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Two conflicting views on curriculum content and an alternative

Han, Seung-Hee, Ph.D.
The Ohio State University, 1989
TWO CONFLICTING VIEWS ON CURRICULUM CONTENT
AND AN ALTERNATIVE

DISSERTATION

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

By
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* * * * *

The Ohio State University
1989

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Elsie J. Alberty, Adviser
College of Education
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DEDICATION

To My Mother
ACKNOWLEDGEMENT

I should like to express sincere gratitude to my major advisor, Dr. Elsie J. Alberty, for her invaluable advice and guidance throughout the entire doctoral program. I also want to thank Dr. Beverly M. Gordon and Dr. Judith L. Green, who have made many suggestions and support in the refinement of the study. To my wife, I offer sincere thanks for your unshakable faith in me and your love.
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Chapter I

Problem Statement

1.1 Introduction

The question of what should constitute the curriculum content to be taught in the school has long been the fundamental within the field of curriculum. This study basically is concerned with this fundamental question. In fact, although most curriculum theories never suggest ways to unite the field, they employ the question in common as the nature of curriculum. When we accept the question to be fundamental, some basic questions, such as "what knowledge is most worthwhile?", "why is it worthwhile?", and "how is it acquired and created?" follow. Without direct consideration of what is worthwhile to know, and its correlates of why and how, all curriculum activities are devoid of defensible meaning, purpose and direction.

In this study, it is assumed that there are contrasting views on curriculum content. By curriculum content, I refer to what should constitute the content to be taught. This study attempts to identify the contrasting viewpoints of curriculum content explicitly or implicitly embedded in curriculum theories and to suggest an alternative as a reconceptualization of two opposing views. This will be done
by examining the two major opposing views on curriculum content critically and by trying to reconceptualize them using meta-theoretic methodology.

Here, the purpose, problems, methodology and limitations of the study are presented. In addition, a brief review of the state of recent curriculum field will be presented in order to give a better understanding of diversity and complexity of curriculum field.

1.2 Present State of the field

Since 1970s, many curriculum scholars have diagnosed the field of curriculum with regard to both theory and practice and suggested appropriate prescriptions for symptoms. Schwab(1969) first declared the field to be:

moribund, unable by its present methods and principles to continue its work and desperately in search of new and more effective principles and methods(p.1).

Huebner(1976) confirmed Schwab's diagnosis of the field and called for its wake:

Let us acknowledge its demise, gather at the wake, celebrate joyously what our forebears made possible.... and then disperse to our work, because we are no longer members of one household(p.154).

He suggests that the term "curriculum no longer serves to unify us"(p.155). Pinar(1978a) also acknowledged that the field had been declared "terminally ill or already deceased"(p.206). Pinar(1978b) describes the field as
"fragmented and in a state of arrest" (p.8), thus implying that there is still some hope. However, Huebner (1976) disagrees by saying that "there can be no renascence, because the field no longer has unity of integrity" (p.165).

However, there are theorists who disagree with the concept of viewing the curriculum field as dead. For example, Jackson (1980) disagrees with the term "field" when discussing curriculum. Not only is there no "field" but it is incorrect to talk of its "moribundity" (p.370). He believes that those who describe the field as dead are merely "discontented" and need to address the subject dramatically in order to be heard.

Whether or not one accepts the notion of the death within curriculum field, there exist many contrasting or competing theories of curriculum. Several authors have provided categories or classification of the field of curriculum along theoretical lines in order to compare and contrast the various theories of curriculum. For example, Macdonald (1976a) divides curriculum theories into three groups: control, hermeneutic, and critical.

The first group mainly attempts to provide "conceptual system which will increase the efficiency and effectiveness of the educational process" (p.1). People in this group regard a curriculum theory as "a guiding framework for applied curriculum development and research and as a tool for evaluation of curriculum development" (p.5). Based on the
Tyler Rationale (Tyler, 1949), this group suggests that curriculum planners assess society, the culture, and the needs of the individual in order to determine curriculum goals. Once these goals are determined, they are screened through one's philosophy of education and theory of learning. The resulting objectives are stated in behavioral terms in order to facilitate effectiveness and efficiency of instructing. Macdonald (1976a) includes Goodlad and Richter (1966), Duncan and Frymier (1967), Saylor and Alexander (1974), and so on as control theorists.

The second group, attempting to "broaden our understanding of the meaning of being human and relate this to curricular concerns" (p. 3), opposes the scientific rational approach. These theorists concern themselves with new way of conceptualizing and interpreting the human condition. Macdonald (1976a) includes Huebner (1975), Greene (1975), Pinar (1975), and Klohr (1968) in this hermeneutic group.

The third group, the critical theorists, attempts to address the control and hermeneutic theories. Macdonald (1976a) describes:

critical theory attempts to place its cultural understanding and its technical and scientific knowledge in the perspective of the historical, economic, political and cultural circumstances, and to complete the cycle by testing out the evolving consciousness in practice (p. 4).
The central focus is on the interaction between theory and practice. Macdonald (1977) includes Apple (1975), Mann (1968), and Jackson (1981) in this group. Macdonald (1975) further suggests that curriculum theory can also be analyzed by examining the types of theoretical statements generated by theorists. Three categories of such statements are suggested by him: **epistemological statement**, **ontological statement**, and **axiiological statement**.

The epistemological statement is concerned with knowledge or epistemology. Macdonald (1975) includes Bruner (1960), Schwab (1969), and Phenix (1962) in this group. These statements are concerned with the structure of knowledge, what knowledge should be taught, the source of knowledge, the nature of knowledge, and the symbols of communication of knowledge. Criticism of this group lies in the limited scope of this area and lack of social relevance and human qualities.

The second type of statements (ontological) is concerned with the social, cultural and personal realities of existences. The focal point of curriculum in this group would be the fundamental realities of being. Macdonald (1975) includes himself along with Mann (1968), Apple (1975), and Goodlad and Richter (1966) in this group. Huebner (1975) criticizes this group for not adequately dealing with the ethical, aesthetic and value questing as they regard curriculum development.
The third group, axiological statement, focuses on value statement and curriculum design. This group views curriculum design as a matter of making value judgement. In this group, curriculum is an attempt to prescribe and legitimatize a pattern of experience as desirable.

Kliebard(1977) provides another way to explore curriculum theories. He raises three questions to consider with regard to the theory in the field of curriculum. These questions are:

1. What domain does a curriculum theory cover?
2. What forms does curriculum theory take?
3. What is a good example of curriculum theory(p.258)?

Then, Kliebard suggests that when answering these questions, the theories ultimately has to be concerned with following essential questions:

1. What should be taught?
2. To whom should it be taught?
3. What are the effects of the teaching?
4. What is the relationship of the various components of curriculum(p.258)?

Kliebard(1977) suggests Dewey's theory as a "for instance" of a curriculum theory. He describes this theory as an appropriate representative of a theory that deals with the "what", the "whom", and the "effect of teaching". Dewey saw the child developing in the same way as does a society. The child's intellectual development parallels the development of a civilization in achieving knowledge. Kliebard(1972) also suggests that curriculum theory should be a lens for viewing the curriculum process(in particular
the design of curriculum). He suggests three lenses or metaphors that have historically been used to view curriculum: production, growth, and travel.

The production metaphor views curriculum in terms of industrial production. The school is a means for producing citizens out of the raw materials. A predetermined notion is held of what that material should resemble when finished. The process of obtaining that predetermined finished product is also decided by the planners. Those areas of the instructional process that prove to be ineffective or in efficient are discarded and new, better means of production are sought. All potential of the raw materials is utilized, in the name of efficiency.

The metaphor of growth views the curriculum as a greenhouse in which students are seen as young plants. If the students are given the proper care by the gardener (teacher), they will grow and blossom. All plants are provided for with respect to their individual needs as determined by the gardener. However, no attempt is made to grow the planned to anyone's specific design for the finished plant. The plant is encouraged to develop to its own potential and wishes.

Travel, the last of Kliebard's metaphor, views curriculum in terms of journey. The student is seen as on a journey. The teacher is a learned guide and companion on this journey. Each traveler has input into the direction he
desires to take, and the result is a combination of the student's desires and teacher's guidance. Curriculum is seen as a road map for this journey into education.

Huenecke (1982) also provides three categories for analyzing curriculum theory. She takes the approach of pointing out the major differences and concerns of various attempts at curriculum theorizing. Three types of theorizing are examined: structural, substantive, and generic.

According to Huenecke, structural theorizing is the most nearly established type. This group includes Goodlad (1966), Saylor and Alexander (1974), Taba (1962), Tanner and Tanner (1980), and Beuchamp (1975). The concentration of this type of theorizing is on curriculum planning. This type of theorizing is based on the Tyler Rationale. Thus, the elements of curriculum and interrelationships of those elements are the main concern of the structuralists. The structural group is similar to Macdonald's control group. There is a basic assumption of human rationality, and the scientific method is considered as appropriately applied to the field of curriculum. Curriculum is defined as "a plan of intended outcomes" (Huenecke, 1982, p. 291). The central belief is that one can plan and develop a curriculum and should do so.

Huenecke's generic theorizing is more concerned with the outcomes of a curriculum than with its planning or structure. She includes Huebner (1975), Mann (1968), and Apple
(1975) in this group. Curriculum to these theorists is seen as the total environment of the school. The key question addressed by this group is what to teach. Critique is a key process. Existing conceptions of curriculum are criticized in an attempt to generate new and better conceptions. Assumptions need to be made explicit and the learner should be treated as a human being, not a "type". Also, personal liberation of the individual is a primary concern of this group.

Substantive theorizing includes Stratemeyer (1957), Phenix (1964), Eisner (1979), and Berman (1968). This group is similar to those generating epistemological statement by Macdonald (1975). These theorists are not as much concerned with personal liberation and structure, as with what knowledge should be taught. Values are made explicit and prescription is an integral process of this type of theorizing. Substantive theorists are primarily concerned with alternatives to the present curricular offerings.

Pinar (1978a) also categorizes curriculum theorists into three groups: traditionalists, conceptual-empiricists, and reconceptualists. Traditionalists are concerned with planning curriculum and can be compared with Huenecke's structuralists. Their main concern is with the school and the practice of teaching. Pinar includes Tyler (1949), Tanner and Tanner (1980), Beauchamp (1975), Saylor and Alexander (1974), and Taba (1962) in this group. The conceptual-
empiricists are those outside the field of curriculum who view education not as a discipline but as an area to be studied by the "disciplines" (Pinar, 1978a). This group is concerned with the development and testing of hypotheses especially in the manner of social sciences. Conceptualizations, along with empirical validation, are keys of these type of theorizing. Pinar's own view of theorizing comprises his third group— the reconceptualists. Also included in this group are Greene(1975), Huebner(1975), Macdonald(1975), and Klohr(1968). Although this group is closely related to the conceptual-empiricists, this group does not attempt to be objective or remain unbiased as do scientific theorists. An emphasis is placed on the political nature of all intellectual activity(in particular curriculum theorizing). According to Pinar(1978a), there is a "conscious abandonment of the technician's mentality" (p.209).

As reviewed above, the field of curriculum has been defined as controversial by many writers. It also has been suggested that the controversy is a result of many opposing theories of curriculum. Due to the multiple perspectives and manifold orientations in the field, no canonical paradigm will work better as in any other social sciences.

However, a close look at the diversity and complexity of current curriculum state shows that the conflicts in curriculum theorizing are reducible to the conflicts of
viewpoints on curriculum content because, as mentioned previously, most curriculum theories employ the question of what should constitute the curriculum content to be taught in school as the nature of curriculum problem. This study identifies the two major opposing viewpoints of curriculum content and will focus on clarifying, elucidating, and contrasting these perspectives. This study will also propose a third perspective that builds on the other but extends this work.

1.3 Statement of Problem

As is acknowledged among the students of curriculum, historically the concept of educational content (curriculum content) has undergone two major changes. The first change was due to the Progressive Movement in education in 1920-30's, and the second change was origin, which was in line with the Bruner's proposal of the "structure of knowledge" in 1960's. As a crude simplification, it may be said that the first change consists of defining the older concept of educational content as "subject" to contrast it with the new concept as "experience" replacing the former with the latter, and the second change was made by proposing the "discipline" as an alternative concept to the "experience".

Ravitch (1983), the author of The Troubled Crusade, explains the above changes as an educational "pendulum".

1. She refers it to the faddism of American education
At any given time during most of the past half-century, schools have been the object of well-intended crusades to change or save them. These periodic waves of reform, from one extreme to the other, have led many observers to wonder whether the worst problem of American education is its faddishness (p.11).

