

CHAPTER 12

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT FOR SCHOOLS OF TEACHER EDUCATION, COLLEGES OF EDUCATION, AND FACULTIES OF EDUCATION

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TRANSITION: The recurrent theme in this volume is that educology is conception about education. This conception is located in language, and when this language correctly and adequately characterizes the educational process, it constitutes knowledge about that process. The authors of this volume vary in their explication of the implications of educology. However, they all agree that it is possible for us to engage in education about education; that we can study each others ideas about education; and that it is useful, from the point of view of clarity, to name ideas, or conceptions, about education 'educology'.

The question arises as to whether the term and concept of educology have any utility other than that of clarification. In this chapter, the authors argue affirmatively. They show how the use of educology can facilitate decisions regarding the matters, for example, of (1) naming and describing courses, (2) arranging curriculum, and (3) organizing academic staff in schools, colleges, and faculties of education and teacher education (i.e., units of educology). The conception of educology that is followed in this next chapter is that educology names knowledge about education. The distinctions which Steiner made of performative, qualitative, and quantitative knowledge are acknowledged. But only the category of quantitative educology is used in the discussion of possible applications of educology to the solution of selected educational problems. Educology as quantitative knowledge, or true generalizations, in this chapter, is related to the concepts of subfunds of knowledge, subdisciplines of knowledge, kinds of knowledge, and objects of knowledge. These concepts, in turn, are related to the recurrent problems of (1) what names to give courses, (2) what arrangements to make of courses, and (3) what organization to provide for staff in educational institutions whose purpose is to teach and extend knowledge about the educational process.

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INTRODUCTION

How should courses and academic staff be organized? Particularly, how should they be organized so that the resulting structure

1. achieves logical consistency

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

2. retains flexibility;
3. dispels ambiguity;
4. overcomes undue pressure from traditional prejudices and interest groups;
5. permits professional individuality and development, but excludes exploitation of the institution by the individual staff member;
6. assures the integrity of the institution without stifling the creativity and responsible freedom of the professional staff members.

Schools, faculties, and colleges of education and schools of teacher education within universities share this set of problems in common. Since courses offered by such academic units consist of studies about the teaching and studenting¹ process, one possible solution is to derive a set of organizational principles in relation to the kinds of knowledge that are implied by the concept of studies, or knowledge, about education.

A term which means the same as 'knowledge about education' is 'educology'.² It was coined to clear up the confusion caused by using the word 'education' to mean 'the teaching and studenting process' and also 'knowledge about the teaching and studenting process'. The term has gained modest currency in discourse about education, but, of course, the terms 'education' and 'education studies' are more often used.

Given its unfamiliarity, are there any advantages in using the term 'educology'? One is its power to remove ambiguity from statements. In the sentence,

In their education₁ to become teachers, students
study education₂, mathematics, and history,

'education₁' means 'teaching and studenting process', and 'education₂' means 'knowledge about the teaching and studenting process'. Suppose that this substitution is made:

In their education to become teachers, students
study educology, mathematics, and history.

The term 'educology' clarifies the meaning of such sentences, but its utility goes beyond removing ambiguity. The term and its concept can also be used to classify kinds of knowledge about education.

Sometimes 'knowledge' is used to mean a condition of mind, a skill, or the realized ability to perform adequately in some way. And sometimes it is used in the sense of a set of verified statements. When 'knowledge' is used in this second sense, the concept of educology becomes a powerful tool for classification. Educology implies at least three kinds of quantitative knowledge about education: empirical, normative and analytic.³ These distinctions are made with respect to the standard of verification.⁴

Empirical knowledge (in the sense of quantitative statements) is the

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

set of statements which is verified by observing actual events, or aspects of a field of phenomena, and determining whether the events, or aspects, match the statement. Empirical statements about education can be further divided into at least two categories with respect to aspects of the field of phenomena to which the statements refer. One category is about extant educational phenomena. A second is about effective educational practices. The first consists of generalizations about extant aspects, features, and relationships of the teaching and studenting process. The second consists of generalizations about educational praxis -- that which we should do and refrain from doing in order to get the results that we want in the teaching and studenting process. The first category of empirical educo-logy can be called scientific, and the second, praxiological.⁵

'Praxiology' means 'knowledge about effective practices, procedures, or methods for doing something'.⁶ Praxiology includes the concept of technology, and it also implies all quantitative knowledge about how to achieve desired results which are other than a physical object (e.g. maintaining mental health, effectively arguing a legal case, or intentionally causing learning).

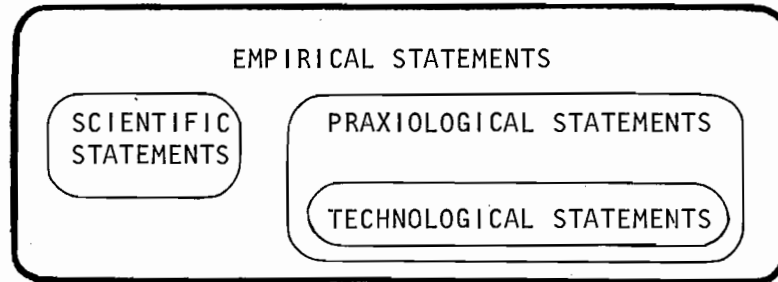


FIGURE 12.1

Categories of Empirical Statements

Verified empirical statements are products of successful empirical inquiry. Just as empirical statements divide into at least two categories so empirical research divides into scientific and praxiological inquiry. Scientific inquiry about education implies asking questions such as:

1. How do different teaching methods affect learning?
2. What functions do grading and assessment systems perform in educational institutions?

Praxiological inquiry about education implies asking questions such as:

1. What teaching methods are effective for getting pupils of ages 9 to 10 to understand division?
2. What procedures work in eliminating misconduct in the classroom?

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

Scientific knowledge about education is the science of education, or scientific educology. It is true generalizations about existing states of affairs in the field of educational phenomena. Praxiological knowledge about education is the praxiology of education, or praxiological educology. It is true generalizations about effective practice in the field of educational phenomena. Both sets of knowledge are part of educology. Both require the use of the same discipline to substantiate their knowledge claims, i.e., both require the set of rules, logical operations, and procedures demanded by empirical inquiry. The two bodies of knowledge differ with respect to the feature or aspect of educational phenomena about which they generalize.

The effective practices which praxiological educology describes and characterizes are not intrinsically good. For example, educologists might find that malicious and cruel treatment are effective in causing someone to learn something. Yet the effectiveness of these treatments would not be sufficient justification to use them as educational practices. This leads us to another category of statements about education: those concerning the intrinsic goodness and badness of goals, practices, policies, or behaviors in the teaching and studenting process. Such statements are normative. Examples are:

1. Teachers should not victimize their students.
2. Intellectual development should be the primary goal of secondary education.

We form an agreement with a normative statement by establishing some set of criteria to which we are willing to commit ourselves, or to live by. And we observe whether behavior, practices, or events conform to the criteria. Statements verified by this process constitute normative knowledge, and the kind of research which forms this knowledge is normative inquiry (sometimes called evaluative research). Normative knowledge about education is true generalizations about intrinsically good states of affairs in the field of educational phenomena. Other names for this normative knowledge are normative philosophy of education, and normative philosophical educology.

A third way in which we can verify statements is by determining whether they are consistent with other statements. We examine the meaning (i.e., necessary implications) of a statement in relation to a set of other statements and reason whether they are consistent. A statement that is treated in this way can be called analytic. Examples are:

1. Education implies teaching and learning.
2. The result of effective teaching is learning.

Analytic inquiry, if successful, produces true analytic statements (which is analytic knowledge).

At least three categories of knowledge about education can, therefore,

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

be distinguished with respect to standards of verification (or discipline): analytic, normative, and empirical.

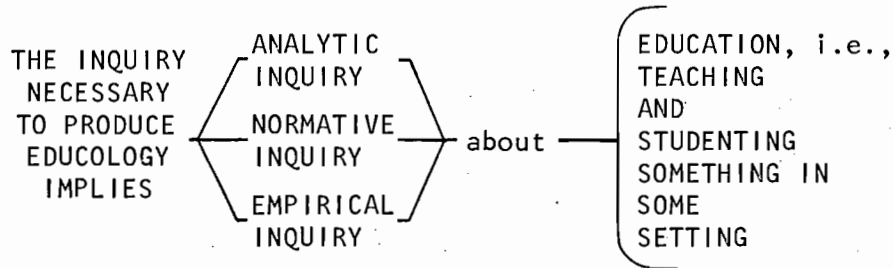


FIGURE 12.2

Three Kinds of Inquiry (and Discipline) Implied by Educology

'Discipline' in this context is taken to mean the set of rules, logical operations, and procedures required for making warranted assertions, or knowledge claims. Analytic inquiry requires the use of one set; normative a second set; and empirical, a third. All three kinds of inquiry about educational phenomena are possible, thus the set of disciplines necessary for the research task of making educology (i.e., making true generalizations about educology) includes at least these three. The discipline of educology implies at least analytic, normative, and empirical discipline.

Another possible name for analytic knowledge about education is 'analytic educology', and analytic educology implies at least three categories: analytic philosophy of education, history of education, and jurisprudence of education. All three are subfunds of knowledge about the implications of language about education. The first is knowledge about the necessary implications of any concept or statement in educational language; the second is knowledge about the necessary implications of language about past educational phenomena; the third, about necessary implications of legal language which guides and regulates persons in the teaching and studenting process. All three subfunds share the same discipline, i.e., the discipline of analytic inquiry. They differ with respect to the feature or aspect of educational phenomena about which they generalize.

