophecy that society corrupts seemed fulfilled. Whether or not the Gutenberg galaxy was the agent of depersonalization, it certainly furthered such process. The word became slogan. When boldly typed, the word lulled both conscience and sensitivity. Pageant replaced event; feeling replaced sense until a blind ogre, National Hegemony, devoured the authentic individual.

That educational institutions and processes were effective agents in the formation of "other directed personalities" has been well documented. Hitler's education for death, Medinsky's education for communist regeneration of society, and Eisenhower's education for National Security directed personality toward uncritical acceptance of national interests and toward the acceptance of educational purposes as "man-power."

Associated with the despair of Auschwitz, Budapest, Prague and My Lai was a new epistemic attitude. Humans define themselves. There are no necessary attributes of existence. Existence is either authentic, true to itself, or instrumental to the designs of powerful others.

Education for authentic selves is not epistemically novel. It shares epistemic presuppositions with Plato's theory of art. For Plato, an inspired artist does not know (have a cognitive understanding) of what he does or says. The artist is in the grasp of a kind of madness. The artist's mania is like a divine possession that inspires expressive truth. "

Such occult divination, beyond the bounds of rational understanding, is not knowledge, for knowledge is of universals. The artist's inspiration exemplifies one form. It presents a genuine likeness of the unique. The artist or artisan's imitations of reality could exemplify ethical character as well as appearances or actualities of things. For Plato, inquiry in art is judging the truth in the artist's imitative expression. The judge apprizes the work. Such apprizing is a perspicacious noting of goodness or fittingness or authenticity. The works are judged as true representations of reality.

When such an epistemic stance is stripped of essence, i.e., essential attributes, the epistemic object is existence. An epistemology of existence is a phenomenism that assumes being-in-the-world with being for.....

itself. In other words, there is no being in the world that is not self-conscious of a being-in-consciousness.

We must define thought in terms of that strange power which it possesses of being ahead of itself, of launching itself and being at home everywhere in a word, in terms of its autonomy. Unless thought itself has put into things what it subsequently finds in them, it would have no hold upon things, would not think of them, and would be an illusion of thought. . . . At the root of all our experiences and all our reflections, we find, then a being which immediately recognizes itself, because it is the knowledge both of itself and of all things, and which knows its own existence, not by observation and as a given fact, nor by inference from any idea of itself, but through direct contact with that existence. Self-consciousness is the very being of mind in action. The act whereby I am conscious of something must itself be apprehended at the very moment at which it is carried out, otherwise it would collapse. Therefore it is inconceivable that it should be triggered off or brought about by anything whatsoever, it must be *causa sui*.<sup>20</sup>

It is clear that this existentialist stance strips Socrates' artistic object of its ontological distinctiveness. In this view, the artist makes reality. He or she does not imitate it. In such making, the epistemic condition is consummative, i.e., a bringing to completion. This attitude, like Plato's, is holistic. It directs toward qualification, not quantification. The artist brings elements together to produce an expressed world of a thing as itself, in its own existence. Such generations of artistic consciousness are *causa sui*. They are authentic, not true.

When this principle of authentic existence is asserted in educational discourse, the "teacher artist" orders qualities through critical appreciation of the student's expression. The "teacher artist" arranges communication so that student's expressions are appraised and put on notice regarding their authenticity. Teacher-student discourse is to the work as a means and manner for expression of an authentic self. Educational purpose is the "structuring of a unique significant universe of expression."<sup>21</sup>

Inquiry of a teacher artist is of the qualitative relations that are appropriate in the expressions of authentic selves. This inquiry is a form of appreciation. The fruits of such inquiry are anecdotal. They are phenomenological descriptions of occasions that happen to be educational.

Although understandings of educational happenings is of experience, it is not the experience that is understood. What is understood is that.....