And she continues to say:

In the 1940s and early 1950s, a good school "used progressive methods based on student interests and activity projects. After the Soviets put Sputnik into orbit in 1957, a good school was defined as one with high academic standards and special programs for gifted students, especially in subjects such as science, foreign languages and mathematics. By the late 1960s, the once-high standards started to fall, and the "good school" was one where students participation and choice were emphasized. Since the mid-1970s, the educational pendulum has swung back ward "basics", "standards", and a coherent curriculum... (p.11).

Ravitch, from the point of curriculum reform, tries to find the reason of faddism in the "deeply ingrained conviction among many Americans that the best way to reform society is to reform the schools". However, as assumed in the introduction, we should not overlook the implications of the curriculum content viewpoint that is embedded deeply in this faddism or pendulum. There are two sharply contrasting viewpoints of curriculum content. The first one, one extreme of the pendulum, has been attempted to understand the nature of curriculum content from the analytical position. This position basically assumes that curriculum content ultimately can and should be reduced to its component

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2. For example, to curb the rate of traffic fatalities, a driver education curriculum is divised.
factors. For example, this viewpoint is implied in the "reductionistic" ideas such as Bloom's Taxonomy of Educational Objectives (1956), Gagne's Learning Hierarchy Theory (1965) and so on. In this study, this viewpoint of curriculum content is called the reductionistic approach to curriculum content. Needless to say, Bloom's Taxonomy of Educational Objectives has as its purpose the specification of "objectives". This goal is the basis of the Tyler Rationale. The difference between Bloom's Taxonomy and Gagne's Learning Hierarchy is found in what each of defines as the components of curriculum content.

In contrast, based on the assumption that the curriculum content cannot and should not be reduced to its component factors, the other viewpoint of curriculum content emphasizes the curriculum content itself is a totality. Often, this approach is known as "discipline-oriented curriculum". In this position, each discipline has its own distinctive concepts and methods that set it off from other disciplines. Bruner's (1960) "the structure of knowledge" shows clearly this approach to curriculum content. Besides, Broudy's (1961;1964) educational view, especially his "the interpretive use of knowledge" and Phenix's (1964) "realm of meanings" and so on are related to this position. In this study, this position is referred to the holistic approach to curriculum content.
Although the two opposing viewpoints of curriculum content provide some meaning for two different camps, the fact that there are two conflicting viewpoints of curriculum content posed an educational dilemma. These viewpoints compound the problem of a divided field of study rather than suggest solutions.

The problem addressed in this study is the division that exists in relation to the view of curriculum content. If one accepts the divided status of the viewpoint of curriculum content and resulting stagnation, the question that follows is "how can they be analyzed, integrated, and growth regenerated?" It is this question that this study seeks to answer.

1.4 Purpose and Assumptions of the Study

This study attempts to analyze two different approaches to curriculum content and propose an alternative one. Especially, this study examines the basic assumptions underlying two different approaches and reconceptualizes them in order to suggest an alternative approach.

With the above purpose, the following questions to be studied are set in this study.

1) On what basic assumptions should the curriculum content view be based?
2) What is the characteristics of the reductionistic approach to curriculum content?
3) What is the characteristics of the holistic approach to curriculum content?

4) What is the alternative view? And does it meet the criteria employed?

This study presupposes several assumptions. A first assumption is about epistemology. The viewpoint about curriculum content basically recognizes its own unique and particular position about knowledge. However, there are curriculum views in which epistemology itself has little implication for the curriculum content. For example, those of the "reconceptualists" show a negative or passive position concerning curriculum knowledge. They express very little commitment to the traditional notion of curriculum development and design. Thus, while they critique current curricular practices and claims as to what knowledge should or should not be included in curriculum content, and they seem not to be ready to provide a satisfactory answer as to which knowledge should be dealt as curriculum content. Therefore, in regard to curriculum content views, their views about curriculum content regarded must be as non-epistemological. On this basis, the reconceptualist view is excluded in this study of curriculum content.

The second assumption is about the need for criteria by which two different curriculum content views will be examined and on which an alternative curriculum content view will be justified and proposed as the most appropriate one.
By criteria, I mean the appropriate conditions or propositions a curriculum content view should meet in order to justify itself as the proper one. Therefore, we can expect some justified conclusion to emerge as a result of use of criteria. That is, an alternative to be suggested in the study results not from synthesis of two different views but from the congruency with the criteria. This assumption follows from the methodological issues presented in the next chapter.

The third assumption is that epistemological position about knowledge in nature is interwoven with implications on ontology, axiology, ethics, etc. In other words, it is hard to have a pure epistemological curriculum theory without ontological and axiological implications. This assumption is the most fundamental one without which a serious conceptual confusion may result—confusion between knowledge and curriculum content. If this assumption is not presupposed, the controversial issues of what constitute curriculum content are likely to be avoided intentionally or inadvertently.

1.5 Methodology and Procedures for the Study

The design of this study is of a theoretical nature employing meta-theoretic research process. Meta-theoretic

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3. Here, meta-theoretic research means a kind of synthetic research. And the synthetic, in this study, also refers to a reconceptualization of existing curriculum content views.
research (synthetic research) is defined in the *Dictionary of Education* (Good, 1973) as:

Research which involves comparison, evaluation and interpretation, usually with respect to a large frame of reference that will permit reconciliation of conflicts or inconsistencies and impart new meaning to the whole (p. 495).

Although, not as common some other methodologies, synthetic research is necessary when concerned with topics that embody various fragments of knowledge and/or theories. Davis (1978) suggests "we cannot afford to abandon attempts at synthesis" (p. 72). She is concerned that the scientific movement has set a norm of reductionism rather than synthesis. Recent research appears to be more concerned with parts of knowledge than conceiving the whole of knowledge. Davis (1978) calls for more synthetic research:

Premiums rather than distrust and criticism need to be given to those who desire the pursuit of gestalts; such premiums would require a loosening of the requirements for empirical verification of all presentations; synthesis, by nature, is antithetical function to reductionism (p. 73).

Vandamme (1975) also proposes synthetic research as an alternative to reductionistic research. Reductionistic research employs logical, deductive reasoning. When comparing theories, "observational" data is utilized to form the basis for comparing two theories. Unlike the reductionistic research, synthetic research relies on coordination of theories (Vandamme, 1975). Interpretation, evaluation, and comparison rather than a reliance on
observational data only, are the key processes of synthetic research. He (1975) emphasizes the importance of:

making an attempt at a non-reductionistic synthesis of all knowledge we have on this domain (Ontology, Epistemology, and Causality) however imperfect it may be. We can argue that the synthesis of a set of imperfect theories can be of an immense practical value (p.232).

As mentioned before, the key process of the study is a reconceptualization of existing curriculum views. The process of reconceptualization here includes three steps. The first step is to establish a set of criteria on which a curriculum content view, in order to be adequate or viable, should be based. Needless to say, the set of criteria refer to paradigmatic assumptions in such as epistemology, ontology, axiology, etc. The second step is to examine two different curriculum views in terms of the set of criteria employed. Through this step, the characteristics of existing curriculum views will be identified including both their strong points and weakpoints as curriculum content views. The final step is to propose a new alternative curriculum content view as a result of synthesis and reconceptualization efforts.

In order to undertake the study as proposed, this study is organized as follows. In chapter II, the paradigmatic criteria will be established along with the reasoning behind the question of why the criteria are appropriate and relevant to the investigation. The set of criteria will
serve to clarify the complex state of affairs associated with two conflicting curriculum content views.

In chapter III, an analysis of the reductionistic approach to curriculum content, focusing on Tyler, Bloom, and Gagne's views, which are considered the representative ideas of its approach will be undertaken.

In chapter IV, an analysis of the holistic approach to curriculum content, focusing on Bruner, Broudy, and Phenix's ideas, which are considered the representative of its approach will be undertaken.

In chapter V, the alternative as a reconceptualization of two different curriculum content views will be proposed. This part deals with a meaning of sociolinguistic approach from the aspect of curriculum. Especially, the assumptions underlying the approach will be examined and discussed in relation to the criteria established in the study.

1.6 Limitations

This study recognizes limitations from both substantive and methodological aspect of the study.

First of all, the scope of the study is narrow in that it is confined to an analysis of two views and to an exploration of an alternative. From the outset, since this study presumes and identifies the existence of two opposite curriculum content view, the selection of curriculum scholars for analysis is, to a certain degree, arbitrary.
As indicated, this study methodologically refers to both analysis and reconceptualization. The process of reconceptualization regarding curriculum content view includes the establishment of criteria, an analysis in terms of the criteria, and identification of alternative. Thus, the beginning is with the criteria. However, the criteria to be developed may not be acceptable to all. One may not, for example, accept the need to seek evidence in an area which was once the province of private introspection, or one could find, in fact, unexamined and unjustified assumptions in any of the proposed criteria. This is the inherent weakness of methodological aspect of the study.

In spite of the above limitations, this study is believed to be significant in that this type of approach will provide new meaning for those who have a narrow viewpoint or single-viewpoint on curriculum content and will generate a possibility for new growth within the field.
Chapter II
Paradigmatic Assumptions and Curriculum

2.1 Introduction

In the construction of any curriculum, knowledge is a universal variable. For example, Bellack (1970) notes its ubiquituousness:

Although there are different views as to what knowledge should be taught and how it is to be taught, most educators would agree that knowledge is the stock in trade of the school.... Throughout our history most elementary and secondary programs have been organized around the time honoured school subjects even during the hey day of progressivism.... The program, too, had a place for knowledge in their scheme of things; the curriculum was to be organized around personal and social problems, and the academic disciplines were to serve as resources in dealing with these problems (Bellack, 1970, p. 318).

Always, in any educational system, there is -to use Scheffler's (1965) distinction- the need for child to "know that" something is true; inevitably, there is the expectation that he will "know how" to do something. To satisfy these needs, society gave birth to schools. Thus, the place of knowledge within the matrix of any educational endeavour should alone justify an inquiry of knowledge into its nature.

Historically, a brief overview of the curriculum field reveals no lack of interest in the nature of knowledge.
Segal (1966), for example, relates that an interest in a theory of knowledge was a common feature of all the thinkers she encountered in the early stage of curriculum field. However, even if the theory of knowledge (epistemology) is important for constructing curriculum theory, we should never ignore some other assumption areas related to it. As Macdonald (1975) indicates three assumption areas with respect to curriculum theory when he states that no curriculum theory escapes some implications on epistemology, ontology, axiology, and so on:

One is always involved in assumptions and implicit (if not explicit) statements which could be classified as various times and places as ontological; axiological; and epistemological. Concern for the nature of human "being," value theory, and the nature of knowledge are intricately interwoven.... curriculum theorizing can be conveniently categorized as oriented toward statements about knowledge, statements about the curriculum realities, and statements about valued activity (p. 8).

In this chapter, epistemological, ontological, and axiological issues related to curriculum will be examined and discussed in order to develop a set of criteria for analyzing two different curriculum views and providing a base for an alternative view.

2.2 Curriculum and Assumption Areas

According to Julienn Ford (1975), the concept of truth is an elusive one. She describes four different meanings of truth, which she symbolized as Truth 1, Truth 2, Truth 3,
and Truth 4. For example, Truth 4 is empirical one, Truth 3 logical one, Truth 2 ethical one, and Truth 1 metaphysical. She asserts metaphysical must be accepted at face value and can never be proven in conformity with nature. She represents Truth 1 as the ultimate benchmark, as Aristotle did(Reese,1980,p.70), against which every thing else is tested, for if there were something more fundamental against which a test might be, the more fundamental entity would become the basic belief whose truth(T1) must be taken for granted.

Needless to say, certain sets of such basic or metaphysical beliefs are constituted into a system of ideas, which is often called paradigm. A paradigm represents a conceptual framework of what we think about the world (but cannot prove).

Here, let Patten(1978) describe what the term "paradigm" means:

A paradigm is world view, a general perspective, a way of breaking down the complexity of the real world. As such, paradigms are deeply embedded in the socialization of adherents and practitioners; paradigms tell them what is important, legitimate, and reasonable. Paradigms are also normative,

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4 Truth 4 is a claim in the form of hypothesis or predicate if it is consistent with "nature". Truth 3 is a claim in the form of hypothesis or predicate if it is logically or mathematically consistent with some other claim known to be true (in the T3 sense) or ultimately with some basic belief taken to be T1. Truth 2 is a claim if the person who assert it is acting in conformity with moral or professional standard of conduct. And Truth 1 is a claim that is said to be T1 cannot be tested for truthfulness against some external norm such as correspondence with nature, logically deductibility, or professional standards of conduct.
telling the practitioner what to do without the necessity of long existential or epistemological consideration. But it is this aspect of paradigms that constitutes both their strength and their weakness in that the very reason for action is hidden in the unquestioned assumptions of the paradigm (p.203).