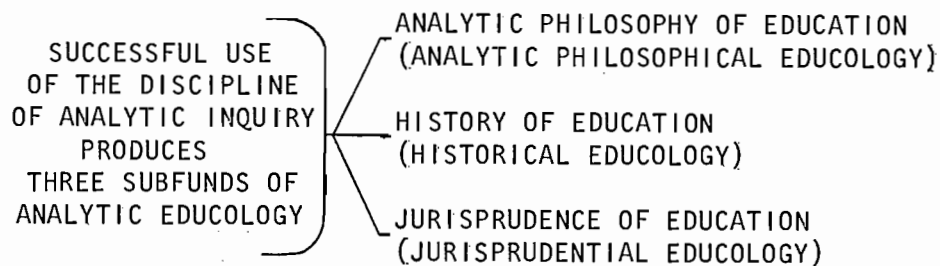


FIGURE 12.3

Subfunds of Analytic Educology

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

Normative knowledge about education is normative educology, or normative philosophy of education. Often the term 'philosophy of education' is used without distinguishing between analytic and normative philosophy. This usage conflates different kinds of knowledge. Analytic philosophy of education requires the use of necessity reasoning, and that knowledge which is analytic philosophy of education describes and characterizes the necessary implications of concepts and sentences used in the language of education. The knowledge that is normative philosophy of education requires the use of evaluative reasoning for its verification, and it describes and characterizes aims, practices, or policies which have worth in education. The theorizing of Dewey, Bayles, and Butler, for example, counts as normative philosophy of education.⁷ The theorizing of Ryle, Scheffler, Smith, and Gribble is analytic philosophy of education.⁸

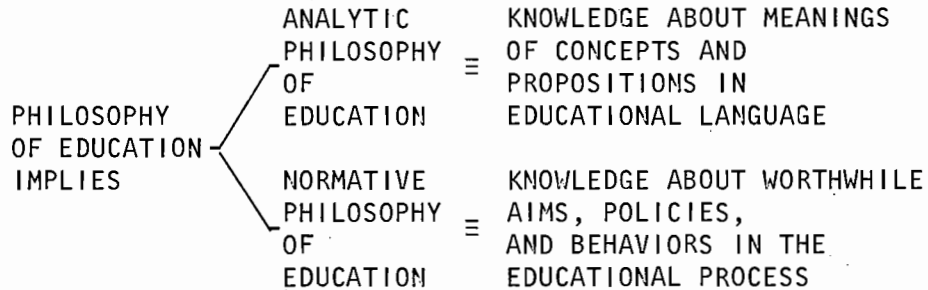


FIGURE 12.4

Two Meanings of 'Philosophy of Education'

The concept of 'language of education' functions ambiguously. It can mean (1) 'language which occurs within the process of teaching and studenting', and it can also mean (2) 'language which is about the process of teaching and studenting'. In its first sense, language of education means language *in* education.

[LANGUAGE OF EDUCATION]₁ ≡ LANGUAGE *IN* EDUCATION

In its second sense, language of education means language *about* education.

[LANGUAGE OF EDUCATION]₂ ≡ LANGUAGE *ABOUT* EDUCATION

What a person says while engaged in the role of teaching is an example of [language of education]₁, or language *in* education. Educology, or true generalizations about the field of educational phenomena, is an example of [language of education]₂ or language *about* education.

Given this distinction between two senses of 'language of education', a third meaning of 'philosophy of education' is possible to discern. Language about education can be an object of inquiry. It can be analyzed, and true statements (i.e., knowledge) about it can be produced. This set of true statements constitutes a fund of knowledge. It is the logic

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

and epistemology of making quantitative statements about the educational process. In common usage, this fund could be named 'philosophy of education', because in common usage, 'education' is a term that names (1) the teaching and studenting process and (2) knowledge about that process. But a name that more adequately characterizes the fund is 'analytic philosophy of educology'.⁹ The substitution of 'educology' for the term 'education' in the name 'philosophy of education' clarifies that the object of knowledge is language about education, and the substitution of 'analytic philosophy' for 'philosophy' in the name clarifies that the fund of knowledge requires the use of the discipline of analytic inquiry.

In summation, three meanings of 'philosophy of education' are:

1. Analytic philosophy of education, or knowledge about meanings of concepts and propositions in educational language;
2. Normative philosophy of education, knowledge about worthwhile aims, policies, and behaviors in the educational process;
3. Analytic philosophy of educology, or knowledge about rules, logical operations, and procedures for making warranted quantitative statements about the educational process.

The first two are subfunds of educology. The third is knowledge about educology. It is meta-educology.¹⁰

'Science of education' and 'scientific educology' are names for a subfund of knowledge about education that has two distinguishing characteristics: (1) It is about extant aspects of the field of educational phenomena, and (2) the set of statements of which it consists are verifiable by some means of observation.

In one sense, scientific educology includes the psychology of education, sociology of education, anthropology of education, economics of education, political science of education, and physiology of education. In another sense, it does not. For example, the term 'sociology' names knowledge about society, and the term 'sociology of education' is made to function ambiguously. At times, it is used to mean 'knowledge about the effects of education upon society'. At other times, it is used to mean 'knowledge about the effects of society upon education'. Knowledge which treats society as the dependent variable and which characterizes the effects of other factors upon society is sociology. Knowledge which treats education as the dependent variable and which characterizes the effects of other factors upon education is educology. The first sense of the term 'sociology of education' implies a subfund of sociology. The second sense of 'sociology of education' implies a subfund of educology, and a better name for this second sense is 'educology of society'.

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

[SOCIOLOGY OF EDUCATION]₁ ≡ KNOWLEDGE ABOUT THE
EFFECTS OF EDUCATION UPON
SOCIETY

≡ KNOWLEDGE ABOUT SOCIETY

≡ A SUBFUND OF SOCIOLOGY

[SOCIOLOGY OF EDUCATION]₂ ≡ KNOWLEDGE ABOUT THE
EFFECTS OF SOCIETY
UPON EDUCATION

≡ KNOWLEDGE ABOUT EDUCATION

≡ A SUBFUND OF EDUCOLOGY

The same argument holds for terms such as 'psychology of education', 'economics of education', etc. Where they are intended to mean knowledge about the effects of something upon education, they are better named the

educology of mental processes,
educology of economic systems,
educology of cultural processes.

The concept of 'educology of' extends to any object of knowledge that is an aspect of the field of educational phenomena. Thus, the

educology of reading,
educology of religious education,
educology of educational leadership, and
educology of curriculum,

are all conceivable.

Some people maintain that the terms 'educational psychology' and 'sociology of education' name disciplines.¹¹ It seems to make more sense to regard them as names for funds of knowledge which are not educology at all, in one sense, and as subfunds of educology, in a second sense. And in the second sense, the subfunds imply the use of all three standards for asserting knowledge claims (analytic, empirical, normative).

One red herring that keeps popping up is that educology is not a discipline in its own right.¹² Rather, it borrows from other disciplines such as sociology, psychology, and economics. This is a red herring because sociology, psychology, and educology imply use of the same standards for judging the truth value of knowledge claims. An empirical knowledge claim remains empirical, regardless of whether the claim is about society, and thus an empirical sociological claim; about mental processes, and thus an empirical psychological claim; or about education, and thus an empirical educological claim. A distinction can be made between sociology and educology, of course, but it is in relation to the object of knowledge (i.e., the field of phenomena about which generalizations are made), not the discipline of knowledge (i.e., the rules, logical operations, and

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

procedures for making knowledge claims).

Notwithstanding the implication that if 'sociology', 'anthropology', and 'economics' are terms which name all knowledge about society, mankind, economic systems, some researchers insist upon restricting the use of terms such as 'sociology', 'psychology', 'anthropology', and 'economics' so that they name only scientific knowledge. How do the implications of the concept of 'scientific educology' or 'science of education' relate to these restricted usages? In the case of 'sociology of education' naming only scientific knowledge of the effects of society upon the educational process, then sociology of education is a subfund of scientific educology. In the case of 'sociology of education' naming only scientific knowledge about the effects of the educational process upon society, then sociology of education is a subfund of sociology and not part of educology, scientific or otherwise. So, scientific educology *does* imply the subfunds of sociology of education, anthropology of education, economics of education, and psychology of education, where these terms are intended to mean only scientific knowledge, and where the educational process is characterized as the dependent variable.

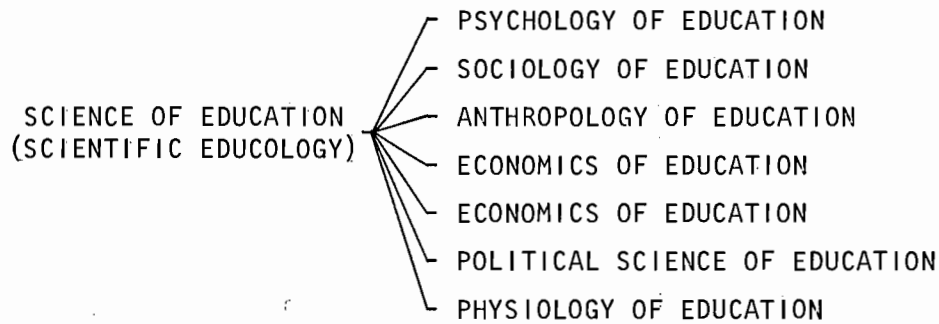


FIGURE 12.5

Subfunds of Science of Education

In the case where these terms *do* name subfunds of scientific educology, then their meanings are unchanged with the following term substitutions:

PSYCHOLOGY OF EDUCATION	≡	SCIENTIFIC EDUCOLOGY OF MENTAL PROCESSES
SOCIOLOGY OF EDUCATION	≡	SCIENTIFIC EDUCOLOGY OF SOCIETY
ANTHROPOLOGY OF EDUCATION	≡	SCIENTIFIC EDUCOLOGY OF CULTURAL PROCESSES
ECONOMICS OF EDUCATION	≡	SCIENTIFIC EDUCOLOGY OF ECONOMIC SYSTEMS
POLITICAL SCIENCE OF EDUCATION	≡	SCIENTIFIC EDUCOLOGY OF POLITICAL SYSTEMS
PHYSIOLOGY OF EDUCATION		SCIENTIFIC EDUCOLOGY OF ORGANIC SYSTEMS

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

While the six categories just identified as subfunds of scientific educology differ with respect to the aspect or feature of the field of educational phenomena about which they generalize, they all require the use of the same discipline. They require the use of the rules, logical operations, and procedures of empirical inquiry.