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which presents itself in consciousness. Such understanding is *a priori*. As Sartre put it,

Although the majority of people can well ignore the indications contained in gesture, a word, a sign, and can look with scorn on the revelation which they carry, each human individual nevertheless possesses a priori the meaning of the revelatory value of these manifestations and is capable of deciphering them, at least if he is guided by a helping hand. Here as elsewhere truth is not encountered by chance, it does not belong to a domain where one must seek it without ever having a presentiment of its location, as one can go to look for the source of the Nile or of the Niger. It belongs a priori to human comprehension and the essential task is an hermeneutic; that is, a deciphering, a determination, and conceptualization.<sup>22</sup>

As a helping hand, the teacher artist has kinship with the teacher midwife. The difference is that the helper who produces an educational happening cannot foresee its outcome. Each teacher-student encounter is unique and moves toward uncovering the appropriateness of the qualitative orderings within the student's self-chosen activities. The teacher artist does not direct student activity, but induces revelatory judgment. Its final consequence is the formation of character. The teacher artist does not say, "Do this," but rather, "Are you *doing* what you *ought* to be doing?"

## EDUCATION AS PRACTICAL DISCIPLINE

The epistemic stance that education is a kind of practicing is found in Aristotle's analysis of the function of the soul. The function of the soul is to fulfill human good. The human good is rooted in human nature. It is that which by nature humans seek. Seeking of this natural good is not a function of what humans desire or wish to become because wishing is not identical with seeking. Humans are not bound to be good, for humans need not function, i.e., human behavior can dysfunction by fulfilling desires rather than ends.

Clearly, a soul that is not bound to function according to its nature, i.e., seek the inherent good, is a soul divided. For Aristotle, the soul is in part rational and in part irrational. It both reasons and desires. When wishing (fulfilling desires) is in accordance with reason, the human functions in accordance with its natural rationality. When wishing is in accordance with appetites, the human dysfunctions in accordance with infrahuman nature, irrationality. Only when reason rules desires is the human fulfilling his function, i.e., seeking the human good.

The rational part of human kind functions to bring understanding. Understanding consists of knowledge, i.e., contemplation of universals (nontemporal entities) and practice, i.e., contemplation of particulars

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(temporal entities). Contemplation of universals results in theoretical wisdom. Contemplation of particulars results in practical wisdom. Through practical reason, humans determine right action, i.e., the action that follows human function. Such determination enables humans to relate action (means) to human good (ends). The relation, then, between practical wisdom and theoretical wisdom is instrumental. Practical wisdom serves theoretical wisdom, hence, human understanding consists of knowledge and practicing. Through practicing, knowledge is realized in action, and understanding functions to realize the human good. The two parts of the soul are in harmony with each other.

The epistemic stance characterizing parts in smooth proper action locates a practice in theory, but it does not characterize how such understanding comes about. Does one learn or realize oneself? What, if anything, comes from without? Aristotle's answer is that both theoretical and practical wisdom arise through experience, but theoretical knowledge, such as scientific knowledge, is not a summation of experiences or of functions, for knowledge is not opinion. As Aristotle explained it,

We have already said that scientific knowledge through demonstration is impossible unless a man knows the primary immediate premises. But these are questions which might be raised in respect of the apprehension of these immediate premises further, whether the developed states of knowledge are not innate but come to be in us, or are innate but at first unnoticed. Now it is strange if we possess them from birth; for it means that we possess apprehensions more accurate than demonstration and fail to notice them. If on the other hand we acquire them and do not previously possess them, how could we apprehend and learn without a basis of pre-existent knowledge? For that is impossible, as we used to find in the case of demonstration. So it emerges that neither can we possess them from birth, nor can they come to be in us if we are without knowledge of them to the extent of having no such developed state at all. Therefore, we must possess a capacity of some sort, but not such as to rank higher in accuracy than these developed states. And this at least is an obvious characteristic of all mortals for they possess a congenital discriminative capacity which is called sense-perception . . . So out of sense-perception comes to be what we call memory, and out of frequently repeated memories of the same thing develops experience; for a number of memories constitute a single experience. For experience again --i.e., from the universal now stabilized in its entirety within the soul, the one beside the many which is a single identity with them all -- originate the skill of the craftsman and the knowledge of the men of science, skill in the sphere of coming to be and.....