With respect to paradigm, Lincoln and Guba (1985) describes the conflict among paradigms in education by pointing out issues about underlying assumptions constituting their paradigms. Lincoln and Guba discuss such issues as: Is it appropriate to think of social phenomena in terms of cause and effect? Is it possible to create knowledge that will generate from one context to another? Can we have direct access to reality, or will what is known always be influenced by who is doing the knowing? Lincoln & Guba contrast their own position on these issues with more traditional and widely accepted views which they characterize as the "positivist paradigm". Especially, they identify five assumption areas of paradigm as follow.

<table>
<thead>
<tr>
<th>ontology</th>
<th>epistemology</th>
<th>The possibility of generalization</th>
<th>The possibility of causal linkage</th>
<th>axiology</th>
</tr>
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</table>

Figure 1. Paradigm construction by Lincoln & Guba
Here, think about paradigm in relation to curriculum content. As far as we recognize that the viewpoint of knowledge becomes the view on curriculum content, we should examine and discuss issues about the nature of knowledge to formulate an appropriate paradigm for curriculum content. However, even if the problems of the nature of knowledge have been discussed as major questions confronted in epistemology, as Macdonald indicates, it is hard to have a purely epistemological curriculum theory with no implications for ontology and axiology, because of the intricacy with which the statements constituting curriculum theory are interwoven along with them.

In this study, the following three assumption areas are identified to provide a basis on which curriculum content view is characterized.

![Figure 2. Curriculum content view and assumption area](image-url)
2.3 Criteria for Curriculum Content View

(Epistemological Issues and a Criterion)

The epistemological issue of the nature of knowledge is basically concerned with the relationship between the knower and the known. This relationship is based on the premise of subject-object dualism. The use of the term "dualism" is illuminating; it suggests that there is a certain "twoness" or "separateness" that characterizes investigator-investigated relationships. We have witnessed many dualism, which divides the world into neat dichotomies such as form vs substance, medium vs message, mind vs body, good vs evil, etc. But most of these dichotomies seem to fail in their viability. For example, in physics, the phenomenon of mass-energy equivalence destroys the form-substance dichotomy. The medium-message dichotomy also is replaced by the familiar slogan that the medium is the message. Such dualistic thoughts are not taken for granted any more.

Let's turn to the relationship between the knower(subject) and the known(object). When we ask such questions as "what does it mean that someone knows something?", "how can we make distinction between the subject and object and why?", we are confronted with the
controversial dualism, subjectivism and objectivism, in the inquiry of the nature of knowledge.

Subjectivism refers to a conviction that judgement or decision as to something is a matter of mere personal and individual preference, opinion, belief, taste, prejudice, and so on, while objectivism refers to the philosophical assertion that judgement or decision is based on and dependent on ultimate and fixed standard and criteria outside the subject—a subject is the self who knows or perceives something while an object is the physical thing to be known. Based on this conception, epistemological subjectivism can be defined as assuming that every object known is created, invented, or constructed by the subject (Runes, 1983, p. 320).

Often, subjectivism is associated with "relativism", which is defined as the belief that judgement cannot be made about the adequacy of conflicting interpretations. Bernstein (1983) explains relativism in detail:

The relativists believe that the concept of rationality, truth, reality, the good, (or knowledge).... must be understood as relative to a specific conceptual scheme, theoretical framework, paradigm, form of life, society or culture.... there is (or can be) a nonreducible plurality of such conceptual schemes, therefore, he or she challenges the claim that these concepts can have a determinate and univocal significance for the relativists, there is no substantive overarching framework or single metalanguage by which we can rationally adjudicate or univocally evaluate competing claims of alternative paradigms (p. 8).
On the other hand, objectivism, the opposite concept to subjectivism, refers to epistemological realism, a view that the object of knowledge exists independently of and external to the subject as knowing mind. According to Bernstein, objectivism is defined as:

The basic conviction that there is or must be some permanent, ahistorical matrix or framework to which we can ultimately appeal in determining the nature of rationality, knowledge, truth, reality, goodness, or rightness. (p.9)

In this view, objective knowledge is assumed to possess an unvarying and ahistorical essence, which is unaffected by the process of knowing and production of knowledge. Thus, knowledge is obtained when the knower correctly grasps the objective facts imposed on him through a rigorous and refined mode of inquiry.

So far I have examined the dichotomy of subjectivism and objectivism of knowledge. The questions that must be asked is, what is the most appropriate conceptualization of knowing: subjectivism or objectivism? Or are these ways of viewing knowledge adequate? What alternative exists to these epistemological positions?

The concept of subjectivism or relativism is advocated by a number of philosophical positions (e.g., phenomenology, hermeneutics, symbolic interactionism, sociology of knowledge in education). But, in spite of its diversity in philosophical background, a fundamental common set of characteristics of relativism can be identified. The central
belief of relativism is that the ways we conceive of reality are socially as well as historically constructed; therefore, truth, objectivity, and knowledge are only human products in a particular society at a particular time. Knowledge as a social construct in turn is thought to be interpreted or filtered through the culture of those acquiring knowledge, as reality is interpreted differently by the different social groups. Hamilton(1974) argues, in this view of reality, there is a close "connection between the social relationship of individuals and the meanings those relationships have to the extent that the nature of those relationships and the structure of their intersubjective meanings" determines content of all knowledge (p.135). Bernstein and Kuhn, who are thought of as relativists, opposing "reified" objective criteria for verification of the truth of knowledge, assume such notion as "non-reducible plurality" and "incommensurable paradigm" in accounting for human rationality.

In the same vein, Brent(1978) rejects the reified view of knowledge:

If objective knowledge is taken to mean knowledge of a reality independent of language, or presuppositionless knowledge, or knowledge of the world which is independent of the observer's procedures for finding and producing the knowledge, then there is no such thing as objective knowledge.... what counts as knowledge is what is comprehensible within system that human beings create in particular communicative of judgement as a result of accidental historical circumstance (p.240).
After all, knowledge according to the relativist, is inevitably related to the thought and consciousness of the subject, which is situated in particular contexts. Knowledge is grounded in the actions and interpretations of the meanings of the context in which the subject finds himself. But, first of all, relativism has its conceptual and logical problem in nature. If all bodies of knowledge are relative to social relations, then there are no permanent epistemological norms or values—knowledge is conceptually related to "real" and "true" (Brent, 1978, p.226). In other words, if all knowledge is socially relative, then "those who impose as well as those who oppose the imposition have no basis on which either to justify their own practices to reject those of their opponents" (Brent, 1978, p.242).

Moreover, if we think that all knowledge is relative, how can we sustain the claim that it is superior to those who hold possible different views? It is not possible to know which view is right or wrong (Sarup, 1978, p.33).

D.C. Phillips (1983), in his article "After the Wake; Positivistic Educational Thought", responds to the problems of relativism at the epistemological level. He discusses the distinction between meaning and truth and chides contemporary critics of positivism for failing to distinguish between meaning and truth what he calls "a crucial distinction":

As far as the logical positivists were concerned, for a position to be meaningful (i.e. for it to be
a proposition at all) was for it to be testable or verifiable in principle (unless it was logically true), but to be regarded as true it had actually to have undergone successfully such an experiential test. If an untested (but testable) proposition were accepted, the person concerned could claim to have belief but not knowledge. In other words, knowledge is "justified true belief" (p.11).

Phillips' own view of the relationship of meaning and truth is apparent in his criticism of Eisner's (1979) expansive conception of knowledge:

For Eisner, Miller's Death of a Salesman, his memory of his own mother's face, a Bach fugue, a portrait by Velasquez, and a poem by Dylan Thomas or e.e. Cummings, are all statement of knowledge. But, he gives no indication of how the "prior" question of meaning of these various statements is to be settled (is it not possible for me to claim to understand the meaning of any of these, but nevertheless to get it wrong- how would any ever know ?); and he does not say how these knowledge claims are to be investigated. After all, not every one who claims to know actually does so; I may claim my mother had purple hair, or that I know Mozart wrote Oliver Twist, or that I know the meaning of Tchaikovsky's Fourth Symphony, but it is conceivable that I am mistaken, so there has to be some way of validating or refuting these claims. To deny this is to do away with the concept of mistake (1983, pp.11-12: underline added).

Bernstein (1978) also points out relativism's shortcomings in the process of the subject-based dereification.

Individuals may have not only occasional false beliefs about what they are doing, but systematically distorted misconceptions of themselves, the meaning of their actions, and their historical situations. The recognition of the appropriateness of an interpretation by the
subjects involved is not sufficient to justify the correctness of the interpretation (p.202).

In short, Phillips' and Bernstein's criticism center on relativism's overemphasis on the knower's subjective dimension, which overlooks the objective nature of reality. In addition, relativism's overemphasizing subjective consciousness is criticized by critical theorists, who emphasize the influence of the material and social conditions of the objective reality, on the ground that it overlooks the significant dimension of practical and material dereification beyond mental dereification and there is the possibility of false consciousness.

On the other hand, in regard to objectivism, this view presupposes some permanent, ahistorical, universalistic and value neutral standards or criteria in which we can adjudicate the truth and validity of knowledge. Unlike the subjectivism, this view is based on the notion that knowledge as object exist "out there" independent of the knowing subject's process of knowing and interpretation of its meaning.

Often this objectivism is interchangeable with positivism\(^5\) in that it assumes the possibility of separation

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5. According to explanation by Lincoln and Guba (1985), positivism is based on at least five axioms as follow.

Axiom 1: the nature of reality (ontology)--There is single tangible reality "out there" fragmentable into independent variables and process, any of which can be studied independently of the others.
Axiom 2: the relationship of knower to known
of the observer (the knower) from the observed (the known). In this view, knowledge is obtained when the knower correctly grasps the objective facts imposed on him through a rigorous and refined mode of inquiry. In this regard, a rigid dichotomy between them is inevitable. Consequently, the knower comes to have a passive viewpoint of the knowledge as the object. The knower has to see the knowledge in terms of particular way regardless of his own consciousness. There is no room for self-formative process of generating the knower's own meaning or the process of interpretive relationship between the knower and the known. In short, the subjective dimension of meaning is no longer considered in this view.

Lincoln and Guba (1985), suggesting the notion of "reactivity", "determinacy", and "interaction" between the knower and the known, criticize the inadequacy embedded in separateness of positivistic epistemology. According to them, it did not take long for investigators of human phenomena to come to the realization that their "subjects",

(epistemology)—The inquirer and the object of inquiry are independent. That is, the knower and the known constitute a discrete dualism.

Axiom 3: the possibility of generalization—The aims of inquiry is to develop a nomothetic body of knowledge in the form of generalizations that are truth statements free from both time and context.

Axiom 4: the possibility of causal linkage—Every action can be explained as the result of real cause that precedes the effect temporarily.

Axiom 5: the role of values—Inquiry is value free and can be guaranteed to be so by virtue of the objective methodology employed (pp.37-38).
even when out of direct contact with the investigator (as in question situation), nevertheless reacted to a stimulus (p.94). For example, the effect of reactivity such as "Guinea pig effect", "Hawthorn effect", "The Pigmalion effect", "John Henry effect", etc. shows well famous instances of reactivity, which are considered to threaten internal validity of the design of the experiment. In other words, the mere knowledge that he or she is involved in a study is sufficient to alter, possibly significantly and certainly to an unknown degree, the respondent's reaction to investigator.

Lincoln and Guba's (1985) second challenge to the separateness of the knower and the known in the positivistic view is the notion of "indeterminacy". This notion is supported strongly by Heisenberg's Uncertainty Principle® in physics. This principle shows the ultimate instance of observer's (the knower) disturbance to the object. The indeterminacy principle proposed by him, turns out of be much more widely applicable and meaningful than just in that limited physical arena. As Heisenberg says "what we observe is not nature itself but nature exposed to our method of questioning" (1958, p.427), Tranel (1981) comments as follow:

If in physics one cannot observe without the object of observation, it seems all the more

6. Heisenberg provided proof of the proposition that it is impossible to determine both the mass and momentum of a particle simultaneously, for measuring either one will render the other immediately and forever indeterminate.
apparent that distortion must occur when both the observer and the observed are human persons about whom predictability is precluded by virtue of the uniqueness of each. Without an awareness of the distortion one might be causing by the method of observation, or even an awareness that distortion is possible, one is open to false conclusion (p.421).

The notion of "interaction" is the third challenge by Lincoln and Guba to the relationship of the knower and the known. Viewed in this way, the question is not one of relativism or objectivism but rather what is an appropriate view. Lincoln and Guba(1985) suggest that when both investigator and respondent are human beings, observation not only disturbs and shapes but also is shaped by what is observed. Zukav(1979) captures the issue in the science areas when he asserts that distinction between objective and subjective in science is no longer attainable nor viable:

The tables have been turned. "The exact science" no longer study an objective reality that runs its course regardless of out interest in it or not, leaving us to fare as best we can while it goes its predetermined way. Science, at the level of subatomic events, is no longer "exact", the distinction between objective and subjective has vanished, and the portals through which the universe manifests itself are, as we once knew a long time ago, those impotent, passive witness to its unfolding, the "I" of which we, insignificant we, are examples The Cogs in the Machine have become the creators of the Universe.(p.114).