Thus far, two major subfunds of empirical educology have been distinguished: scientific and praxiological. A third is possible, and it can be named the 'political praxiology of education'. Effective practices for teaching and studenting differ from effective practices in the governance, management, and administration of the teaching and studenting process. In order for a teaching practice to be judged effective, it must attain understanding of what is being taught prior to attaining acceptance of what is being taught. Effective administrative practices for education do not necessarily have to meet the condition of understanding prior to the condition of acceptance. An administrative practice is politically sound, even if understanding of the policy, rule, regulation is not achieved, but acceptance is achieved. For example, if a state department of education wishes to introduce a new music curriculum into the school systems, gaining acceptance from the teachers and students for the new curriculum, without achieving their understanding of the justification for the new curriculum would still count as effective administration, from a political point of view. Knowledge about how to get teachers, students, and others to accept innovations in education and to accept existing regulations and policies constitutes the praxiology of political practices for education. 'Praxiology of political practices for education' means the same as 'praxiology of the politics of ('of' in the sense of 'for') education' and it also means the same as the 'political praxiology of education'. These terms name the knowledge (i.e., the true generalizations about) what to do in order to gain acceptance of policies to regulate teaching and studenting. It is a third subfund of empirical educology. It is not a separate discipline from science of education and praxiology of education because the knowledge of which it consists requires the use of the rules, logical operations, and procedures of empirical inquiry. It differs from the other two with respect to the feature of the field of educational phenomena that it characterizes.

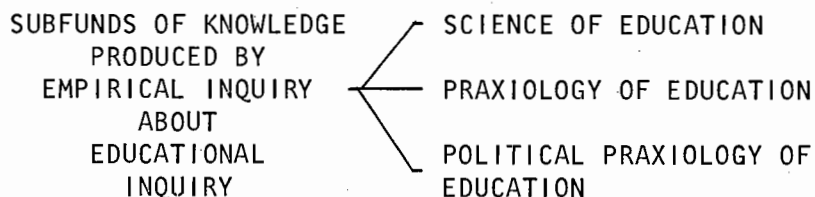


FIGURE 12.6

Subfunds of Empirical Knowledge about Education

The concept of educology, in the sense of true quantitative statements

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

about the teaching and studenting process, thus implies three kinds of knowledge (analytic, normative, empirical) and the use of three sets of rules, logical operations, and procedures (those for analytic, normative, and empirical inquiry). The discipline of educology is the three sets, and each of the sets can be regarded as a subdiscipline of the discipline of educology. Each subdiscipline can be used to produce subsets of funds of knowledge that are part of the fund that is educology. The subdiscipline of analytic inquiry can be used to produce the subfunds of historical, analytic philosophical, and jurisprudential educology, and it can be used to produce the analytic philosophy of educology, as well. The subdiscipline of normative inquiry can be used to produce the subfund of normative philosophical educology. And the subdiscipline of empirical inquiry can be used to produce the subfunds of scientific, praxiological, and political praxiological educology:¹³

Subfunds of meta-educology

1. Analytic philosophy of educology
(Analytic philosophical meta-educology)

Subfunds of educology

1. Analytic educology
 - 1.1. Analytic philosophical educology
(Analytic philosophy of education)
 - 1.2. Historical educology
(History of education)
 - 1.3. Jurisprudential educology
(Jurisprudence of education)
2. Normative educology
 - 2.1. Normative philosophical educology
(Normative philosophy of education)
3. Empirical educology
 - 3.1. Praxiological educology
(Praxiology of education)
 - 3.2. Political praxiological educology
(Political praxiology of education)
 - 3.3. Scientific educology
(Science of education)
 - 3.3.1. Scientific educology of society
(Sociology of education)
 - 3.3.2. Scientific educology of cultures
(Anthropology of education)
 - 3.3.3. Scientific educology of mental processes
(Psychology of education)
 - 3.3.4. Scientific educology of economic systems
(Economics of education)
 - 3.3.5. Scientific educology of politics
(Political science of education)

The differences that distinguish subfunds of knowledge about education can be clarified by examples. Suppose that we wish to conduct inquiry and establish knowledge about mathematics curricula. Curriculum is an

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

aspect or feature of the field of educational phenomena, and different kinds of questions can be posed about this aspect:

1. The question, "What mathematics curricula are currently being used in schools," implies the use of the discipline of empirical inquiry to answer it. And the set of true generalizations which constitute an adequate answer implies the subfund of scientific educology. It is an empirical question, and its answer is located in, or is part of, the science of education (or scientific educology).
2. The question, "What mathematics curricula are effective in promoting learning," implies the use of the discipline of empirical inquiry to answer it. The set of true generalizations which constitutes an adequate answer implies the subfund of knowledge named praxiological educology. It is an empirical question, and its answer is located in the praxiology of education.
3. The question, "What should we do in order to get teachers, students, and parents to accept a new mathematics curriculum in the school program," implies the use of the discipline of empirical inquiry to answer it. The set of true generalizations which constitutes an adequate answer implies the subfund of knowledge named political praxiological educology. It is an empirical question, and its answer is located in the political praxiology of education.
4. The question, "What mathematics curricula have been used in schools in the past," implies the use of the discipline of analytic inquiry to answer it. The set of true generalizations which constitutes an adequate answer implies the subfund of knowledge named historical educology. It is an analytic question, and its answer is located in the history of education.
5. The question, "What mathematics curricula are permissible in law," implies the use of the discipline of analytic inquiry to answer it. The set of true generalizations which constitutes an adequate answer implies the subfund of knowledge named jurisprudential educology. It is an analytic question, and its answer is located in the jurisprudence of education.
6. The question, "What is meant by the concept of mathematics curriculum," implies the use of the discipline of analytic inquiry to answer it. The set of true generalizations which constitutes an adequate answer

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

implies the subfund of knowledge named analytic philosophical educology. It is an analytic question, and its answer is located in the analytic philosophy of education.

7. The question, "What outcomes should we want from a mathematics curriculum," implies the use of the discipline of normative inquiry to answer it. The set of true generalizations which constitutes an adequate answer implies the subfund of knowledge named normative philosophical educology. It is a normative question, and its answer is located in the normative philosophy of education.

8. The question, "How can we know that generalizations about mathematics curricula are true," implies the use of analytic inquiry to answer it. The set of true generalizations which constitutes an adequate answer implies the fund of knowledge named analytic philosophical meta educology. It is an analytic question, and its answer is located outside of educology. Its answer is located in the analytic philosophy of education.

Conventional discourse about education divides education into categories such as early childhood education, primary education, secondary education, special education, art education, and the like. These categories name aspects or features of the field of educational phenomena about which disciplined inquiry can be conducted and about which knowledge can be formed.

DISCIPLINE USED TO CONDUCT INQUIRY ABOUT TEACHING AND STUDENTING	FUND OF KNOWLEDGE ABOUT EDUCATION	ASPECTS OR FEATURES IN THE FIELD OF EDUCATIONAL PHENOMENA (OBJECTS OF KNOWLEDGE)
ANALYTIC DISCIPLINE	EDUCOLOGY	EARLY CHILDHOOD EDUCATION PRIMARY EDUCATION ADULT EDUCATION
EMPIRICAL DISCIPLINE		SECONDARY EDUCATION HIGHER EDUCATION SPECIAL EDUCATION
NORMATIVE DISCIPLINE		CURRICULUM INSTRUCTION SOCIAL SCIENCE EDUCATION ETC.

FIGURE 12.7

Educology as a Fund of Knowledge, its Subdisciplines, and its Objects of Knowledge

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

The same subdisciplines of educology can be used to conduct research and establish knowledge about any subset of phenomena within the field of educational phenomena. For example, the term 'primary education' in one sense means 'the teaching and studenting process of children of a certain age range'. In a second sense, it means 'knowledge about primary education'. This second meaning is intended when a student says that his or her major studies for the bachelor's degree is primary education. It is equivalent in meaning to the 'educology of primary education', and it implies the subfunds of:

- historical educology of primary education
- jurisprudential educology of primary education
- analytic philosophical educology of primary education
- normative philosophical educology of primary education
- scientific educology of primary education
- praxiological educology of primary education
- political praxiological educology of primary education

Moreover, it implies the use of the subdisciplines of analytic, normative, and empirical inquiry.

This same relationship exists between educology and any other aspect or feature of the field of educational phenomena, such as secondary education or art education. (See Figure 12.8.)

A conventional category for discussing education has been the foundations of education. This term usually has been used to mean the history, philosophy, and sociology of education and comparative education.¹⁴ Sometimes it has been intended to include the psychology and anthropology of education. The ambiguity of terms such as 'sociology of education' has already been discussed. Where it is used to mean a subfund of sociology, the term 'sociology of education' is denoting a fund of knowledge that is outside of educology. Where the term is used to mean 'scientific knowledge about the effects of society upon the process of education', it is naming a subfund of scientific educology. Thus, where 'foundations of education' is being used to name funds of knowledge about the effects of education upon other aspects, features, or processes, the foundations of education is outside of educology. Where the term is being used to name knowledge about the effects of society, culture, mental processes, and the like upon the educational process, the foundations of education is a set of subfunds of educology. (See Figure 12.9.)