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science in the sphere of being. We conclude that these states of knowledge are neither innate in a determinate form, nor developed from other higher states of knowledge but of sense-perception. Let us now restate the account given already, though with insufficient clearness. When one of a number of logically indiscriminable particulars has made a stand, the earliest universal is present in the soul; for though the act of sense-perception is of the particular, its content is universal -- is man, for example, not the man Collias. A fresh stand is made among these rudimentary universals, and the process does not cease until the indivisible concepts, the true universals, are established: e.g. such and such a species of animal is a step towards the genus animal, which by the same process is a step toward further generalization.

Thus it is clear that we must get to know the primary premises by induction, for the method by which even sense-perception implants the universal is inductive.<sup>23</sup>

Although Aristotle denies that understanding is given *a priori*, with Plato he held that knowledge was of universals. For Aristotle, the epistemic connection was *a posteriori*. Yet, universals (primary premises) were not realized through enumeration of perceived uniques. Humans were so constituted that though uniques were perceived, generals were conceived. The mind could function only as a classifier. Conception was of hierarchically ordered generals which were received through experience.

These epistemic attitudes expressed in educational terms made instruction possible. A teacher could bring a student to understanding by implanting the primary premises of experience, for knowledge was not of experience, but from it. The theoretical and practical wisdom of the teacher could be brought to and direct the experience of the student. Such doings directed toward bringing humans to realize their ends through instruction is a kind of practice. Instruction is a practical discipline. As a practical discipline, instruction consists of a repertory of skills enlightened by theoretical wisdom and instrumental to it.

Acquisition of educative skills requires instruction in the theoretical disciplines and so the knowledge of the ends of education. For Aristotle, the utilization of this knowledge in the instruction of others should be under the authority of the state. Under the state's authority,

Directors of Education . . . see that children are taught those useful things which are really necessary, but not all useful things; for occupations are divided into liberal and illiberal; and to young children should be imparted only such kinds of knowledge as will be useful to them without vulgarizing them . . .

wherefore we call those arts vulgar which tend to deform the body, and likewise all paid employments, for they absorb and degrade the mind.<sup>24</sup>

Education as an affair of state is doubly instrumental. It must serve both ends of knowledge and of the state. Thus, inquiry in education as a practical discipline is of two kinds. It is developmental and organizational. As a developmental inquiry, principles given in knowledge domains are ordered and arranged for instructional use. The outcome of such inquiry is not knowledge, but skills.

As an organizational inquiry, constitutional requirements of the state provide the ends. Administrative and supervisory structures and procedures are developed so that proper maintenance of teachers, students, subject matter, and instructional practice is achieved. The outcome of such inquiry is governance. In short, Aristotle's epistemic perspectives lead to educational development and educational policy, not knowledge.

Although Aristotle's epistemic attitudes dominated informed discourse in Europe, during the 13th and 14th and 15th centuries they were reconciled with Christian theology by St. Thomas Aquinas. That reconciliation was with respect to the demands for revelatory truth offered in Scriptures. Revelation is received through words, not things. Hence, the word, not observation, dominated investigatory and instructional effort. Argument replaced perception. Thus, Aristotle's *Priori Analytics* supplanted his *Posterior Analytics* in inquiry and instruction. Deduction, not induction, became the epistemic mode for discovery as well as communication.

For St. Thomas, through disputation, an active exchange of understanding was possible. By such means, the teacher's and student's minds could meet in educational fellowship. New knowledge, through the teacher, could be brought to the student. Aquinas repeatedly compares the activities of a teacher with that of a physician and so, with Aristotle, holds teaching to be a practical discipline. The difference between them was not in the kind of discipline, but in the nature of instruction. In Aristotle, demonstration was of observed things. In Aquinas, demonstration was of exemplified things.

Aquinas puts it as follows:

Knowledge, therefore, pre-exists in the learner potentially, not, however, in the purely passive, but in the active sense. Otherwise, man would not be able to acquire knowledge independently. Therefore, there are two ways of acquiring knowledge. In one way, natural reason by itself reaches knowledge of unknown things, and this way is called *discovery*; in the other way, when someone else aids the learner's natural reason, and this is called learning by *instruction*.<sup>25</sup>

. . . One person is said to teach another in.....