In this view, investigator and respondent together create the reality. Each influences the other, and is shaped by the other. This view forms an epistemological axioms posed by Lincoln and Guba(1985)- the inquirer and the "object" of
inquiry interact to influence one another; know and known interact in a dialectical manner and, these are inseparable. This axiom is central to the development of an alternative curriculum view.

Based on the above discussion, the first criterion for curriculum content view is stated as follow.

1) The curriculum content view should encompass the subject-object interaction relationship in the knowing process.

In the view of knowledge implied by both Bruner (1960) and Phenix (1964), as we shall see later, the object, the structure of knowledge, exists, as it were, apart from the subject knowing. Such a view has a meaning in that the structure of a discipline has a separate existence as a pre-formed set of observable symbols. But, even viewed in this limited sense, the symbols, to become symbols and not mere physical marks on a page or sound in the air, must invoke the activities of a knowing subject. A curriculum content view should provide some description of the manner in which the subject finds, discovers, acquires, invents or generates knowledge.

Even if Bruner (1960) attends more than peripherally to the child both by his promotion of discovery method and through his reverence of child's intuitive capacities, the child, in the act of discovery, seems limited to a "reading" or "abstraction" of what is out there. In the case of
Phenix(1964), abstraction is the only role assigned to the subject and primarily attention is devoted to the nature of the discipline. Thus, any adequate curriculum view must account for the various ways in which subject-object interaction relationship results in the emergence of knowledge.

(Ontological Issues and a Criterion)

With regard to the nature of knowledge, it is difficult to distinguish between the domain of epistemology and that of ontology. The concept of knowledge is largely dependent on our conception of what is real. That is, it has something to do with our understanding of the structure of reality and existence. What one individual or society means by knowledge is not always meaningful to others because of the different ways of understanding reality (Pai et al(eds.),1967,pp.189-90).

The relationship between epistemology and ontology is shown interdependent one by Anton(1968).

It is inevitable that every branch of philosophy should contain its "metaphysics", a need, which is felt more strongly in epistemology than anywhere else. Here, the problem of being is posed at the very outset, which methodologically speaking is the proper point of departure. Its object is knowledge, and knowledge-- regardless of the definition which may be given to the term-- is not only a specific conception of being, but also the apprehension of being by a being. By its very nature, then, the theme of epistemology is connected more than anything else with ontological problem (in Papanoutsos,pp.3-4).
On ontological position, Lincoln and Guba (1985) describe four levels of reality: objective reality, perceived reality, constructed reality, and created reality. According to their description, the stance of objective reality asserts that there is a tangible reality, and experience with it can result in knowing it fully. Physical, temporal, and social reality all exist, and with sufficient time and reasonably good principles of investigation, inquiry can converge on those realities. The second ontological position, perceived reality, asserts that there is a reality, but one cannot know it fully. It can be appreciated only from particular vantage points, which some prefer to call perception.

The major difference between the objective reality and the perceived reality is that the former believes and hopes that reality may at some point be known to all and the latter believes that no one person can know all of reality at any point in time. But both adopt the same ontological posture that there is a reality out there.

The third ontological position of which they are in favor is the constructed reality. This view sees reality as a construction in the minds of individuals. Thus, it asserts that it is dubious whether there is a reality out there. If

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7. A perception here means, as in the metaphor of the blindmen and the elephant, a partial, incomplete view of something that is nevertheless real, and capable of different interpretation when seen from different viewpoint.
there is, we can never find it. In this position, there are always an infinite number of constructions that might be made and here there are multiple realities.

The fourth ontological position, created reality, is that there is no reality at all. This view, is a radical position and requires a greater suspension of disbelief than does the idea of constructed reality. This view is in line with the "new" physics\(^8\) (especially Quantum physics).

What is a reasonable posture regarding reality? Here, it is noted that while position 1 and position 2 adopt virtually the same posture that there is a reality out there, position 3 and position 4 also show similarity in their basic assumptions about the nature of reality— it does not exist until either 1) it is constructed by an actor or 2) it is created by a participant. Such categorization by existence or non-existence of reality is associated with the

\(^8\) Zukav introduces first the difference between Newtonian mechanics and Quantum mechanics in the following.

Contrary to Newton physics, Quantum mechanics tells us that our knowledge of what governs events on the subatomic level is not nearly what we assumed it would be. It tells us that we cannot predict subatomic phenomena with any certainty. We only can predict their probabilities. Philosophically, however, the implication of quantum mechanics is psychedelic. Not only do we influence our reality, but, in some degree, we actually create it. Because, it is the nature of things that we can know either the momentum of a particle or its position, but not both, we must choose, which of these two properties we want to determine. Metaphysically, this is very close to saying that we create certain properties because we choose to measure these properties (p.28).
categorization of objectivism and subjectivism discussed before. For example, if one believes or accepts an epistemological position, then he or she is supposed to take an ontological position related to it.

Such grappling with the nature of reality and its meaning has also been seen among those persons in academic disciplines that have examined methods and their implication for knowing what we believe we know. Bakan (1972) reports the failure of psychology in the study of psychological phenomena. He says that "Behaviorism's ideal of prediction and control not only fails on scientific grounds but makes the psychologists appear monstrous and contemptuous" (p. 88). Furthermore, he argues that "psychology now has an opportunity to free itself from the natural-science model, to pursue intrinsically relevant goal" (p. 86; underline added) because "an authentic psychology must also concern itself with reflexivity: the effect of thinking, feeling, and willing... on (true psychological process such as thought and emotion) themselves" (p. 88). By intrinsically relevant goal, he means the cognitive and creative process as the primary subjectmatter of psychology rather than prediction and control from positivistic traditional science.

In sociology, some scholars also claim paradigmatic change, which has lead to the development of "interpretive
sociology" (Pope, 1982), "constructive alternativism" (Kelly), and so on.

Reynolds argues (1980):

(Stood) opposed to the tenets of the old positivism. None of the symbolic interactionists and ethnomethodologists believe that social science should aim to produce lawlike set of propositions, but believe instead that social science should provide a deeper understanding of individuals, their perceptions, and the meanings they attach to social life (pp. 77-89).

Kelly (1955) describes the epistemological position of meanings attached to social life as "constructive alternative". He claims that it was a "presumption to assume that a person’s construction of reality was convergent with reality" and suggests that "the open question for man is not whether reality exists or not but what he can make of it" (p. ).

Pope (1982), states that theoretical and methodological approach falls within the "verstehen approach", the central spirit of which is coming to an understanding of the view of the world held by those people involved in a situation rather than adopting a "stranger" perspective or ascribing structural function to external aspects (stimuli) of the environment (p. 3). Schutz (1967) also found that reality as artifact is difficult to explain unless rooted in the meanings that are constructed and attached to everyday life by individuals. This phenomenological perspective tries:

To study social behavior by interpreting its subjective meaning as found in the intentions of individuals and then the aim is to interpret the actions of individuals in the social world and the ways in which individuals give meaning to social phenomena (p. 11).
Without exception, in the educational field, the struggle with reality has been raised. Stake (1977) refers it in the following way:

In any circumstance the truth might be but a single truth— but evaluators are certain not to find it. What they can find are multiple truths, multiple understandings, some contradictory to others. Evaluators should seek to resolve the contradictions and misunderstanding but should expect that they will have to portray the multiple realities they find (p.19).

Especially, some educational sociologists who propose new sociology of education, strongly raise the question of the ontological stance of reality. For example, Michael Young (1971) suggests that "sociologists should treat as problematic the dominant legitimating categories of educators and should view them as 'constructed realities' which are realized in particular situational context" (p.2). Barton and Walker (1978) support this emergent educational sociology.

Man as an active participant in the creation and construction of social reality.... The nature of school knowledge, the organization of the school, the ideologies of teachers, indeed any educational issue, all become relative— and the central task for the sociology of education becomes to reveal what constitutes reality for the participants in a given situation, to explain how those participants come to view reality in this way (p.274:underline added).

After all, the ontological controversy about the nature of reality is focused on the single reality vs the multiple realities. The former argues that reality is single "out
there" while the latter recognizes constructed realities. Which is more valid in relation to the nature of knowledge?

Since the late 1950s, cognitive psychologists like Herbert Simon and George Miller and linguists like Noam Chomsky have devoted themselves not to their subjects' overt, objective response but to what they know, how they acquired knowledge and used it. Thus, this inevitably leads to the question of how knowledge is represented in the mind. From cognitive psychology, the process of knowing and thinking is based on not observable overt action (what people do) but the thoughts and rules, which are not objective. Many philosophers of science (e.g., R. Carnap, C. Hempel) use nineteenth-century physics as the examplar of "good science", insisting that whatever is alleged to exist must be shown to be physical or, at least, reducible to what is physical. However, the viability of epistemological and ontological assumptions associated with this view can be further questioned by attending to new views or cognitive processes such as thinking and knowing.

Recently, J. Bruner (1987) addresses a solution of this tangled problem in terms of Nelson Goodman's (1979) constructive view. For Goodman, the world of appearance is created by mind and the activity of world making is diverse

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9. Nelson Goodman's constructivism is that contrary to common sense that there is no unique "real world" that preexists and is independently of human mental activity and human symbolic language; that is, what we call the world is a product of some mind whose symbolic procedures construct the world.
and complex set of activities, and however else it may express itself, it involves "making not with hand but with minds, or rather with language or other symbol system" (p.42). The worlds we create, he says, may arise from the cognitive activity of the artist or in the science or in the ordinary life. Such worlds have been constructed, but always out of other worlds created by others, which we have taken as given. In Goodman's view, thus, no one "world" is more "real" than all others; none is ontologically privileged as the unique real world. In consequence, the physical raw stuff of the positivism is no more "real" than any other version, and if anything, less than the psychological process that create them (Bruner,p.96).

This constructive view, that what exists is a product of what is thought, can be trace to be Kant. Kant's view of a world "out there" being made up of mental products is Goodman's starting point. But, as noted, Goodman refuses to assign any privileged status or any "ultimate reality" to any particular world that mind may create. On the other hand, Kant argues that we all have certain knowledge, a priori, by virtue of having minds. Such a priori knowledge, in Kant's view, precedes all reasoning. In place of Kant's a priori, Goodman offers a more relativistic notion. According to Goodman, we do not begin with something absolute or a priori to all reasoning, but begin instead with the kinds of construction that lead to the creation of world
And these constructions have in common that they take certain premises for granted, as stipulations. He says that what is "given" or assumed at the outset of our construction is neither bedrock reality out there, nor an a priori: it is always another constructed version of a world that we have taken as given for certain purposes. Any previously constructed world version may be taken as given for subsequent construction. So, in effect, world making involves the transformation of worlds and world version\textsuperscript{10} already made (p.97).

According to Goodman (1979), there is an reducible plurality of "world".

We seek refuge in simple-minded relativization: according to a geocentric system the earth stand still, while according to a heliocentric system it moves. But there is no solid comfort here. Merely that a given version says something does not make what it says true; after all, some versions say the earth is flat or that it rests on the back of a tortoise. That the earth is at rest according to one system and moves according to another says nothing about how the earth behaves but only

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\textsuperscript{10} About worlds and world version, he writes in the following. We must obviously look for truth not in the relation of a version to something outside it that it refers to, but in characteristics of the version itself and its relationships to other versions.... When the world is lost and correspondence along with it, the first thought is usually coherence. But the answer cannot lie in coherence alone; for a false or otherwise wrong version can hold together as well as right one. Nor do we have any self-evident truths, absolute axioms, ultimate warranties, to distinguish right from among coherent version; other considerations must enter into that choice (Goodman, p.37).
\end{flushright}
something about what these versions say. What must be added is that these versions are true (p.30).

Goodman accommodates these "conflicting truth" by treating them as "versions.... true in different worlds". Since "there are conflicting true versions and they cannot be true in the same world" (p.31), there must be many worlds. He says that, in any world "there is only one Earth"; and the several worlds do not risk collision in the same space-time. Indeed, space-time of different worlds are not embraced within some greater space-time" (p.31). After all, these plural worlds cannot be reduced to some single world.

In short, Goodman's answer lies in making a distinction between "worlds" and "versions". He remarks that a "world" is not the version itself; the version may have features—such as being in English or consisting of words—that its world does not" (p.34). Or again, "a version saying that there is a star up there is not itself bright or far off, and the star is not made up of letters" (p.41). This suggests that versions exist independent of a world they are versions of. Finally he says "we make versions, and right versions make world" (p.42).