The foundations concept thus denotes an historical grouping of subfunds of educology, and it conflates three kinds of knowledge about education: analytic, empirical, and normative. The concept also conflates subfunds of knowledge with one of the logical operations that can be used to form knowledge about education, viz., comparison. The foundations of education has historically included comparative education. That term, 'comparative education', has at least two common usage meanings: (1) the teaching and studenting process as it functions in different cultural and national settings; and (2) knowledge about two or more entities in

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

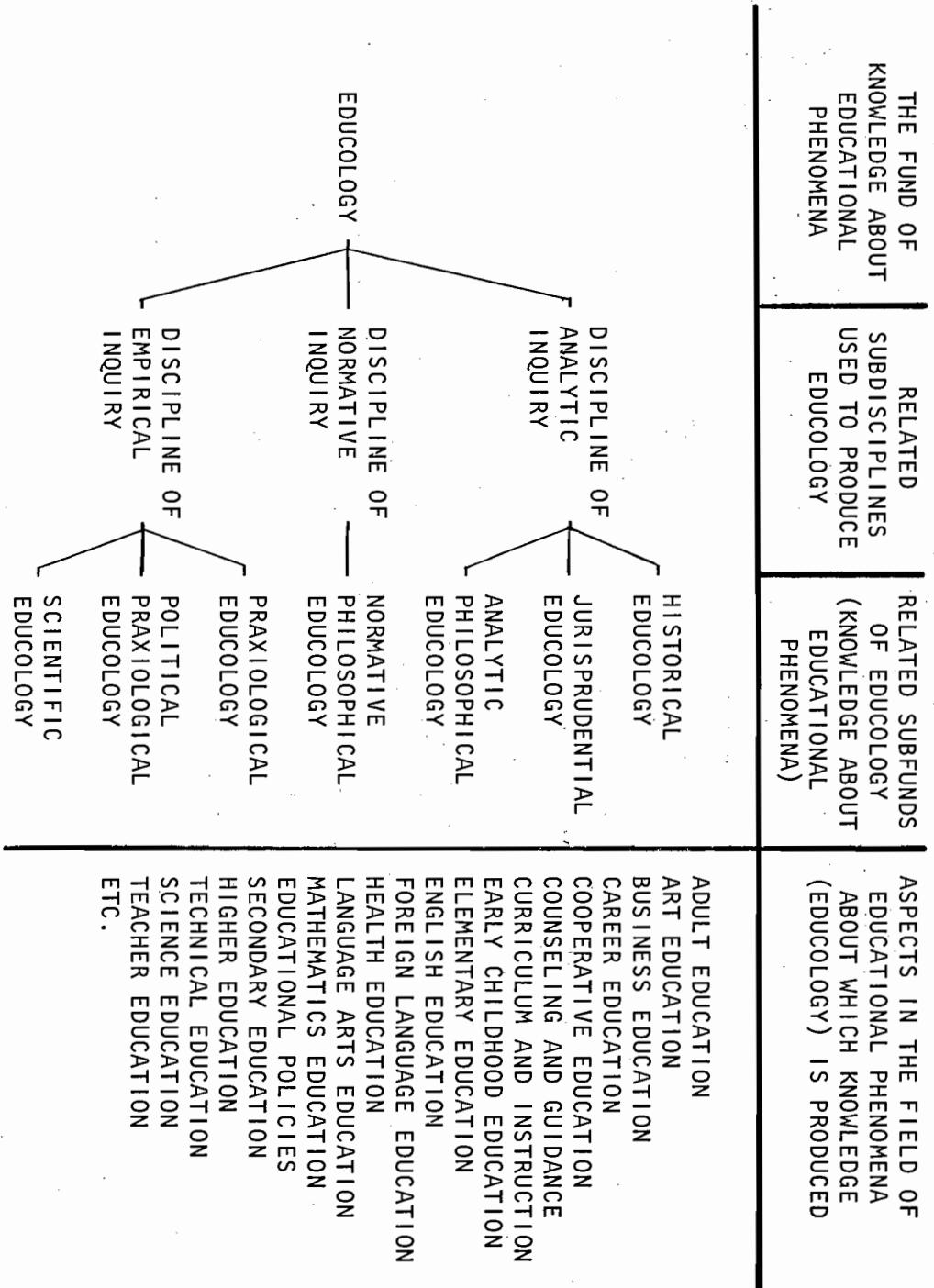


FIGURE 12.8

Educoology as a Fund of Knowledge, its Subdisciplines, its Subfunds, and its Objects of Knowledge

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

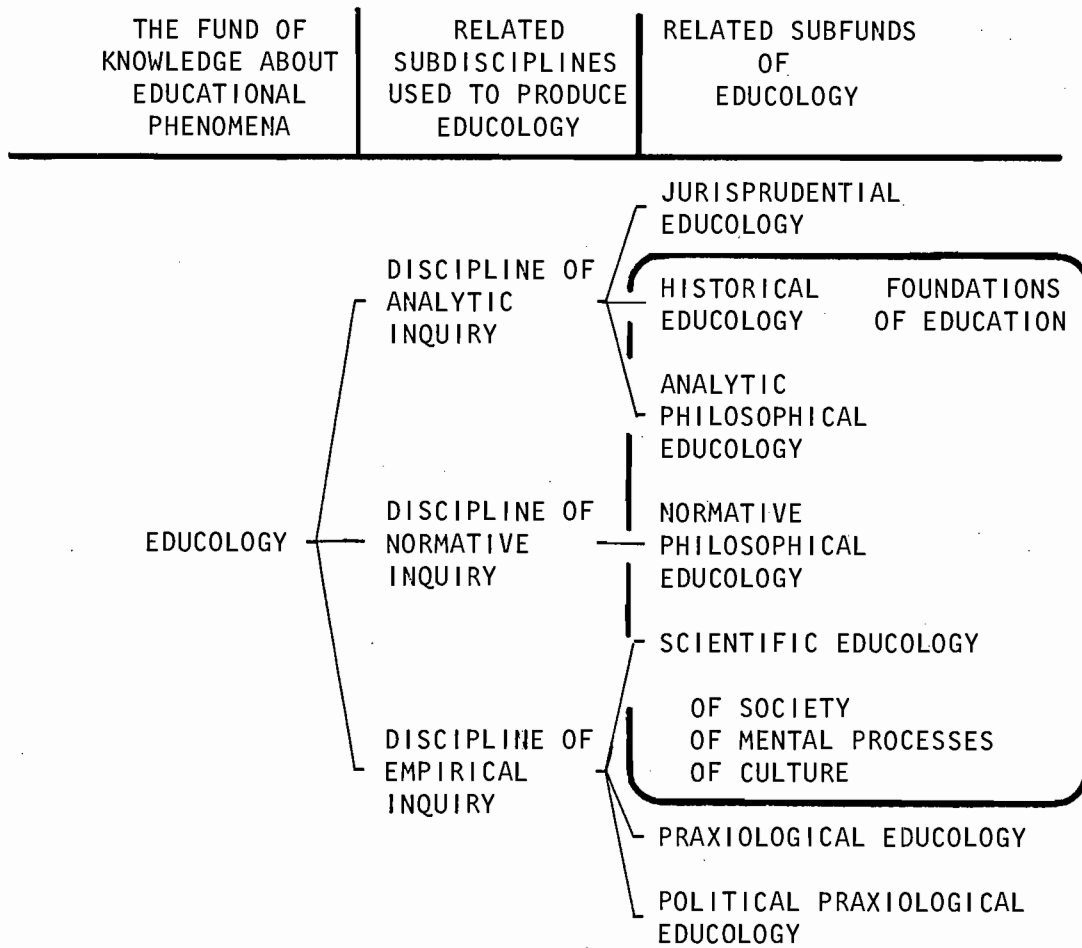


FIGURE 12.9

The Foundations of Education as a Set of Subfunds of Educology

the teaching and studenting process which makes comparisons of these entities. That is, the knowledge characterizes these entities with respect to their similarities and differences. The first sense of comparative education relates closely to the concept of international education. It denotes an aspect or feature of the field of educational phenomena about which knowledge can be produced.

THE FUND OF KNOWLEDGE ABOUT EDUCATION	ASPECTS OR FEATURES OF THE FIELD OF EDUCATIONAL PHENOMENA
EDUCOLOGY	COMPARATIVE EDUCATION AS INTERNATIONAL EDUCATION (TEACHING AND STUDENTING IN DIFFERENT CULTURAL AND NATIONAL SETTINGS)

FIGURE 12.10

Educology and Comparative Education as an Aspect of the Field of Educational Phenomena

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

The second sense of comparative education is encompassed by the concept of the discipline of educology. The rules, logical operations, and procedures that are required to substantiate knowledge claims about the field of educational phenomena constitute the discipline of educology, and comparison is one of the requisite logical operations. Generalization requires that comparisons be made, and educology implies generalizations about educational phenomena. Thus, the second sense of comparative education is implied by the meaning of the concept of the discipline of educology.

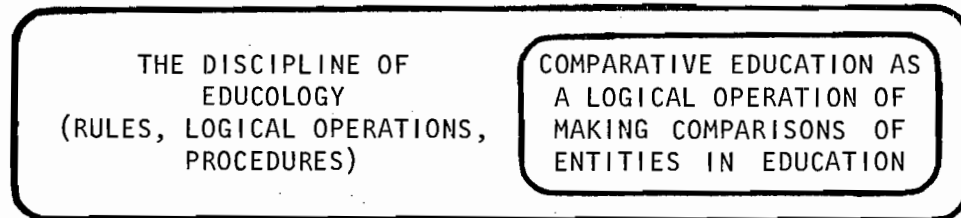


FIGURE 12.11

Educology and Comparative Education as a Logical Operation

ORGANIZATIONAL USES OF THE CONCEPT OF EDUCOLOGY

A school of teacher education within a university does not usually offer all of the course work which a student would undertake to qualify as a professional teacher. The student usually studies chemistry, botany, mathematics, history, and the like outside of the school. Within the school, he usually studies knowledge about some aspect of the teaching and studenting process. The term 'school of teacher education' functions to identify a school of inquiry and knowledge about teaching and studenting. The term means the same as a school of educology. The argument applies to a college of education, a school of education, or a faculty of education within a university. They are organizational units of educology.

A unit of educology (i.e., a college of education, a faculty of education, a school of teacher education, a school of education) provides learning experiences intended to result in understanding of the process of teaching and studenting. It provides education about education. Other units (schools, colleges, departments) within a university provide instruction intended to result in understanding of processes other than the teaching and studenting process, e.g., the processes of osmosis, photosynthesis, demand and supply, or socialization.