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as much as, by signs he manifests to that other the reasoning process which he himself goes through by his own natural reason. And thus, through the instrumentality, as it were, of what it told him, the natural reason of the pupil arrives at a knowledge of things which he did not know. Therefore, just as a doctor is said to heal a patient through the activity of nature, so a man is said to cause knowledge in another through the activity of the learner's own natural reason, and this is teaching. So, one is said to teach another and be his teacher.<sup>26</sup>

In making the educational process wholly active, mind seeking mind, St. Thomas Aquinas introduced scholarship as a mode of inquiry and instruction. He made it clear that a teacher not only had to utilize theoretical wisdom in practicing his craft, but the teacher had to be a scholar as well, i.e., teachers had to advance theoretical wisdom. The requirement in a disputation that the exchange between teacher and student be dynamic made the instructional processes tutorial. The learner must be a student, i.e., intend to come to the new knowledge available through the teacher. Without such mutual intent, there could be no meeting of minds. Instruction could not be possible. Learners could come to know only through discovery.

Although Aquinas did not explicate the relation between the practice and discipline of the scholar teacher, it appears patent that conceptions of the discipline of education as applied science has kinship with that condition.

The return of the inductive spirit associated with discovery was reflected in Francis Bacon's rejection of methods of demonstration called for in scholastic disputation. Although his remarks were directed at Aristotle, Bacon was addressing Aquinas. Educational fellowship and syllogistic argumentation were nothing other than assumptions related through logic. As such they were empty of fact.

Bacon's epistemic stance stripped human understanding of its principles and its active extension of knowledge. There could be no things in accordance with principles. There could be only principles in accordance with things.

For I am building in the human understanding a new model of the world, such as it is in fact, not such as a man's own reason would have it to be; a thing which cannot be done without a diligent dissection and anatomy of the world. But I say that those foolish and apish images of worlds which the fancies of men have created in philosophical systems must be utterly scattered to the winds.<sup>27</sup>

Since educational institutions were alleged to be authoritarian, and.....

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students were brought solely to those understandings that were imprisoned in writings of approved authors, Bacon would take the learner from the classroom, and place her or him in a workshop in which the craftsman turned his skill to the invention of new arts. For Bacon, “The arts and sciences should be like mines, where the noise of new works and further advances is heard on every side.”<sup>28</sup>

Tables of Discovery would replace the scholar teacher. When the tables were used with mechanical invention, new knowledge would result. Although it was not Bacon’s expressed intent to establish a new kind of theoretical wisdom for the art of teaching, his workshop approach to understanding and the advance of knowledge did lead to the conversion of some instrumental arts to theoretical sciences, e.g., mechanics to physics. The inventive spirit that produced psychology from psyche and sociology from society and economics from trade did not, however, produce educology from education.

As the works of Comenius and Locke on education reveal, Bacon’s new organon was applied in the reorganization of instruction, but not in the study of education. Aristotle’s first instrumentality, education in the service of the theoretical disciplines, through Bacon, ‘became realized as instructional development. Inquiry in education was directed toward invention of new didactic media.\*

During the emergence of psychology, leaning theories were set forth free of normative requirements. For in psychology, learning could be studied independently of instructional function directed toward realizing human good. However, during the emergence of the concept, ‘educational psychology’ , such theoretical autonomy was unthinkable. The pressing need to understand educational processes within the context of a teacher’s practicing was pervasive. Aristotle’s first instrumentality was not shaken.

In more recent expression, that instrumentality is announced through Clark and Marker’s call for moving the professional education of teachers from college and university settings to that of the public schools. 29 These authors characterize understanding as praxis, not praxiology. They also refocus ~ second instrumentality, education in service to the state, for they would have professional education learned in the *public* (government-directed, or state) schools. In their view, inquiry of education is the development of instruction in accordance with explicit political policy. It seems that the proposals and efforts to place both inquiry and professional education into the “field” is a rebirth of both of Aristotle’s epistemic attitudes. Education, its “field’ perspective, indeed, is a practical discipline.

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\* Although Comenius was characterized as Baconian, the spirit of Aristotle was pervasive in his theory of human development and design of textbooks.