As discussed so far, the positivistic assumption that "the world" is there once and for all and immunitably is difficult to maintain. Especially, in relation to the nature of knowledge, such a view is no longer viable since, as Goodman implies, mind and its mental process such as
thinking and knowing transforms the physical world through operations as an instrument for producing worlds.

Based on the above discussion and critique, the second criterion for curriculum content view is stated as follow.

2) The curriculum content view should recognize the constructed nature of knowledge.

This criterion, closely relating to the first one, recognizes that knowledge is not a simple recording or abstraction of objective data, and maintains, on the contrary, that even on the simplest level, knowing involves a transformation of both subject and object. Besides philosophical consideration discussed previously, psychological findings support this position. Relevant to this type of constructive activity are various findings in cognitive psychology. In one of Piaget's experiments\textsuperscript{11}, Piaget explains the change as the result of a change in the constructive powers of the child. Even the neo-behaviorists like Hebb(1959) have demonstrated that a person's perception

\textsuperscript{11}. Children ranging in age from 4 1/2 to 6 1/2, were shown a set of rods of varied lengths, arranged in an ascending and descending "stair case"; that is, the rods were seriated from the smallest to largest and from largest to smallest. A week later these same children were asked to recall what they had seen and then to draw what they remembered. A significant feature of the younger children's drawings was the almost total lack of seriation; they tend to draw all the rods as if they were identical in size. Six month later the children again draw what they remembered of the array of rods. Nearly all of the second drawings showed some "improvement"; that is, they showed some capacity for representing an ability which was previously absent(Inhelder,1969,pp.337-364).
of a triangle, while introspectively an immediate holistic experience, is the result of several individual percepts, which the subject then organizes into the experienced totality (pp. 31-33).

Implicit in constructivism is a belief involving the relativity of epistemological position; there is no single absolute basis for the nature of knowledge. With this position, one can agree that knowledge always involves the constructive interaction of a subject and an object.

(Axiological Issues and a Criterion)

Generally, axiology addresses the question: what is valuable? Especially, a principle question of axiology in relation to curriculum is which is the most worthwhile knowledge? By the value of knowledge, we can recognize two significant issues in it. The one is the purpose of the knowledge (or justification of the values of knowledge), which suggests, as a value in the conception of knowledge as something sought, two contradictory views: (1) knowledge as a goal or end-in-itself independent of any use to which it may be put; (2) knowledge as a means necessary for the securing of some other values. In curriculum theory, those two positions are frequently referred to "intrinsic" or "extrinsic" values of knowledge. The other is the issue of how to verify the truth of knowledge as curriculum content (verification of truth of knowledge). Of two axiological
issues: justification of values of knowledge and verification of truth of knowledge, Yoon (1987) selects the former as one of his analytic criteria with his view that curriculum theory is concerned with "what to teach," but not with "how to verify the truth of knowledge." However, in this study, The verification of truth of knowledge is seen as more significant than the justification of values of knowledge, because the concept of knowledge itself necessarily implies the claim of truth. For example, the truth of propositional knowledge, in the analytic philosophy, is considered one of the conditions of knowing along with the belief condition and the evidence condition.

Concerning the verification of the truth of knowledge as curriculum content, there are several theories in the traditional philosophy: the correspondence theory, the coherent theory, the pragmatic theory, the descriptive theory, etc. (Titus, 1970). The correspondence theory of truth, often supported by the objectivists, says that a proposition is true if it corresponds to the facts and realities sensed or perceived; otherwise it is false. The coherence theory, often supported by the subjectivists, is concerned with the interrelationship between the propositions stated. It is not concerned with a state of affairs of external facts. Thus, when a proposition is proven to be true, the proposition's truth can be determined in terms of its logical consistency and coherency with the
previously related proposition (Thiroux, 1985). The pragmatic theory of truth holds that if a certain proposition yields good results or desirable consequence for human beings, then it is workable and consequently regarded as true. And the descriptive theory claims that "a true proposition describes, not corresponds to, a state of affairs that was, is or will be actual or that has occurred, is occurring, or will occur," (Thiroux, p. 465) and consequently a false proposition describes "a state of affairs, that was not, or will not occur" (Thiroux, p. 465).

Despite above various positions of the verification of the truth of knowledge, the dispute is related to issues of objectivism vs subjectivism or positivism vs relativism discussed previously. Let's examine the central problem issued in their controversy in some detail.

Recently, positivists like Phillips (1983) and Miles & Huberman (1984) raise question about the distinction between meaning and truth by defining knowledge as "justified true belief" (p. 11). Phillips (1983) states that "there has to be some way of validating or refuting.... claims". He continues to say that "to deny this is to do away with the concept of a mistake" (pp. 11-12). By the distinction between meaning and truth what he called "a crucial distinction", he criticizes relativists' idea about the knowledge (in particular Eisner's (1979) expansive conception of knowledge). He implies that questions of meaning and questions of truth are
inextricably linked and that questions of meaning, rather than being "prior" questions, can in fact be answered only after the truth of a statement of meaning has been established.

In regard to the question of how the validity of meaning is to be assessed, both Phillips and Miles & Huberman\textsuperscript{12} answer this particular question in a manner consistent with the logical positivist tradition; validity is to be assessed empirically. Despite the complexity of social phenomena, the positivist's belief that validity is assessed on the basis of empirical evidence remains unchanged. Miles & Huberman (1984), for example, argue that "some explanations are more powerful, more fully saturated, than others" (p. 23) and the method they allude are all designed to assess the level of empirical saturation of alternative interpretation.

Similarly, Phillips (1983) attempts to justify traditional positivist assumption. He argues that, in time, the truth or falsity of rival claims can be determined and supports this argument in terms of a series of examples that form a kind of augmentum ad absurdum, noting, for example,

\textsuperscript{12} Phillips and Miles & Huberman somehow qualify the logical positivist's traditional faith in empiricism. For example, Phillips (1983) notes that critics of positivism are "right to say that there is no critical test (i.e., no single test) that can be used to decide between rival positions" (p. 11). Similarly, Miles & Huberman (1984) concede that qualitative researchers works in a world of "wicked problems," and as a consequence, "fall determination and closure on explanations is no possible" (p. 23).
that the belief that the world is flat is now a totally discredited view.

Nevertheless, the problem with the positivistic view exists in the social science as well as in the natural science. Especially, in social science, agreement about anything but the most straight forward "facts" is difficult to come by. As the work of Habermas (1978) indicates about the role political interests play in the legitimation of knowledge, even if theoretical disputes are resolved, such resolutions do not necessarily imply that agreement has emerged from empirical testing. Moreover, even in the natural science, different interpretations of phenomena seem more a permanent fixture than a temporary state of affairs. For example, theoretical physicists have long rejected Newton's cause and effect view of Universe and replaced it with a view of Universe as a place where events occur randomly. Ironically, a majority of engineers employing principle of physics, continue to operate from a Newtonian paradigm.

The reason that many of disputes in the social and the physical science will not be resolved empirically is that many questions currently being debated are questions of meaning, and the questions of meaning are indeed fundamentally different from the questions of truth (Donmoyer, 1985). Indeed, the latter can only be answered after the former question has been settled. That is, after
we agree about the meaning of terms such as round, flat, and earth, the belief that the world is flat can be true. However, it should not be ignored that questions of meaning are questions about what language should be used to frame propositions about world. Whereas the truth or falsity of the resulting propositions can be assessed empirically, empirical evidence cannot establish the validity of a language. Languages are not matter of true or false; they are appropriate or in appropriate.

As cited previously (see p.30), Phillips (1983) suggests some way of validating or refuting alternative interpretations through the difference between questions of meaning and questions of truth. Donmoyer (1985) sharply indicates the problematic positivists' verification criterion embedded in Phillips' assertion. According to Donmoyer's critique, Phillips is confused with the distinction between the questions of meaning and the questions of truth. Furthermore, Phillips fails to recognize the significant role the language plays in relation two questions. In other word, Phillips does not recognize the fact that languages are not true or false; rather they are appropriate or inappropriate. For example, the claims about color of his mother's hair and the authorship of Oliver Twist (as the question about the earth's shape) which Phillips uses as examples of the question of truth are problematic here with respect to verification criterion
because such claims are validated only within the strict of frame of reference to Western culture. If one includes among his judges the Hanunoo people\textsuperscript{13} of the Philippines, the claim about the color of someone's hair is problematic. The claim that "I know the meaning of Tchaikovsky's Fourth Symphony" exemplified as a question of meaning by Phillips becomes problematic also. Donmoyer (1985) argues the relativity of the meaning in it.

At the very least, Tchaikovsky's Fourth Symphony will mean different things to Tchaikovsky; to a maestro conducting Tchaikovsky; to the orchestra's business manager who knows that ticket sales increase when any piece by Tchaikovsky is on a concert's program; to a philosopher who has bought a ticket to the concert that includes Tchaikovsky's Fourth; and to the same philosopher who uses Tchaikovsky's Fourth to make a point about the relationship of meaning and truth. The meaning of a symphony, in other word, is not absolute, but relative (p.17).

Furthermore, although we acknowledge such relativity by saying following question-, for example, if we ask not about the absolute meaning of Tchaikovsky's Fourth, but rather about the meaning of this symphony for a particular person or group of persons, we still cannot equate questions of meaning with questions of truth, because the meanings individuals attribute to phenomena must themselves be interpreted by the researcher. A language must be selected to characterize the meanings people attribute to particular

\textsuperscript{13} Conklin (1955) reports that the Hanunoo have only four terms to describe colors and that these terms also simultaneously describe the texture of objects.
phenomena. Donmoyer (1985), arguing that "languages are inventions not discovery (or languages are not true or false)" (p. 16) concludes that questions of meaning are ultimately questions of language selection, and that such questions cannot be answered with empirical evidence.

Then, is there always relativism with respect to the verification of knowledge? And such, if empirical evidence is incapable of determining the validity of alternative interpretations, is one interpretation as good as another?

Needless to say, the answer to the above questions is No. As Phillips (1983) indicates, philosophers of science are generally united behind the notion that the relative worth of differing interpretation can be assessed. About this problem of relativism, Toulmin provides a significant solution. He believes that there is such a thing as scientific rationality and that there are ways to assess the relative worth of conflicting claims. Unlike Kuhn who suggests that scientific rationality involves the application of a priori criteria common to all sciences, Toulmin (1961) emphasizes the role purposes play in science, and argues that differing purposes will inevitably result in different criteria for appraising the relative adequacy of conflicting conceptual schemes or languages. In emphasizing the role of purpose, he opposes to the common assumption that all scientific activity can be characterized by a single unitary purpose, prediction. According to his
analogy, the question "what is the purpose of science?" is like the question "what is the purpose of the games?"
Although the purpose of games is considered to beat one's opponent, this would not be satisfactory to Toulmin, who cites examples of non-competitive such as Solitaire game\textsuperscript{14}. He also points to a host of games involving cooperation rather than competition. The parallel with science is seen in the fact that some sciences are primarily concerned with classification and not prediction.

Thus, Toulmin argues that each scientific discipline, just like every game, is undergirded by its own particular purposes. According to him, if there are fundamental disagreements over purposes within a discipline, then that discipline simply divides into subdisciplines (i.e., linguistics divides into subdisciplines such as structural linguistics, psycholinguistics and sociolinguistics). He also argues that the adequacy of conflicting paradigms (i.e., the adequacy of Newtonian physics and Einsteinian physics) is assessed not in terms of general criteria relevant of all scientific activity but in terms of the particular discipline. In short, he articulates a conception

\textsuperscript{14} According to Toulmin's explanation, even if games are competitive, this fact determines the general sorts of purposes they will have. However, in playing any particular games, a man will be trying to do a large number of different things such as to ace his opponents, to tire him out, to get him out of position and so on, pursuing a range of different aims, any of which may contribute to his overall success.
of human rationality that generalizes to all aspects of human understanding. This view provides part of the framework for the development of an alternative curriculum view.

Based on the above discussion, the third criterion for curriculum content view is stated as follow.

3) The curriculum content view should encompass the multiplicity of purposes of knowledge.

As discussed before, the positivist's belief that the validity is to be assessed empirically is no longer viable. Their narrowmindedness fails to recognize the fact that language plays a critical role in determining the adequacy of knowledge. That is, they ignore the relative worth of purpose of knowledge, which result from different language use and the fact that languages are not true or false. Then how can the relative worth of differing interpretations be assessed? Human beings have the capacity to create an infinite number of ways to characterize phenomena. As Toulmin indicates, the adequacy of conflicting paradigms (or interpretations) can be assessed not in terms of general criteria but in terms of particular criteria (purposes). For example, Toulmin explicitly makes distinction between science and other forms of human understanding. Concerning the distinction, he notes that although there is historical continuity and coherency in the development of artistic technique, all painters or poets or novelists do not share a
common purpose. On the contrary, the purpose of the artist is idiosyncratic to him or herself. He argues that the adequacy of human construction—be they scientific paradigm, artistic, or literary orientation—must always be judged in terms of particular purposes.