The term 'educology' is a suitable name for units (departments, colleges, schools, faculties) whose purpose is to teach and extend knowledge about the field of educational phenomena; and the concept of educology is useful in the quest for solutions to organizational problems in units of educology. Three possible uses, for example, are:

1. Naming and describing courses in an educology curriculum;

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

2. Arranging together families of courses in an educology curriculum;
3. Guiding academic staff in their duties.

1. *NAMING AND DESCRIBING COURSES.* Coherent principles for naming and describing courses in the curriculum of a unit of educology can be derived from the structure of the discipline of educology. Three guidelines suggested by the concept of educology are:

- i. Give the name of educology to all courses in the curriculum which imply knowledge about some aspect or feature of the teaching and studenting process;
- ii. Name the set of subfunds of knowledge about education which are taught in the course;
- iii. Name the phenomena which are inquired and studied about in the course.

A possible general form for writing course titles consistent with the guidelines is:

Educology: [Name the subfunds of educology implied by the course]: [Name the objects of knowledge implied by the course, i.e., the aspect or feature of the field of educational phenomena which is described and characterized in the course].

A possible general form for writing course descriptions consistent with the guidelines is:

A study of [name the objects of knowledge described and characterized in the course] from the perspective of [name the subfunds of educology implied by the course].

An example will help to illustrate how these guidelines and forms can be applied. Consider the following titles and descriptions:

TITLE AND DESCRIPTION FROM AN EXISTING HANDBOOK OF COURSES ¹⁵

Education: Educational Psychology. This subject is applied psychology and teaches the student the psychology of the child in school and its overriding importance in education. Topics covered include: motivation and its importance in the classroom;

TITLE AND DESCRIPTION REWRITTEN IN ACCORDANCE WITH THE GUIDELINES

Educology: Normative Philosophical, Scientific, and Praxiological Educology: Teaching and Studenting of Children. A study of the mental characteristics of children in schools, motivation in the classroom, child development and socialization, groups

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

child development and socialization -- current theories; groups in school and class; psychology and the curriculum; perceptual skills; classroom dynamics and control; measurement and evaluation of learning; problem behavior in class; and the psychology of being a teacher.

in school and classrooms, perceptual skills related to the curriculum, classroom dynamics and control, measurement and evaluation of learning, problem behavior in classrooms, mental and behavioral characteristics of playing the role of teacher from the perspectives of normative philosophical, scientific, and praxiological educology.

DESCRIPTION A

DESCRIPTION B

The course description denoted by description *A* is as it appears in a student handbook and description *B* is a rewrite of the description in accordance with the three guidelines. In *A*, the title indicates the subfund of educational psychology, but it does not state which aspect of the field of educational phenomena is described and characterized. Also, the title malfunctions. That is, the title may be naming a fund of knowledge which is outside of educology, or it may be naming a subfund of educology. Moreover, the title may be naming analytic, empirical, and/or normative knowledge, or it may be naming a selection from the three kinds. The title, then, is ambiguous, and it does not tell enough about the content of the course.

The adequacy of description *A* is compromised because of category mistakes, as well. The description identifies the phenomena to be studied and characterized, but it conflates funds of knowledge with objects of knowledge. For example, in the description, applied psychology (a fund of knowledge) is listed along with socialization and groups in school and class (objects of knowledge).

The elements of the course title and description in *B* are derived from the implications of the language in *A*, and description *B* is more adequate in terms of clarity, explicitness, nonambiguity, and absence of category mistakes. In the title for *B*, the fund of knowledge about education is named: *educology*. The subfunds are named: *normative philosophical, scientific, and praxiological educology*. And the objects of knowledge are listed: *children's mental characteristics, perceptual skills, problem behavior, etc.* Category mistakes in the description, such as conflation of knowledge with objects of knowledge are avoided.

Correct application of the recommended guidelines requires a systematic approach to analyzing (1) the subfunds of knowledge that are implied by a course and (2) the aspects of the field of educational phenomena that are to be described and characterized in a course. A way to achieve this systematic analysis is to ask and answer the following questions:

1. Does the content of the course imply inquiry and

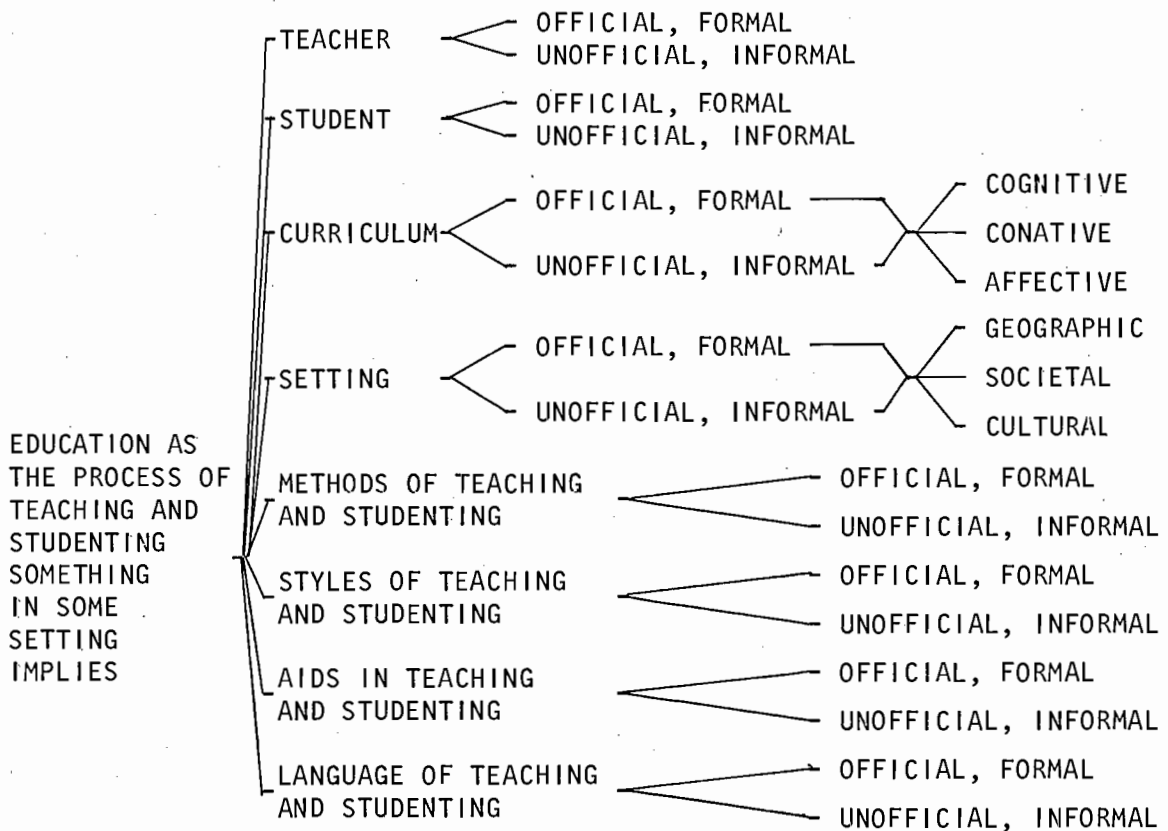
EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

knowledge which treats the educational process as the dependent variable?

2. Does the content of the course imply inquiry and knowledge about one of the following categories?
 - a. Past states of affairs in education
 - b. Legal states of affairs in education
 - c. Meaning of the language of education
 - d. Existing states of affairs in education
 - e. Effective praxis in education
 - f. Effective political and administrative praxis for education
 - g. Good states of affairs in education

3. Does the content of the course imply inquiry and knowledge about one of the following aspects of or features of the field of educational phenomena as an object of knowledge: teacher, student, curriculum, setting, methods, styles, aids, language?

The categories listed in the third question could be extended to include the following:



EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

The first question establishes whether any particular course is an educology course. The second identifies the subfunds of knowledge implied by the course. The third establishes which aspects or features of the field of educational phenomena the course describes and characterizes.

CHARACTERIZATION OF THESE CATEGORIES	IMPLIES	THESE SUBFUNDS OF EDUCOLOGY
Past states of affairs in education		Historical educology
Legal states of affairs in education		Jurisprudential educology
Meaning of the language of education		Analytical philosophical educology
Existing states of affairs in education		Scientific educology
Effective praxis in education		Praxiological educology
Effective political and administrative praxis for education		Political praxiological educology
Good states of affairs in education		Normative philosophical educology
Rules, logical operations and procedures for substantiating knowledge claims about education		Analytic philosophical meta-educology, or analytic philosophy of educology

FIGURE 12.12

Relationships between Categories in the Educational Process and
Subfunds of Educology (i.e., Subfunds of Knowledge about Education)

Several variations are possible in the application of the three recommended guidelines. Suppose there is an institution with a strict registrar who insists on short titles for courses. The titles could be shortened by naming only the subfunds implied by the content of a course. For example, with reference to description *B* just previously discussed, the title,

*Educology: Normative Philosophical, Scientific, and
Praxiological Educology: Teaching and Studenting of
Children,*

becomes

*Educology: Normative Philosophical, Scientific, and
Praxiological Educology.*

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

Alternatively, the course titles can be shortened by naming only the aspects or features of the field of educational phenomena that are described and characterized in the course. For example, the title,

Educology: Normative philosophical, scientific, and Praxiological educology: Teaching and Studenting of Children,

becomes

Educology: Teaching and Studenting of Children.

Possible alternatives, then, are to name educology courses by

1. Subfunds of educology and aspects of education;
2. Subfunds of educology only;
3. Aspects of education only.

Whichever system is used, the mistake to avoid is the conflating of categories, i.e., naming some courses by the aspect or feature of the field of educational phenomena, and naming other courses in the same list by the subfund of educology. This would be much like describing some marbles in a set by their color and other marbles in the same set by their mass:

Marble 1: 10 grams
Marble 2: Red
Marble 3: 12 grams
Marble 4: Blue

The same order of category mistake is made when courses in an educology curriculum are named:

Course 1: School and Society [an aspect]
Course 2: Educational Psychology [a subfund]
Course 3: Art for the Young Child [an aspect]
Course 4: Sociology of Education [a subfund]

The titles of courses in this list are not comparable because they are sorting out on different categories: a subfund of knowledge about education in courses 2 and 4; an aspect of the field of educational phenomena in 1 and 3.