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### EDUCATION AS APPLIED SCIENCE

In concluding their work on the development of modern education, Eby and Arrowood said: "Today, the world is alive to the importance of a thorough science and philosophy of education, and educators are striving to attain them."<sup>30</sup> In such strivings for science of education, it is usual to refer to Herbart as the "founder of the science of education." Yet it appears evident that Herbart not only followed Kant to the University of Konigsburg; he followed Kant in announcing for a science of education. Kant wrote

If . . . children are to progress beyond their parents, education must become a study, otherwise we can hope for nothing from it, and one Than whose education has been spoilt will only repeat his own mistakes in trying to educate others. The mechanism of education must be charged into a science, and one generation may have to pull down what another had built up.<sup>31</sup>

It is apparent that Kant viewed education in a way that was not in keeping with Aristotle's first instrumentality. In rejecting Aristotle's second instrumentality, Kant said

We can . . . only expect progress to be brought about by rulers if their education has been of a higher kind than that of their subjects.

It depends, then, mainly upon private effort, ardnnot so much on the help of rulers, as Basedow and others supposed; for we find by experience that they have not the universal good so much in view, as the well-being of the state, whereby they may attain their own ends .

The management of schools ought, then, to depend entirely upon the judgment of the most enlightened experts.<sup>32</sup>

For Herbart, education was called a science, but that science was not a study, but a system of principles for instruction derived from psychological knowledge. For him, the scientific knowledge of the teacher was psychology of learning discovered inductively by means of Baconian observation.<sup>38</sup>

John Dewey's complaint of Herbart's theory was not in its claim that education is an instrument for the development of the virtues that mankind was destined to have, but in Herbart's rejection of Aristotle's active intellect, i.e., the mind participating actively in the inductive processes. Aristotle, you recall, held that the significance of sense-perception was intellectual, not sensational. Like Aristotle, Dewey held that the mind intends meaning. For Aristotle, the mind's intentions were given in the soul. For Dewey, the mind's intentions were realized through.....

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experience. Education was a process whereby the mind's intentions evolved from the consequences of fulfilling wants. Epistemically, Dewey's attitude extended Aristotle's by directing the second instrumentality to the welfare of society rather than that of the state. He denied knowledge for its own sake and made knowledge the servant of Aristotle's second instrumentality. Dewey wished to 'render the methods and conclusions of natural science serviceable for moral theory and practice.'<sup>34</sup>

Dewey's reconstruction would carry scientific inquiry into education and into other "moral subjects, the kind of method (the method of observation, theory as hypothesis, and experimental test) by which understanding of physical nature has been brought to its present pitch."<sup>35</sup>

Since Dewey held that science' named a method, not a subject matter, his most significant extension of Aristotle's functional analysis of knowledge was to characterize function in entirely dynamic terms. Knowledge was a method allowing humans to control fact and value intelligently.

In *Sources of a Science of Education*, Dewey held that practicing as teacher surfaced problems that could be studied by means of knowledge and procedures relevant to the problems.<sup>36</sup> Resolutions of these problems would provide new methods in education. Educational inquiry, therefore, was not independent of practice; it was by and for it. Dewey blended Aristotle's functional necessity with Bacon's inventive discovery. Hypotheses were not empty, and humans could invent truth.

Although Dewey came close to breaking from Aristotle's first instrumentality, he did not succeed, for he too focused on praxis. He had his eye on means whereby teachers controlled teaching activity. He argued that:

There is no more a special independent science of education than there is of bridge making. But material drawn from other sciences furnishes the content of educational science when it is focused on the problems that arise in education. [*Italics added.*]<sup>37</sup>

. . . There is no subject—matter intrinsically marked off, earmarked so to say, as content of educational science. Any methods and any facts and principles from any subject whatsoever that enable the problem of administration and instruction to be dealt with in a bettered way are pertinent . . .<sup>38</sup>

. . . Failure to perceive that educational science has no content of its own leads, on the other hand, to a segregation of research which tends to render it futile.<sup>39</sup>

That there were special sources for a science of education, Dewey did not deny. He listed psychology, sociology, and philosophy as those sources. Dewey's epistemic kinship to Aristotle is given clearly when.....

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he characterized philosophy as a general theory of education.