In a similar vein, Bruner (1986), in his recent book *Actual Minds, Possible Worlds*, identifies two modes of thought, each providing distinctive ways of ordering experiences, of constructing reality. According to him, each of the ways of knowing has operating principles of its own and its own criteria of well-formedness and they differ radically in their procedures for verification (p.11). He says "the one verifies by eventual appeal to procedures for establishing formal and empirical proof, the other establishes not truth but verisimilitude" (p.12).

In short, Bruner like Toulmin, recognizes the plurality of purpose of knowledge. To be sure, this criterion cannot only rescue us from the emptiness of relativism but provide a more adequate response to the problems associated with positivist’s narrowmindedness.

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15. He calls one mode "the paradigmatic or logico-scientific". The paradigmatic mode attempts to fulfill the ideal of a formal, mathematical systems of description and explanation and deals in general causes, and in their establishment, and makes use of procedures to assure verifiable reference and to test for empirical truth. The other mode is called narrative mode, which deals in human or human-like intention and action. Since the narrative mode deals with myriad intentions and endless ways for them to run into trouble, there should be endless kinds of stories.
Thus far, I have examined and discussed assumption area underlying curriculum content view in relation to the nature of knowledge and established three criteria for curriculum content view based on discussion. These criteria, of course, are used in order to both analyze two conflicting curriculum content views and provide a basis for an alternative view. However, the three criteria formed may not be acceptable to all. One may not, for example, accept them, or one could find covert, unexamined and unjustified assumptions in any of my criteria. None the less, the assumptions of subject-object relation, constructive nature, and multitude of purpose embedded in the nature of knowledge serve as a legitimate means of analysis and synthesis.
Chapter III
Reductionistic Approach to Curriculum Content

3.1 Introduction
The reductionistic approach to curriculum content, as mentioned before, refers to certain curricular scholars' ideas which show the traditional curriculum notion. By traditional curriculum notion, I mean the dominant Tylerian curriculum model, which is generally considered to be drawn from the influence of early curriculum theorists like Bobbitt, Charters, Dewey, and so on. A brief look at their influences on Tyler's rationale shows how the reductionistic approach is related to traditional curriculum view.

The field of curriculum is so young that it seems almost inappropriate to use the term "traditional" when reviewing its development. The early works in the field of curriculum were produced shortly after the turning of the century and usually associated with the publication of Bobbitt's *The Curriculum* in 1918.

Some have attempted to place the beginning of the field of curriculum earlier. Huebner (1976) suggested that Bobbitt's era (1918) marked the "early maturity" of the field. Hubner cites the work of Cremin who places emphasis on William Toray Harris and his work.
Kliebard (1975) suggests that the early curriculum theorists, especially Bobbitt, based their conceptions on works outside the field such as those of Frederik Taylor. Taylor (1911) was concerned with the scientific management of production. The primary focus of this movement was on efficiency in the factory. Productivity was of most importance. Taylor believed man to be motivated by money for the sake of personal comfort and benefits. Time and motion studies were conducted in order to determine the most efficient and effective manner of production. Kliebard summarizes the scientific management orientation as "fragmentation and analysis of work and its reordering into the most efficient arrangement possible" (p.54).

Educators were very much impressed with the scientific management concept. Kliebard (1975) gives credit to Bobbitt as being the man who adopted this philosophy to the operation of the school. Bobbitt (1912) reformed such areas as plant operation, staffing, and the wasteful use of resources, all in the name of efficiency. More importantly, Bobbitt reconceived the curricular process. The curriculum now saw the child as an unfinished source of raw material to be shaped and produced as efficiently as possible by the school.

Charters (1926) also joined traditional group in the 1920's by his work in the area of task analysis. He believed task analysis was needed in schools to eliminate "dead
wood". He developed a curriculum for women using a task analysis approach. These tasks became the basis for the curriculum of Stephones College. He defines curriculum as "findings out what people have to do and showing them how to do it" (p. 327).

Needless to say, Tyler was very much influenced by these early curriculum theorists. However, he was also influenced by the progressive John Dewey. Present day writers tend to categorize Tyler, Charters, and Bobbitt together under the broader term "traditionalists". Even if Tyler was a student of these early theorists, he went beyond their initial viewpoints and developed his own approach to curriculum.

The purpose of this chapter is to examine the characteristics and assumptions as curriculum content view. In doing so, it follows that the identification of reductionistic approach, the examination of the characteristics of the approach, and the critical discussion of the approach are needed. In addition, it is necessary for me to review the historical background on which the reductionistic approach is based, to clarify the assumptions embedded in it, because the assumptions as curriculum content view are considered to be embedded implicitly rather than explicitly in some representative ideas.
3.2 Background

Historically, mental discipline has long been the dominant educational theory (especially curriculum theory) with the view that a primary purpose of formal education is the development of mental power. Mental discipline has been closely related to "faculty psychology" by alleging that certain subjects have the power to strengthen faculties, such as memory, reasoning, will, and imagination. According to faculty psychology, just as the muscles of the body could be strengthened through vigorous exercise, so the mental muscles, the faculties, could be trained through properly conceived "mental gymnastics".

Throughout the nineteenth century, mental discipline was generally accepted as the controlling principle of American education, determining its aims and means, curriculum and methodology. The most famous document of mental disciplinarianism, the Yale Report, says:

The two great points to be gained in intellectual culture are discipline and furniture of mind .... Which are best calculated to teach the art of fixing the attention, direction the train of thought, analyzing a subject proposed for investigation; following with accurate discrimination the course of argument; balancing nicely the evidence presented to the judgement; awakening, evaluating and controlling the imagination; arranging, with skill, the treasures which memory gathers; rousing and guiding the power of genius (pp.300-1).

The Committee felt that discipline (strengthen the power of mind) was more significant function of education than the
furniture of mind (filling the mind with content). With this mind, the Yale faculty insisted on the values of the study of the classical languages like Greek, Latin, but maintained that English, mathematics, the physical sciences, logics, philosophy, rhetoric and oratory also had their disciplinary values.

As such, mental discipline is considered to be the first curriculum theory in that it shows consistent views with regard to the aims, contents and method of education. The mental discipline, of course, is based on the faculty psychology. However, as we shall see later, although the faculty psychology fails to survive the test of empirical verification, first by W. James (1890) and latter by several experiments conducted by E. Thorndike (1901), it is questioned that the educational theory suggested by mental discipline must be rejected totally because the mental discipline also is based on other basis than faculty psychology. Sometimes mental discipline has been known as based on J. Lock's epistemology. Lock (1901) is quite insistent on the existence of faculties and the necessity of training them. He writes "we are born with faculties and powers capable of almost anything, such at least as would carry us further than can easily be imagined" (p. 30). This idea is in line with mental discipline. Mental discipline, on the other hand, may be originated from Descart philosophy in that it admits mind-body dualism. However, in fact,
mental discipline can be thought to be supported by any philosophy such as Idealism, Realism, Rationalism or Experientialism and thus it can be tenable regardless of any argument of such philosophies.

As C.J. Brauner and H.W. Burns(1965) say:

Consider, for example, the educator impressed with idealism. Is it not understandable why he places such a stress on (to illustrate) the Socratic dialogue—the give and take of ideas—as sound pedagogy? Given his theory of mind, he expects truth out of such a dialogue, in which two minds are being honed against each other, this rational dialogue is as a chorus; each voice tunes the other until a clear note swells up and an idea rings true. After all, is not the development of this choir of intellect the end and object of education? Communication among minds within the field of force that is Mind is the only way to clarify ideas.

Or consider, again the educator impressed with realism. Is it not understandable why he places such a stress on (to illustrate) an "object lesson"—the use of a physical object to stimulate and produce ideas in the mind—as sound pedagogy? Given his theory of mind, he expects that such a Pestalozzian "object lesson", in which pupils would perceive, describe, discuss, and consider the object at hand, will increase the mind's power to abstract, to reason, to acquire knowledge—and, after all, is not the development of a discriminating intellect the end and object of education? Physical contact with a ball imprints upon the blank tablet of the mind a picture of spherical form which then can be measured by comparison against an ideal notion of sphericity(pp.34-5).

If there is the most important relevancy in mental discipline, it would be a naive common sense, which has long dominated the thought about education in the Western as well as the Orient. For example, the reason for that the major part of education in the Orient is reading Chinese classics
lies in not because the content contained in the classics can be applicable to the life efficaciously but because the mind disciplined through the classics is thought to be useful for the judgment about events or human relationship. Thus, when selecting the officials of the court, knowledge and understanding of classics was used as a test. This is similar to the case that when selecting officials of the East-Indian company in England, they tested the classics of Gleeck and Latin. Although these are not sufficient evidences for that learning the classics is directly related to the local administration or business, they would think that fully understanding and lots of knowledge of classics are sufficient as an evidence of developing mind-as-a muscle. Of course, such classics are those which have been considered to be the bests of mind.

By the beginning of the twentieth century, mental discipline as theory of curriculum was questioned in its authoritative justification. The questions emerging in many people's mind were like "if, indeed, the mind were really like a muscle and could be strengthened by exercise, why could not we exercise it on a wide variety of different subjects rather than the restricted set that was customarily prescribed?" Why even could not a faculty like memory be developed through exercise with nonsense syllables? Thus, mental discipline lost its base as a curriculum theory. Two major reasons seem to do so. The one is that the
faculty psychology, which is considered to provide the base, was rejected. The other, at the same time, is that Dewey's educational theory provides an alternative as a replacement of mental disciplinary argument. This causes the collapse of mental discipline directly.

Let's see why the faculty psychology supporting the mental discipline fall down. In 1890, W. James devised an experiment to determine whether daily exercise in learning one kind of poetry by heart would shorten the time required for him to memorize a different kind of poetry. He reported that it took him slightly less than 132 minutes to memorize 158 lines of Hugo's "Satyr"; that he spent about 20 minutes a day for the next 38 days memorizing the entire first book of Milton's "Paradise Lost"; and that after this practice, it took him 151 1/2 minutes to memorize another 158 lines of "Satyr". He concluded "in other words, I committed my Victor Hugo to memory before the training at the rate of a line in 50 seconds, after the training at the rate of 57 seconds, just the opposite result from that which the popular view would lead one to suspect (pp.666-7. in Kolesnik cited).

Thorndike, James' student, pursued the question further and refined his experimental techniques. He noted in the study that one of the quarrels of the educational theorists, concerned the extent to which special forms of training improved the general capacities of the mind. Does the study of Latin or mathematics improve one's general reasoning
Does laboratory work in science train the power of observation for all sorts of fact? Does matching colored sticks educate the sense for all sorts of discrimination? In order to answer these questions, Thorndike (1901) set out to test the initial efficiency of some function or functions of his subjects; then to train the subjects in some other function until a certain amount of improvement was realized; and finally to re-test the first set of functions. The differences between pretest and posttest would measure the influence of the improvement in the trained functions. He found, for example, that training in estimating lines from 0.5 to 1.5 inches long resulted in no improvement in estimating the length of lines of inch from 6 to 12 inches; training in estimating weights of from 40 to 120 grams resulted in only 0.39 percent as much improvement in estimating weights from 120 to 1,800 grams; training in perceiving English verbs made it possible to discriminate other parts of speech 3 percent more quickly than before, but the number of omissions increased by more than 100 percent (Psychological Review, pp. 247-61, 384-95, 554-64).

Based on such evidences as these, Thorndike concludes that it is misleading to speak in terms of sense discrimination, attention, memory, observation and quickness since what these words refer to are "multitudinous, separate, individual functions" which may have little in common. Besides these experiments, he carries out a number
of other experiments designed to test the general improvement of mental functions such as observation, memorization, and sensory discrimination in order to determine the value of various school subjects for mental discipline.

In his 1924 study "Mental discipline in High School Studies" Thorndike set out to measure the relative disciplinary values of various high-school offering, by determining the amount of gain in "general intelligence" that could be attributed to a person's having studied one particular subject or group of subjects rather than another. He explains:

For example, we compare the gains for the pupils who studied English, history, geometry, and Latin during the year with the gains for pupils who studied English, history, geometry, and shop-work. If other factors such as initial ability, zeal in taking the examination, or allowed for, the difference in gain represents the difference between Latin and shop-work as taught in these schools in general training or disciplinary value or improvement in "general intelligence" or whatever a gain in such an examination measures (1924, Journal of Educational Psychology, 15:1).

Through the study, Thorndike concludes that the difference between various subjects with respect to their general training value is so small that their worth should be decided largely by a consideration of the special training they afford.