The use of the suggested guidelines would result in course titles and descriptions which were comparable because such category mistakes would be avoided. This would facilitate such decisions as whether to enrol in the course, delete the course from the curriculum, or modify it so that it might be more appropriate. Naming and describing courses in an educology curriculum so that courses are comparable and relationships and differences among them can be established is one practical application of the concept of educology.

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

2. *ARRANGING COURSES INTO FAMILIES.* Often the teaching staff and administrators of an educology curriculum are called upon to arrange courses in the curriculum so that some kind of sequence, coherency, relatedness, or integration is achieved. The concept of educology can be used to help in performing the task of curricular organization. Any system of organization requires a set of critical categories, or set of distinguishing characteristics that can be used to compare, contrast, and sort out one thing from another. The set of categories which are critical in sorting out courses in an educology curriculum are the object, product, logic, techniques, and purposes of the inquiry and knowledge implied by the content of a course. By analyzing the content with respect to these five categories, adequate judgements can be made about what kind of inquiry and knowledge is implied by a course.

i. *Object.* The aspect or feature of the field of educational phenomena which is characterized, or about which generalizations are made, is an object of inquiry and knowledge. Aspects or features can be classified with respect to whether they are existent, effective, or good. They can also be classified with respect to whether they are legal or whether they were existent in the past. These categories can be used in organizing a curriculum by examining a course description, inferring what set of phenomena are implied by the description, and assigning the course to the subfund of knowledge that is implied by the object of knowledge.

ii. *Product.* The product of successful inquiry about some set of objects is sets of generalizations which describe and characterize the objects. Generalizations, if true, are sets of verified statements, and at least three kinds can be distinguished: analytic, normative, and empirical. Thus, the description of the content of a course can be analyzed with respect to whether it implies knowledge claims which require analytic, normative, or empirical inquiry for verification.

iii. *Logic.* Systematic inquiry which leads to substantiation of warranted knowledge claims requires the adherence to some set of standards of verification. At least three sets of standards can be distinguished (analytic, normative, empirical), and these sets can be regarded as the logic of an inquiry, a piece of research, or a knowledge claim. The content of a course can be analyzed with respect to the standards of verification that are implied by the knowledge claims of a course.

iv. *Techniques.* The actual behaviors performed and procedures followed in collecting evidence to support a knowledge claim can be called the techniques of an inquiry. Examples include survey, experimentation, analogy, simulation, location of documents, note taking, classification, definition, explication, model case technique, and the like. Analysis by techniques of inquiry is done by asking what techniques would have to be used to substantiate knowledge claims made in a course, and then assigning the course to the category of knowledge and inquiry that the techniques imply.

v. *Purpose.* The intended outcome of an inquiry can be called its purpose. At least five purposes can be distinguished: description,

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

characterization, explanation, prediction, and prescription. The description of the content of a course can be analyzed in terms of what purposes the knowledge claims of the course serve. (See Figure 12.13.)

The use of these critical categories forms a powerful analytic technique for establishing relationships, similarities, and differences among a set of educology courses. Use of the categories can be demonstrated with a sample analysis of a course description:

Secondary Curriculum: Agriculture I: A general survey of agricultural education in Australia with particular reference to the role of agricultural colleges, secondary schools, universities and extension services and its contribution at secondary level to general and vocational education. Special reference will be made to recent changes in secondary agricultural curricula in Australia, particularly those relating to ecology and management. Comparisons with overseas agricultural education systems will be made to illustrate alternative approaches. A detailed study of the N.S.W. Senior School Studies Syllabus in Agriculture with special attention to those areas which may not have been specifically covered by all students in their undergraduate course in agriculture. Guidelines for teaching agriculture and approaches to teaching specific topics will also be covered.¹⁶

Analysis of this course description shows the following:

a. *Object.* The course description implies inquiry and knowledge about existing phenomena in the educational process, and specifically, existing social arrangements and functions of teaching and studenting knowledge about agriculture within and outside of Australian society.

b. *Product.* The course description implies empirical knowledge claims (i.e., verified empirical statements) which describe, characterize, explain, and compare.

c. *Logic.* The logic of the inquiry and knowledge implied by the description is the principle of observation.

d. *Techniques.* Knowledge claims made in the course imply the use of the techniques of survey, case studies, and participant observation for verification of the claims.

e. *Purpose.* The purposes of the inquiry and knowledge as implied by the course description are des-

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

KIND OF INQUIRY	EMPIRICAL INQUIRY			NORMATIVE INQUIRY	ANALYTIC INQUIRY		
LOGIC OF INQUIRY	PRINCIPLE OF OBSERVATION			PRINCIPLE OF EVALUATION	PRINCIPLE OF DEDUCTION		
PRODUCT OF INQUIRY	VERIFIED EMPIRICAL STATEMENTS			VERIFIED NORMATIVE STATEMENTS	VERIFIED ANALYTIC STATEMENTS		
TECHNIQUES OF INQUIRY	SURVEY, EXPERIMENTATION, QUASI-EXPERIMENTATION, ANALOGY, UNOBTUSIVE MEASURES, CASE STUDIES, PARTICIPANT OBSERVATION, SIMULATIONS			VALUE CLARIFICATION, VALIDATION, VINDICATION	DEFINITION, EXPLICATION, ILLUSTRATION, PROPOSITION, ANALYSIS, CLASSIFICATION, TERM SUBSTITUTION		
OBJECTS OF INQUIRY	EXISTING EDUCATIONAL PHENOMENA	EFFECTIVE EDUCATIONAL PRACTICES	EFFECTIVE ADMINISTRATIVE AND GOVERNANCE PRACTICES FOR EDUCATION	GOOD STATES OF AFFAIRS IN EDUCATION	IMPLICATIONS OF THE LANGUAGE OF EDUCATION		
PURPOSE OF INQUIRY	DESCRIPTION EXPLANATION CHARACTERIZATION PREDICTION OF EDUCATIONAL PHENOMENA	DESCRIPTION EXPLANATION CHARACTERIZATION PRESCRIPTION OF EFFECTIVE EDUCATIONAL PRACTICES	DESCRIPTION EXPLANATION CHARACTERIZATION PRESCRIPTION OF EFFECTIVE ADMINISTRATIVE PRACTICES FOR EDUCATION	DESCRIPTION EXPLANATION CHARACTERIZATION PRESCRIPTION OF GOOD STATES OF AFFAIRS IN EDUCATION	DESCRIPTION, CHARACTERIZATION, EXPLANATION OF THE LANGUAGE OF EDUCATION		
					ALL LANGUAGE OF EDUCATION	LANGUAGE OF PAST EDUCATION	LEGAL LANGUAGE REGULATING EDUCATION
SUBFUNDS OF EDUCOLOGY	SCIENTIFIC EDUCOLOGY	PRAXIOLOGICAL EDUCOLOGY	POLITICAL PRAXIOLOGICAL EDUCOLOGY	NORMATIVE PHILOSOPHICAL EDUCOLOGY	ANALYTIC PHILOSOPHICAL EDUCOLOGY	HISTORICAL EDUCOLOGY	JURISPRUDENTIAL EDUCOLOGY
	EMPIRICAL EDUCOLOGY						
SUBDISCIPLINES OF EDUCOLOGY	EMPIRICAL EDUCOLOGY						

FIGURE 12.13
Critical Categories for Analysis and Classification of an Educology Curriculum

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

cription, characterization, explanation, and comparison.

Use of the five critical categories indicates that the description of the course implies empirical inquiry as the subdiscipline of the course, scientific educology as the subfund of educology, and curriculum (agriculture) and setting (schools, colleges, universities, Australian and other societies) as the particular aspects of the field of educational phenomena that are characterized in the course. It is a course in scientific educology. It characterizes the teaching and studenting of agriculture within institutional settings (e.g., schools, colleges, universities) and within selected social and cultural settings (e.g., Australia). The following is a summary of the results of a similar analysis of thirty course descriptions from the handbook of a school of teacher education.¹⁷ (See Figure 12.14.)

This type of analysis shows the courses in an educology curriculum which share the same subdiscipline (i.e., the discipline of analytic, empirical or normative inquiry) and which are part of the same subfund of educology (e.g., historical educology, scientific educology). For example, in the analysis (See Figure 12.14), apparently unrelated courses such as,

Basic Issues in Education
Principles of Secondary Education
Traditions in Western Education
School Counselling and Guidance
Children's Literature
Foundations of Physical Education

are indeed related through a common subdiscipline (that of analytic inquiry) and membership in a common subfund of educology (historical educology). This analysis can be extended by examining the descriptions of courses in terms of the objects of knowledge that are implied. At least nine categories of aspects or features can be distinguished:

teacher
student
curriculum for teaching and studenting
setting for teaching and studenting
methods of teaching and studenting
styles of teaching and studenting
aids for teaching and studenting
language of teaching and studenting
rules, logical operations, and procedures for
substantiating knowledge claims about teaching and studenting

Using the previous list of courses that have been analyzed in terms of subfunds and subdisciplines of educology, they will now be analyzed in terms of objects of knowledge. (See Figure 12.15.)