Although Dewey rejected the more positivistic stance required in Baconian induction, Edward Thorndike did not. He investigated relations, not practices. He sought to establish empirical laws of human learning and description of its evolutionary development. It is an often told story that Thorndike brought psychological inquiry of human learning from the classroom to the laboratory. Thorndike and those who followed him sought to lay out empirical generalizations of human learning. Some if not all of them sought to draw out the educational implications of such description. For example, in the *Forty-First NSSE Yearbook*, Part II, Guthrie draws from Pavlov's experiment the rule that: "Practice is necessary to the extent that the response must be elicitable from a variety of situations."<sup>40</sup> From that rule he draws the educational principle that "effective practice is conducted in the general situation in which we desire the future performance to be given."<sup>41</sup>

In the *Forty-Ninth NSSE Yearbook*, direction shifted from an effort to present principles for presenting content to directing the learning of the child. It represented an attempt to set down the basic principles to the guidance of the leaning experiences as they can be derived from the study of how children learn."<sup>42</sup>

The positions of both Thorndike and Dewey were represented in the *Sixty-Third NSSE Yearbook*. In the concluding remarks of his chapter, Frederick S. McDonald said:

. . . There seems to be no good reason for educational theory to be committed to any single psychological theory short of a comprehensive science of man. Practitioners can afford to be eclectic: Even a science of education need not be coterminus with a science of psychology."<sup>43</sup>

In the 1960's, the quest moved away from the conception of the study of education as an applied behavioral science toward a psychology of teaching methods. With respect to that movement, Berliner and Gage had this to say:

True, it is acknowledged that laboratory laws of learning are untrustworthy guides to classroom practice. We also know that the sequence from basic research to applied research, to development, to practice and application on which most of us were weaned is no longer applicable if, in fact, it ever was. But psychology still brings to education its concepts, its principles (however fragile), its methods, and perhaps most its sense of what variables are or are not important in particular settings . . . Implications for instruction come not from general theories but from tentative models of learning built up from empirical data. These restricted models give meaning.....

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to a set of concepts that are presumed to be useful in influencing the process of learning and improving achievement of the intended outcomes of instruction.<sup>44</sup>

Although these words seem closer to Kant's call for a study of education, Aristotle's epistemic attitude remained unaltered. Theoretical wisdom guides educational practicing. If not as an applied behavioral science, surely as an empirically suggested invention (model).

Apparently, however, the interpretation of the study of education as applied behavioral science is not dead. Recently Kerlinger held that basic research studies, relations, and applied research provides information for helping persons making decisions.<sup>45</sup>

### EDUCATION AS EDUCOLOGY

In a philosophic redirection of educational research, It Bob Gowin redirected the educational researcher to where she or he was already directed by Aristotle. According to Cowin, educational research was distinctive only in its concepts, methods and procedures of educational practice. His redirection failed to note that research characterizes phenomena, not practicing. An epistemic attitude that characterizes education as sets of procedures implies that there are no phenomena which are education, for procedures lay out doings, not events. As doings, educational practicing is with respect to good ends and right actions. Research of good ends and right practicing is philosophical. To take such an epistemic stance results in difficulty. Fitter all research of education is philosophical, defining good ends and right practicing, or it is developmental, devising means for realizing ends that are good. It is patent that this difficulty reflects the epistemic attitudes of both Plato and Aristotle. Is there another attitude available?

Immanuel Kant pointed a way for having both authoritative science and moral autonomy. Kant directed inquiry to investigate the possible rather than the actual. He shifted perspective from *praktisch* to *pragmatisch*, from functioning to effective function. Since effective functions are relations, not activities, a complete study of education is possible.

E. Steiner, utilizing this new focus offered by Kant and its logic, delineated in part by C. S. Peirce and Kotarbinski, brought together the three epistemic roots in her characterization of the dimensions of educology and their elements.<sup>47</sup> Through Steiner's work it is patent that educology is possible without reduction. A study of education may be of good or right relations, philosophy of education; it may be of true relations, science of education; and it may be of effective relations, praxiology of education. Philosophy of education includes the current expression of the Platonic epistemic attitude which demands appraising of authentic self. Science of education includes current expression of the Aristotloan epistemic attitude which demands empirically justified generalizations, and praxiology of education includes current discussions of of Kant's *pragmatisch* which demands knowledge of effective performances.

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