According to Thorndike (1924):

The chief reason why good thinkers seem superficially to have been made such by having
taken certain school studies, is that good thinkers have taken such studies, becoming better by the inherent tendency of the good to gain more than the poor from any study. When the good thinkers studied Greek and Latin, these studies seemed to make good thinking. Now that the good thinkers study physics and trigonometry, these seem to make good thinkers. If the able pupils should all study physical education and dramatic art, these subjects would seem to make good thinkers (p.98).

Above experimental investigations of transfer and mental discipline by Thorndike and some others cast doubt on mental discipline as a curriculum theory.

On the other hand, Dewey's (1916) criticism of mental discipline also focuses on the inadequacy of faculty psychology on which mental discipline is based. His criticism is that the mental discipline has false concept of mind. According to Dewey, human mind means not existing faculties such as memory, abstraction, etc. but instinctive disposition of response. Thus, he urges that we should see human intellectual activity and indeed culture as a wholeness in relation to the characteristic activities in which the individual or society engages and the ability of those individuals to achieve command of their environment. He argues that "the biological point of view commits us to the conviction that mind, whatever else it may be, is at least an organ of service for the control of environment in relation to the ends of life process" (p.219).

However, more important criticism as to mental discipline by Dewey, lies in its dualism in which mental
discipline makes a distinction; the subject matter as experience vs the mental operations involved in dealing with it. For Dewey, there is no dualistic separation between mind and body, individual and society, work and play, nurture and culture; rather, these apparent opposites have reciprocal benefits for each other. According to him, when remembering or reasoning, we should necessarily remember or reason "something". Memory or reasoning never exists without "something" and the importance of memory or reason depends on that of something memorized or reasoned. Thus, speaking of pure ability of memory or reasoning without respect to a certain purpose is nonsense. Otherwise, the activities such as remembering nonsense syllables, or observing the crack of wall, etc. would be regarded a good education.

According to Dewey (1966), the criterion by which the importance of subject matter is judged should be "social". In other words, the problem of what to be memorized or reasoned must be answered in the light of how useful the content is to social life. Dewey does not recognize that the subject matter itself has its educational value. Subject, in and of itself, is meaningless without relationship with the growth of learner. Of course, what dewey denies is not the value of subject matter but socially decontextualization of subject matter. As he claims, "Even mathematics", the most abstract of the subjects commonly taught in schools,
"originally sprang up, not out of the ground, not out of the nature, but out of human life and human needs" (p.191).

Viewing education as experientialist philosophy, Dewey argues that the experience of the child must be the basics for education. The educator must realize that children are active learners who are already involved in meaningful social life. It is up to the teacher and curriculum developer to start with psychological (sources of meaning and interests in child life) and move to the logical (the accumulated knowledge of the human race) by demonstrating that personal interests can become more meaningful as one grows in acquaintance with relevant knowledge. Thus, the connection between school and society should be inseparable. The purpose of school should be to resolve social problems and to build a better society. As such, Dewey denied traditional education based on mental discipline. However, Dewey’s rejection of the traditional course of study (curriculum) is not because it emphasizes intellectual content; it is precisely because it lacks it. He (1936) asserts "custom and convention conceal from most of us the extreme intellectual poverty of the traditional course of study, as well as its lack of intellectual organization" (p.468).

In his The Child of the Curriculum, which is known as the best exposition of his theory of curriculum, Dewey (1902) is trying to dispel what he regards as an untenable dualism.
On the one hand, we had "certain social aims, meanings, values incarnate in the matured experience of the adult" and on the other hand, "an immature, undeveloped being" (p.4). According to him, the world of adult is logically arranged with reference to general principles; it is classified and abstracted from the real world. The child, on the other hand, lives in a world of immediate and direct experience. Dewey sees the solution of that dilemma in the concept of "experience". One had "to get rid of the prejudicial notion that there is some gap in kind between the child's experience and the various forms of subject-matter that make up the course of the study" (p.11). What Dewey is constructing, essentially, is a continuum of experience, and it is the function of course of the study. In short, what is being reconstructed in curriculum, therefore, are stages in the development of knowledge through the use of intelligence.

It is intellectual development that Dewey sought to effect through the curriculum not only because it gives the individual command of his or her environment, but also because intelligent social action held out the most promise for a better society. In a large sense, it is likely that what Dewey saw as the basic function of education, the development of the kind of intelligence that would lead to a command of the conditions of one's life and ultimately to social progress.
After mental discipline's being denied as a curriculum theory, we can see the spirit of times, "social efficiency" which emerged both as a social ideal and as an educational doctrine. With social efficiency, the new scientific curriculum makers such as Bobbitt (1918) and Charters (1926a) develop a theory of curriculum consistent with the concept of mind inherent in the new psychology. In place of a concept of mind comprising a limited number of discrete faculties, Thorndike and others (1901) in new psychology view the mind as consisted not of large capacities such as memory and reasoning but of "multitudinous separate individual functions" (p. 249). Thus, if transfer from one task to another was much less than had been commonly believed, then the curriculum had to be so designed as to teach people specially and directly those exact skills required for the tasks that lay before them in life. Bobbitt's scientific curriculum drawn from an analysis of the multitudinous tasks that comprise human life was all of one conceptual piece.

Let's see social efficiency proponent's ideas as a curriculum theory in some detail. By 1918, Bobbitt in *The Curriculum* summarized what is probably the most concise and at the same time most explicit definition of the curriculum theory that he and his fellow social efficiency educators were advocating:

The central theory is simple. Human life, however, varied, consists in the performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for
these specific activities. However, numerous and
diverse they may be for any social class, they can
be discovered. This requires only that one go out
into the world of affairs and discover the
particulars of which these affairs consist. These
will show the abilities, attitudes, habits,
appreciations, and the forms of the knowledge that
men need. These will be the objectives of the
curriculum. They will be numerous, definite and
particularized. The curriculum will then be that
series of experiences which children and youth
must have by way of attaining those
objectives (p.42).

Imbedded in Bobbitt's description of essentials of the
theory is the mechanism by which curriculum would actually
be constructed. A scientific technique often called job
analysis or activity analysis consists of a procedure
whereby one first create an inventory of the "particulars"
that comprise the human life. These are the things that
people, in fact, do and those would be converted into
curricular objectives.

Bobbitt recognized that the total range of human
activity was so vast that no curriculum could encompass it
at all, but he found a solution to that problem in the idea
of "directed and undirected experience" (p.43). He asserts
that some objectives may be "attained without conscious
effort and although the curriculum-discoverer must be aware
of these as well, he will be content to let as much as
possible". He says "Fortunately, the schools did not have to
teach everything" because some things are simply learned
through a natural process of socialization. He argues "The
curriculum of schools will aim at those objectives that are
not sufficiently attained as a result of general undirected experience" (p. 44). Bobbitt calls those abilities shortcomings\textsuperscript{16}. By shortcomings he means the deficits of people's activities. Thus, he concludes "Only as we list the errors and shortcomings of human performance in each of the field, we can know what to include and to emphasize in the directed curriculum of the schools" (p. 52).

Charters (1926a) also, Bobbitt's like-minded contemporary, devoted himself to the actual task of activity analysis in a variety of field. Through analysis of women's activities, he devised a new curriculum. For example, the technique he used is to analyze women's activities into categories such as food, clothing and health, and these categories, in effect, became the subject in the curriculum. In considering a curriculum for homemakers in particular, he (1926b) decided to present a list of 48 traits to a group of 3,440 judges who were asked to rate them as (1) most important, (2) neither unusually important nor unimportant, (3) least important (p. 680.). When these rankings were subjected to statistical treatment, it was discovered that care of health, e.g. "she plans her family's diet to meet their physical needs" (p. 676) ranked first, and so on. Such a trait study would be used to build a curriculum first by infusing some attention to these traits in "every subject

\textsuperscript{16} Shortcomings is the counterpart of the contemporary concept of "needs" in curriculum construction
taught" and secondly by directly training women to secure these traits (p. 684).

In developing the curriculum, the scientific curriculum maker's basic idea is to analyze persistent life situations. Thus, they viewed education as preparation for what lies ahead. As Bobbitt (1924) made this point, "Education is primary for adult life not for child life. Its fundamental responsibility is to prepare for the fifty years of adulthood, not for the twenty years of childhood and youth" (p. 8.). In the same vein, Charters (1926a) indicated "we should define curriculum on the basis of what people are going to do" (p. 327). In this regard, we can see sharp contrast between scientific curriculum makers and progressive educators like Dewey. Dewey (1916) objected to placing children on a "waiting list", a kind of "probation for another life" (p. 63).

The Cardinal Principles Report of 1918 represents areas of life activity, calling for a radical transformation of curriculum trend from the classic to the practical, as follows; (1) Health, (2) Command of fundamental process, (3) Worthy home-membership, (4) Vocation, (5) Citizenship, (6) Worthy use of leisure, and (7) Ethical character (pp. 10-11).

H.S. Caswell and D.S. Cambell (1935), along social efficiency line, analyzed so-called "major functions of

17. The trend of the classic curriculum under the Committee of Ten advocates four alternative curricula; classical, modern languages, English and sciences
social life." According to them, social function means the center of human activity common in all organization. For example, production and distribution of goods and services as a social function is necessary for the society to maintain and major part of activities of society participants is related to that. Virginia curriculum(1934) supported by social function idea includes the thirteen major functions\(^{18}\) of social life chosen for the social studies at high school level.

Besides, Special Committee on the Secondary School Curriculum(1940), which argues needs of pupil as basis for curriculum, and Educational Policies Committee(1944), which lists ten "Imperative Educational Needs of Youth" are representative examples of life-adjustment education trend. Life adjustment education is attuned to the actual life function of youth as a preparation for adulthood. The proponents of life adjustment education, indicating that American schools are failing to serve a significant proportion of the school population, claim the reorganization of curriculum for only a majority of the school population.

Charles A. Prosser argues what become life adjustment education:

It is the belief of this conference that, with the aid of this report in final form, the vocational school of a community will be able to better to prepare 20 percent of its youth of secondary school age for entrance upon desirable skilled occupations; and the high school will continue to prepare 20 percent of its student for entrance to college. We do not believe that the remaining 60 percent of our youth of secondary school age will receive the life adjustment training they need and to which they are entitled as American citizens....(U.S.O.E.,1951,p.29 in cited Kliebard).

What does it mean by 60 percent life adjustment education? As to what it actually implies, Kandel(1947) says that "it implies that all the contingencies which human beings are likely to encounter in their lives must be anticipated and education must be adjusted them. Among these contingencies are dating, marriage, mating, rearing of the child, work experience, vocations, and all the social issues which make up the day's headlines in the news papers"(p.372). H.R. Douglas(1949), one of life adjustment education supporters, associated life adjustment education with education in a democracy, arguing that the 40 percent dropout rate across the country indicated the American schools were failing to serve a significant proportion of the school population. He rejected what he regarded as the unsound theories that preceded life adjustment education, the "decorative" theory, the "disciplinary" theory and the "college preparation" theory as inappropriate to a
democratic school order (pp.110-111). He identified general education not with a core of basic disciplines, but with adequate preparation for various categories of life activities.

He says:

Life adjustment education, reduced to its simplest term, stands for an adequate program of secondary education for fairly complete preparation for all areas of living in which life adjustment must be made, particularly home living, vocational life, civic life, leisure life, and physical and mental health (p.114).

In line with the definition of life adjustment education by its proponents, the Illinois Secondary School Curriculum Program lists the needs of youth as follows: Tools of Communication; Strong Body, Sound Attitude toward it; Satisfactory Social Relationships; Competence in and Appreciation of Improved Family Living; Knowledge of Practice in, and Zeal for Democratic Processes; Sensitiveness to Importance of Group Action; Effectiveness as Consumers; Adjustment to Occupation; and Development of Meaning for Life (Houston, Stanford and Trump, 1948, p.23).

So far I have reviewed mental discipline and life adjustment education. Life adjustment education, as reviewed before, replaces mental discipline as a curriculum theory.

What is the curricular meaning of life adjustment education? That is, what characteristic does it show in relation to curriculum construction (in particular curricular objectives)? By comparing two opposite basic assumptions
about curricular construction between life adjustment education and mental discipline, the curricular meaning of life adjustment education, which provides the basis for the reductionistic approach to curriculum content can be clear.