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

FIGURE 12.14
 Analysis of an Educology Curriculum

Course Titles in an Educology Curriculum	Kind of inquiry			
	Analytic philosophical educology Historical educology Jurisprudential educology	Analytic educology	Normative philosophical educology Political praxiological educology Praxiological educology Scientific educology	Normative Empirical educology
Secondary Curriculum: Agriculture I				X
Secondary Curriculum: Agriculture II				X X
Art for the Young Child				X X
Development Studies in Art Education			X	X X
Consumer Education			X X	X X
School Organization and Leadership			X	
Functional Management of Schools			X	
Basic Issues in Education	X X		X	X
Curriculum and Teaching Practice			X	X X
Mathematics and Science Education			X	X
Educational Technology			X	X
Educational Psychology			X	X X
Curriculum Theory and Practice			X	X
Education of the Exceptional Child				X
Principles of Secondary Education	X		X	X
Introduction to Comparative Education				X
Traditions in Western Education	X			
School Counselling and Guidance	X			X
Migrant Education				X
Child Development				X
Film and Video Production				X
Measurement and Evaluation			X	
Research and the Teacher				X
Applied Tests and Measurements				X
Language Arts				X X
Children's Literature	X		X	X
Programming Mathematics: Primary Sch			X	X
Comparative Studies in Mathematics Ed				X
Foundations of Physical Education	X		X	X
Fundamentals of Body Dynamics				X

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

FIGURE 12.15
 Analysis of an Educology Curriculum in Terms of Objects of Knowledge

Course Titles From an Educology Curriculum	Teacher (characteristics, roles)	Student (characteristics, roles)	Curriculum for teaching and studenting	Settings for teaching and studenting	Methods of teaching and studenting	Styles of teaching and studenting	Aids for teaching and studenting	Language of teaching and studenting	Rules, logical operations, procedures for substantiating knowledge claims about education
Secondary Curriculum: Agriculture I		X	X						
Secondary Curriculum: Agriculture II		X	X						
Art for the Young Child		X	X						
Development Studies in Art Education			X						
Consumer Education			X						
School Organization and Leadership				X					
Functional Management of Schools				X					
Basic Issues in Education				X					
Curriculum and Teaching Practice	X		X		X				
Mathematics and Science Education			X						
Educational Technology									
Educational Psychology	X	X	X	X	X	X	X	X	
Curriculum Theory and Practice			X						
Education of the Exceptional Child		X							
Principles of Secondary Education		X							
Introduction to Comparative Education				X					
Traditions in Western Education				X					
School Counselling and Guidance	X				X				
Migrant Education		X							
Child Development		X							
Film and Video Production							X		
Measurement and Evaluation					X		X		
Research and the Teacher	X								X
Applied Tests and Measurements					X		X		
Language Arts			X						
Children's Literature							X		
Programming Mathematics: Primary School			X		X				
Comparative Studies in Mathematics Educ			X						
Foundations of Physical Education			X						
Fundamentals of Body Dynamics			X						

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

This second analysis (Figure 12.15) shows relationships among courses with respect to whether the knowledge offered in courses describes and characterizes the same class of features in the field of educational phenomena. For example, the courses

Secondary Curriculum: Agriculture
Principles of Secondary Education
Migrant Education
Education of the Exceptional Child

are related in that the description of each implies characterization of the educational process in terms of categories of students (secondary, migrant, exceptional). (See Figure 12.15.)

In summation, the concept of educology implies a structure which can be used in the practical task of organizing educology courses into a coherent curricular system. Relating any course to the structure requires that the description of the course be analyzed in terms of the five critical categories: object, product, purpose, techniques, logic. Such analysis permits classification of the course with respect to its implied subdisciplines of educology, subfunds of educology, and categories of aspects of the educational process that are characterized. The benefits of this classification are that it reveals whether

- a. The curriculum of a unit (school, college, faculty, department) of educology is weighted evenly or unevenly in relation to any one particular kind of the three kinds of inquiry about education;
- b. The curriculum is weighted evenly or unevenly with respect to the seven subfunds of educology;
- c. The curriculum is demanding more or less than what the staff can deliver in terms of knowledge and expertise;
- d. The curriculum is consistent with the purposes that a unit of educology has undertaken to achieve.

3. *GUIDING ACADEMIC STAFF*. One important means of guiding staff is to organize them into units (i.e., centers, departments, divisions, colleges, schools, faculties, councils, boards) so that they can work together towards a set of common purposes. The names of organizational units function as concepts from which staff infer what their roles should be. As with the organization of courses in an educology curriculum, so it is with the organization of an educology staff: the arrangement of both requires a set of critical categories, or a set of distinguishing characteristics which can be used to compare, contrast, and sort out individuals into groups. The set of critical categories which were used

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

to analyze and group educology courses can also be used to organize educology staff and name organizational units in a school, college, or faculty of educology.

3.1. *Object.* Suppose that the staff were organized by using only the critical category of object of knowledge. The result would be organizational units named by the set of aspects or features about which staff were to teach and research. A list of such units would be similar to the following:

The unit (department, area, division, etc.) of

- art education
- business education
- career education
- curriculum and instruction
- elementary education
- early childhood education
- secondary education
- special education
- music education
- etc.

Such a list can become lengthy because an enormous number of subsets of phenomena within the field of educational phenomena can be chosen for study. Therefore, a system of staff organization based upon the criterion of object of knowledge will produce a prodigious inventory of units. However, the same discipline is implied throughout (the discipline necessary to produce educology), and also the same subdisciplines (those necessary for conducting analytic, empirical, and normative inquiry). So, while groups of staff might differ in relation to particular sets of objects within the field of educational phenomena that they inquired and taught about under such an organizational system, an inter-unit similarity would exist from the implication that all staff shared a common discipline and concern for contributing to a common fund of knowledge (i.e., educology). In this organizational system, units with names such as "Foundations of Education," "Educational Psychology," "History of Education," "Sociology of Education," and "Philosophy of Education" would never appear. These terms, if used in the sense of knowledge about education, name subfunds of knowledge about education and imply particular subdisciplines. The organizational criterion of object of knowledge excludes the formation of groups of staff on the basis of subdisciplines and subfunds of educology.

3.2. *Product.* Suppose that staff were organized by using only the category of product of inquiry. The product of inquiry about education is knowledge claims about education., and at least three kinds of claims are possible: analytic, normative, empirical. Thus, at least three organizational units are implied:

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

The unit (department, area, division, etc.) of

Analytic knowledge about education
Normative knowledge about education
Empirical knowledge about education

This list of units would have the same meaning if the following substitutions were made:

Analytic philosophical, historical,
and jurisprudential educology [for
analytic knowledge about education]
Normative philosophical educology [for
normative knowledge about education]
Scientific, praxiological, and political
praxiological educology [for empirical
knowledge about education]

And the names of the units would have the same meaning if they were changed to:

Analytic philosophy of education,
history of education, and jurisprudence
of education
Normative philosophy of education
Science of education, praxiology of
education, and political praxiology
of education

Use of the criterion of product of inquiry divides organizational units along disciplinary lines and along lines of subfunds of knowledge about education.

3.3. *Logic.* Using the logic of inquiry (i.e., the principle of verification) produces the same categories for organization as the criterion of product of inquiry because a knowledge claim (i.e., a product of inquiry) is distinguishable by the set of rules and logical operations that we use to substantiate and confirm it. The three kinds of knowledge implied by educology are distinguishable with respect to the standards of verification for each of the three kinds.

3.4. *Purpose.* Consideration of purposes of inquiry and knowledge about education relates to arrangements of staff into units based upon disciplines of educology and subfunds of educology. The discipline of analytic inquiry about education relates to at least three sets of purposes. (See the previous discussion on purposes of inquiry about education and Figure 12.13.) The three sets relate to three analytic subfunds of educology: analytic philosophical, historical, and jurisprudential educology. Normative inquiry about education implies one set of

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

purposes, and that set implies the subfund of normative philosophical educology. The subdiscipline of empirical inquiry about education implies at least three sets of purposes, and those sets imply the subfunds of scientific, praxiological, and political praxiological educology. A possible structure for staff arranged in accordance with the criterion of purpose of inquiry would be:

The unit (department, area, division, etc.) of

- analytic philosophical educology
- historical educology
- jurisprudential educology
- normative philosophical educology
- scientific educology
- praxiological educology
- political praxiological educology

3.5. *Technique*. Application of the technique of inquiry distinguishes among subdisciplines of educology. Thus the organizational units that would be related to the criterion of technique of inquiry are identical with the units distinguishable with reference to subdisciplines. Structures that are implied by techniques of inquiry are units (departments, areas, divisions, etc.) of:

- analytic inquiry about education
- normative inquiry about education
- empirical inquiry about education

In summary, application of the concepts of object, product, logic, purpose, and technique of inquiry about education as criteria for developing a system of staff organization will result in the creation of organizational units named by either (1) objects of knowledge in education, i.e., aspects or features of the field of educational phenomena, (2) subdisciplines of educology, or (3) subfunds of educology.

In all of these organizational alternatives, units named "Educational Foundations," "Historical, Sociological, and Philosophical Foundations," and "Comparative Education" will never appear. Educational foundations as a set of subfunds of knowledge about education is implied by educology, but educology implies more than just that set. Educational foundations implies an historical arrangement of subfunds of education without reference to the object, product, logic, purpose, or technique of inquiry that are related to the subfunds. And the concept of educational foundations conflates subfunds of knowledge about education with a logical operation used in producing knowledge about education (viz., comparison). This category mistake is avoided by using the criteria for organization discussed above.

4. *CHANGE AND STABILITY*. It is a fact of institutional behavior

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

that once people are arranged in a particular way of which they approve and value (or are simply familiar with and accustomed to), they will usually strive to maintain and expand that arrangement. This pattern of self-protection and perpetuation has been named the preservation function of an organization. Yet, for the institution to remain faithful to its primary purposes, it often must change to effectively and efficiently cope with new conditions of its social environment. Also, an educational institution must keep itself flexible and dynamic in order to develop new theory and knowledge about education. These pressures and necessities for an educational institution to adjust to new circumstances, to experiment, and to innovate have been called the change function of the institution.¹⁸

The sociological theory of change and preservation functions in an educational institution can be related to educology as an organizational concept. Administrative decisions within educational institutions in general, and within units (schools, colleges, faculties, departments, areas, divisions, centers, etc.) of educology in particular, can be sorted into at least three categories: (1) personnel, (2) curricular, and (3) research decisions. Personnel decisions involve selection of criteria and nomination of persons for employment, promotion, teaching assignments, committee membership, and the like. Curricular decisions involve problems such as questions of which programs to develop, what courses to offer, when to schedule them, what courses to modify or delete. Research decisions relate to such matters as which projects to fund, what kinds of research to emphasize, and whether to coordinate research interests and efforts.

Of the three categories of decisions, it would be most important to assure that the change function operated effectively in the curricular and research decision making processes and the preservation function operated in the domain of personnel decisions. It would be in the development of educology curricula and research that innovation, experimentation, and dynamic response to the social environment would be imperative to improve upon course structures and add to the body of knowledge about education. On the other hand, decisions about whether to hire, retain, promote, reassign, and dismiss teaching and academic staff require considerations of tenure, morale, humaneness, and action by professional associations. It is a process which is much less amenable to change than curricular revision and research orientation.

All of this suggests that a unit of educology, whether it be a school, college, faculty, department, or the like, should have a multiplicity of administrative structures which are based upon an integration of the stable and dynamic features of educology with the natural institutional forces for preservation and change. One possible system of organization is that of creating a set of units to coordinate curriculum development, another to orient research, and a third to supervise and develop staff. The first two would be named by the sets of aspects or features of the educational process. The third would be named by the subdisciplines of the discipline of educology. For example, within a school or college of educology,

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

there could be a set of units (e.g., committees, task forces, centers) of:

- art education
- business education
- career education
- consumer education
- early childhood education
- etc.

The number of these units would vary as interest and support dictated. The functions of these units would be to make curricular decisions (such as decide upon the titles and descriptions of a set of educology courses), articulate an overall rationale which relates such courses to a program, choose whether to delete or modify existing courses. To assure that these units faithfully served the necessary function of change, innovation, and pursuit of improvement, it might be preferable to create them on an *ad hoc*, temporary basis. The task force concept is especially appropriate for these organizational units. This concept implies that a particular goal be established (e.g., creation of an educology curriculum for preparation of primary school teachers) and that the group (i.e., the task force) be disbanded upon completion of the task.

For coordination of research projects in a school, college, or faculty of educology, the same organizational concepts are applicable. A set of units called research units (committees, task forces, centers, etc.) could be created on an *ad hoc* basis. They would be named by the object of knowledge, and their purpose would be to produce new theory and knowledge about aspects or features in the field of educational phenomena. The research units, like the curriculum units, would vary as interest and support dictated.

In contrast to units organized on the basis of objects of knowledge, a third set of units could be formed on the basis of subdisciplines of educology. Their function would be to supervise, regulate, evaluate, and develop academic or teaching staff. For example, with a school, college, or faculty of educology, there could be a set of units (divisions, departments, areas, etc.) of:

- analytic inquiry about education
- normative inquiry about education
- empirical inquiry about education.

Alternatively, these units might be named units of

- historical, jurisprudential, and
analytic philosophical educology

- normative philosophical educology

- scientific, praxiological, and
political praxiological educology.

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

This set of units should remain constant in number. They would be permanent organizational divisions. Members of these units would teach the educology courses which the curriculum units (i.e., the committees, task forces, etc.) had created. It would be desirable, of course, to include members from all subdisciplinary units on any curriculum unit, and also to include them in any research unit. This arrangement would assure a balanced curriculum and a balanced research program.

There have been schools, colleges, and faculties of educology within existing institutions which have already applied to their organization some of the implications of the educology concept (but without being aware of the concept or the term 'educology'). For example, some institutions have had boards of study whose purposes included making curricular decisions, and these boards bore names such as "The Early Childhood Education Board," "The Secondary Education Board," and "The Primary Education Board."¹⁹ Other universities have had centers for research and higher degrees with the names, "Center for Communication and Media," "Center for Curriculum," "Center for Innovation," and "Center for Teaching Human Interaction."²⁰ Some have had academic divisions and departments which suggest organization along the lines of subdisciplines of educology, for example, organizational units named "Division of Value and Policy Studies," "Division of Experimental Studies," and "Division of Curriculum Studies."²¹ A unit of value and policy studies suggests normative inquiry about education, but it does not necessarily imply that empirical and analytic inquiry about values and policies are excluded. Experimental studies suggest empirical inquiry about education, but does not distinguish among scientific, praxiological, and political praxiological educology. And curriculum studies suggest praxiological educology, but they do not exclude analytic and normative inquiry about education.

SUMMARY

What has been argued here is that the term 'educology' names knowledge about education. One category of knowledge that is possible to distinguish is quantitative knowledge. It can be classified with respect to the particular aspects or features of the field of educational phenomena which it describes and characterizes. Such categories are subfunds of educology. It can also be categorized with respect to the rules, logical operations, and procedures that are used to substantiate it. Such categories are kinds of quantitative knowledge about education, and the sets or rules that are used to substantiate the knowledge are the subdisciplines of educology.

These distinctions of (1) aspects or features in the field of educational phenomena, (2) subfunds of educology, (3) kinds of educology, and (4) subdisciplines of educology can be used in making decisions about course titles and descriptions, curricular arrangements, and organization of staff in schools, colleges, and faculties of educology. Use of these distinctions reduces the probability of category mistakes. Also, their use increases the likelihood of an arrangement of staff and curriculum

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

which has coherency and flexibility, without ambiguity or evasiveness. Finally, use of these distinctions is likely to produce an organization which makes sense to those whom it arranges and which contributes to cooperative effort towards the worthwhile goal of extending knowledge about education.

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

FOOTNOTES

1. The term 'studenting' is used here in the sense of intentionally trying to learn something under the guidance of someone else (but not necessarily succeeding in the attempt). It is being used in place of learning in order to make possible the distinction between successful and unsuccessful education. Elizabeth Steiner also uses this term (see her chapters in this volume), and this usage follows hers.
2. In an earlier work ("An Organizational Theory for Schools of Teacher Education and Faculties of Education," *The Australian Journal of Education*, Vol. 22, No. 1 (1978), pp. 52-71), we used 'educology' in the sense of 'studies about education'. The concept of educology and the argument that we set forth in this chapter is an extension of our previous work, and it hopefully corrects the mistakes made in that previous work.
3. The distinction of quantitative knowledge was made by Elizabeth Steiner. (See her chapters in this volume.) The categories of performative and qualitative knowledge are not treated in this discussion.
4. By 'standard of verification', we intend the set of principles that are used to substantiate a knowledge claim. At least three can be distinguished: the principle of observation; the principle of deduction (necessity reasoning); the principle of evaluation (evaluative reasoning). For an extensive explication of these standards, see J.E. Christensen and J.E. Fisher, *Analytic Philosophy of Education as a Subdiscipline of Educology*, Washington, D.C.: University Press of America, 1979, Chapter 1.
5. For an explication of the concept of praxiology, see James F. Perry's chapter in this volume, and also see Tadeus Kotarbiński, *Praxiology: An Introduction to the Sciences of Efficient Action*, translated from the Polish by Olgierd Wojtasiewicz, Oxford: Pergamon Press, 1965.
6. The sense of 'knowledge' intended in this definition is quantitative knowledge, i.e., true statements.
7. See, for example, John Dewey, *Democracy and Education*, 1916; Ernest E. Bayles, *Pragmatism in Education*, New York: Harper and Row, 1966; John D. Butler, *Idealism in Education*, New York: Harper and Row, 1966.
8. See Gilbert Ryle, *The Concept of Mind*, New York: Barnes and Noble, 1949; Israel Scheffler, *The Language of Education*, Springfield, Ill.: Charles C. Thomas, 1960; B.O. Smith and R.H. Ennis, *Language and Concepts in Education*, Chicago: Rand McNally and Co., 1961; John Gribble, *Introduction to Philosophy of Education*, Boston: Allyn and Bacon, Inc., 1969.

EDUCOLOGY AS AN ORGANIZATIONAL CONCEPT

9. This term, 'analytic philosophy of educology', and its conception are derivative of the work of Elizabeth Steiner. See her chapter, "The Nonidentity of Philosophy and Theory of Education," in *Readings in the Philosophy of Education*, 2nd edition, edited by John Martin Rich, Belmont, California: Wadsworth Publishing Co., 1972. However, Steiner uses the term 'philosophy of educology' rather than 'analytic philosophy of educology'. This second term is used here to add clarity to the explication.
10. This follows to some extent Elizabeth Steiner's use of the term 'meta-educology', although she includes more in this concept than philosophy of educology.
11. See for example Jeanne Pietig, "Is Foundations of Education a Discipline?" in *Educational Studies*, Vol. 6, No. 1/2 (1975), pp. 1-2.
12. *Ibid.*
13. These subfunds of scientific educology are distinguishable with respect to the object of knowledge, i.e., the aspect or feature in the field of educational phenomena which can be characterized by knowledge. Also, these categories are possible if, and only if, education is being treated as the dependent variable in these subfunds. Otherwise, they are subfunds of other funds of knowledge (e.g., sociology, anthropology, psychology, etc.).
14. See for example, "Report of the Task Force on Academic Standards: Guidelines for Professional Academic Instruction in Foundations of Education, Educational Studies, and Educational Policy Studies," in *the American Educational Studies Association Newsletter*, Vol. 3, No. 3 (1977), pp. 2-6.
15. Riverina College of Advanced Education, *R.C.A.E. Handbook, 1976*, Wagga Wagga N.S.W.: R.C.A.E., 1976, p. 131.
16. *Ibid.*, p. 95.
17. *Ibid.*
18. See, for example, Robert Howsam, "The Governance of Teacher Education," *ERIC Clearinghouse on Teacher Education*, 1972, Document No. ED 062-270.
19. The School of Teacher Education of the Riverina College of Advanced Education, Wagga Wagga, N.S.W. (Australia), had this administrative structure in 1976.
20. The School of Education at La Trobe University, Melbourne, Victoria (Australia), had this structure in 1976.
21. The School of Education at Flinders University, near Adelaide, S.A., had this organization in 1976.