Life adjustment education's lists such as activities of adult life, functions of social life, needs of youth, persistent life situations, and so on indicate the "life situation" where educated evidences are to be shown. In other words, people who are educated would show the evidence that they are good citizens useful for the society in life situations. The fact that the life adjustment education tries to find its general objectives in the life situations means that the life adjustment education recognizes the close relationship between life situations and educational situations. Assuming the direct relationship between them, life adjustment education attempts to connect them in following way. First, through analyzing life situations (e.g., activities of adult, the functions of social life, etc.) in detail, they decide the contents to be included in curriculum. Thus, the scope of curriculum is determined. Then they arrange and distribute the contents at the level of grade by more specification of them. Thus, the sequence of the curriculum is established. After all, the curriculum activity means the determination of what kind of life situations and how to arrange. In short, as to the way of relating educational situations to life situations, life
adjustment education uses the way in which life situations
themselves become the content of education. As such, they
would think that Dewey's argument that the importance of
subject must be judged by "social context" could be made
into practice.

However, clearly, it is the opposite to the way of
relating two situations (educational situation and life
situation) by mental discipline as a curriculum theory. From
the point of mental discipline, it is not important whether
life situations become the content of education. Rather the
mental discipline is more concerned with what is the
educated evidence in such life situation. According to
mental discipline, "the educated evidence" is identified by
the characteristics of mind and these characteristics appear
in all life situations. These characteristics, of course,
are obtained through studying subjects. In contrast, people
with social efficiency mind think that, by treating life
situations directly as the content of education, for example,
the event of buying (consuming) or making friends
with (socialization), the mental characteristics such
situations represent can be taught.

However, we can find a crucial problem in life
adjustment education itself. That is, life adjustment
education fails to clarify what are valuable characteristics
to be shown by educated children in the future life
situations. What the valuable characteristics are have never
been described anywhere in the principle of life adjustment education. This means that even if life adjustment education teach life situations, it does not know what to do. A look at lists such as "satisfactory social relationship", "effectiveness as consumer", or "good citizen" never shows what the valuable mental characteristics are. What does it mean by "satisfactory" or "effective" or "good citizen" concretely?

In this way, we can raise a question "What are the mental characteristics needed in those life situations?" If we decide educational content without respect to valuable mental characteristics by specifying life situations only, it results that the life situations are of importance in or of themselves. This problem is that, without specifying what characteristics useful people have to have in detail, life adjustment education tries to develop such characteristics by teaching various works in the society. Consider, for example, people who make food products. They may be considered to do useful work for the sake of society. However, if they produce the foods with poisonous stuff, is it useful? In education, we should pay attention to with what mental characteristics they produce the foods.

During the culmination of life adjustment education, the effort to stimulate curriculum reform was undertaken by the Progressive Education Association in what came to be known as "Eight-Year Study" (1942). In this study, students
were compared in pairs (one from a traditional school and one from an experimental progressive school) and matched for similar background characteristics. On a multitude of measures, ranging from academic to personal and social adjustment and accomplishment, students from the experimental schools equaled or excelled students from the control group of traditional schools. The Eight-Year Study, even if based on social efficiency, has been justified in terms of the needs and interests of the adolescence involved. The "Core Curriculum"\textsuperscript{19} was emerging as a fusion of the social efficiency concern and activity curriculum’s overriding emphasis on the needs and interests of the learner as the basic of the curriculum.

Finally, at the conclusion of the 1940s, Tyler’s Basic Principles of Curriculum and Instruction (1949) was brought. It goes without saying that this small book is considered the formation of the traditional curriculum thought. According to Schubert (1987), Tyler’s idea drew conceptually upon Dewey, Charters, Rugg, Bode, The Eight-Year Study (Giles, 1942), etc. As reviewed, Tyler’s idea was influence by both scientific curriculum makers like Charters, Bobbitt and progressive educators like Dewey. For example, Tyler suggests Dewey’s call for balance among

\textsuperscript{19}. In the core curriculum, Alberty and Alberty (1947, 1953, 1962) center discussion on the high school and emphasis on students, society, and disciplines of knowledge.
subject matter, student, and society as basis for curriculum development.

The famous Tyler's Rationale has emerged as a result of his experience from the Eight-Year Study and various curriculum trial for life adjustment education. Thus, Tyler synthesizes the paradigmatic question of curriculum field in his rationale. In spite of lots of challenges and criticism, his curriculum thought has persisted and certainly has been recognized for the wide spread influence it exert.

In the next part, Tyler's Rationale, Bloom's Taxonomy of Educational Objectives and Gagne's Learning Hierarchy are examined in an intention to identify the reductionistic approach to curriculum content.

3.3 Representative Ideas

In this part, the reductionistic approach to curriculum content is identified. As mentioned above, the reductionistic approach, based on traditional curriculum thought, starts with Tyler's rationale.

3.3.1 Tyler Rationale

Tyler (1949) identified four questions that should provide the parameters for curriculum study as follows:

1. What educational purposes should the school seek to attain?
2. How can learning experiences be selected which are likely to be useful in attaining these objectives?
3. How can learning experiences be organized for effective instruction?
4. How can the effectiveness of learning experiences be evaluated?

Above Tyler's rational is figured as follow.

Figure 3. Tyler rationale


Tyler suggests that planners of curriculum need to address the educational purposes of the school as stated in
His first question. These objectives are considered value statement and should be recognized as such. Tyler did not prescribe purposes but merely indicated that those doing the development of the curriculum, should agree on their purposes. These developers of the curriculum should also be aware of their own philosophies and theories of education. Rather than look only to society for the source of educational purposes or objectives, as stated by Bobbitt and others, Tyler suggests two other valuable sources of objectives; the needs of the individual learner and suggestions from subject matter specialists.

The process of objectives generation would probably result in an unmanageable number of educational objectives. Thus, Tyler proposes the use of two screens for the refinement of this body of objectives; one's educational philosophy and an accepted theory of learning. These two concepts would aid in narrowing the large number of objectives originally generated. A final task at this stage would be to state the selected objectives in behavioral terms.

The second question of the rationale suggests that the curriculum planner needs to decide upon some learning experiences for the student in order that the objectives selected can be performed by the student. Tyler defines a learning experience as an "interaction between the learner and external conditions in the environment to which he can
It is not subject matter content nor those instructional activities designed by the teacher. For learning to have occurred, the behavior of the student is evaluated not the behavior of teacher.

Tyler's third question, organization, would have the planners of curriculum concern themselves with both the vertical and horizontal organization of the learning experiences. Vertical organization refers to instruction over time, i.e., grades five, six, and seven. Horizontal organization refers to instruction across areas, i.e., science, mathematics and history. In this regard, Tyler suggests three elements necessary for effective vertical and horizontal arrangement; Scope, Sequence and Integration.

Scope and sequence are related to the vertical arrangement of the curriculum. The curriculum should cover the subject matter and should be so designed as to allow the student to build upon prior learning experiences. For example, a child is taught the alphabet first, then words, then sentences, then paragraphs, and then essays. Each new learning experience builds upon knowledge and skills learned in the prior experiences. Integration refers to the horizontal arrangement of the curriculum. The curriculum should integrate all areas of the disciplines: science, history and mathematics for example. This suggestion is based on the idea that a person should be exposed to all the disciplines of knowledge rather than single orientation.
This would also apply to all of the educational objectives selected to be taught. Integration would insure that the student is being exposed to the necessary elements in all subjects in order to be able to perform the desired behaviors.

Finally, Tyler's fourth question is concerned with the evaluation of curriculum. He views evaluation as:

A process for finding out how far the learning experiences as developed and organized are actually producing the desired results and the process of evaluation will involve identifying the strengths and weaknesses of the plans. This helps to check the validity of the basic hypotheses upon which the instructional program has been organized and developed and it also checks the effectiveness of the particular instruments, that is, the teachers and other conditions that are being used to carry forward the instructional program (1949, p.107).

Evaluation is most concerned with the effectiveness of the program developed. Students are evaluated to determine if they can perform the behavior stated in the selected objectives, but the major purpose of this process is to determine how effective the learning experiences were. If the student can perform the intended behavior, then the learning experiences can be judged effective.

What implication does Tyler's rationale give as to curriculum content? Tyler's rationale never answers to the question of what to teach. Why? Tyler would have thought that the question of what to teach was directly related to the philosophical value judgement and moreover difficult
dispute between the camp of subject-matter and that of needs of life about the question was been raised. As discussed already, the controversy between mental discipline and life adjustment education is focused on the very question. Thus, Tyler would deal with the procedural aspects of curriculum construction, for the purpose of avoiding the dispute over value problem, in his rationale.

Then, why and how does Tyler’s rationale show its reductionistic nature as curriculum content view? Although Tyler indicates that the objectives are to be drawn from three sources; learner, society, and subject matter, he shows the reductionistic character by emphasizing behavioral statement of objectives among others. In other words, Tyler’s contribution to educational objectives comes from not his five sources (three sources and two screens) but the way of stating objectives.

Tyler indicates several inappropriate ways of stating objectives. According to Tyler (1949), first, objectives stated as things which the instructor is to do (i.e., to present the theory of evolution, to demonstrate the nature of inductive proof, to introduce four-part harmony, etc.) are not appropriate because these statements may indicate what the instructor plans to do. Tyler says "the real purpose of education is not to have the instructor perform certain activities but to bring about significant changes in the student’s pattern of behavior". Second, objectives
stated in the way of listing topics, concepts, generalization, or other elements of content that are to be dealt with in the courses are not appropriate. For Tyler, such lists as "the Colonial Period", "the Establishment of the Constitution", "the Westward Movement", "the Civil War", etc. are not satisfactory objectives because objectives stated in the form of topics or generalization do indicate the areas of content to be dealt with and thus do not specify what the students are expected to do with these elements (p.45). Finally, Tyler indicates the inappropriate way in which objectives are stated in the form of generalized patterns of behavior which fail to indicate more specifically the area of life or the content to which the behavior applies. For example, one may state objectives as "to develop critical thinking", "to develop appreciation", "to develop social attitudes" (p.46), etc. Although these objectives indicate general kinds of changes in student, he says, they fail to specify the content to which these behavior apply. Accordingly, it is not adequate to talk simply about developing critical thinking without reference to the content or the kind of problems in which the thinking is to be done.

Therefore, Tyler suggests that the most useful form for stating objectives is to express them in terms of which identify both kind of behavior to be developed in the student and the content or area of life in which this
behavior is to operate(p.47). That is, the statement of objectives includes both the behavior and the content aspect of the objective. Here, does Tyler imply the content of education(curriculum content) by above content or area? He is never concerned with the content aspect of the objective even if he uses the term "content" in the use of two-dimensional chart in stating objectives. In explaining his two dimensional chart(behavior and content), Tyler illustrates "nutrition", "digestion", "reproduction", "energy relationship", etc. of biology to refer to content aspect of the objective(p.50). Not to mention, he would take it for granted that above lists are important content of biology on the ground that they are drawn from three sources and through two screens. However, this answer to the question of what to teach is not sufficient for justifying his curriculum content view. If so, strictly speaking, his rationale is no more than the justification of efficient teaching existing subjects, which are taken for granted as a result of passing five sources.

As mentioned before, the reductionistic character of Tyler rationale appears by his emphasis on seven types of behavior which students must show as mental operation after learning.

About seven types of behavior, Tyler says:

The first type of behavior is to develop understanding of important facts and principles; the second type is to develop familiarity with dependable sources of information—that is, with
places to which student may go to get information likely to be dependable on questions of various sorts.... The third type of behavior is to develop ability to interpret data—that is, to draw reasonable generalizations from the kinds of specific data.... The fourth type of behavior is to develop ability to apply principles.... hence, to be able to carry of problem-solving activities. The fifth type of behavior is to develop the ability to study and report the results of the study. The sixth is to develop broad and mature interests.... and the seventh is to develop social rather than selfish attitudes in this area (p. 48 underline added).

In fact, the seven types of behavior can be thought of as Tyler’s view on curriculum content. For Tyler, the seven types of behavior are the ultimate aims in education. In short, Tyler rationale as curriculum content view emphasizes the specification of behavior. In other words, as to the answer to the question of what to do, Tyler’s rationale implies that curriculum content should be identified in terms of human behavior and can be. Thus, the reductionists like Bloom (1956), Mager (1962), Gagne (1965), and so on have spent a great deal of time and effort in identifying methods and providing prescriptions for the formation of educational objectives so much so that the slogan "Educational objectives should be stated in behavioral terms" has been elevated in curriculum field.

3.3.2 Bloom’s Taxonomy of Educational Objectives

Needless to say, in broad sense, Bloom’s (1956) Taxonomy of Educational Objectives attempts to systemize Tyler’s
seven types of behavior in detail. Although Tyler's seven types of behavior may be helpful in selecting learning experiences and in guiding teaching, they are not sufficient as the criteria for evaluation. For evaluation purpose, the seven types of behavior need to be more specified. Thus, the taxonomy of educational objectives is designed to help to educators who deal with curriculum and evaluation problem.

There was agreement that such a theoretical framework might best be obtained through a system of classifying the goals of the educational process, since educational objectives provide the basis for building curricula and tests and represent the starting point for much of our educational research (p.4).

Bloom and others identify four general criteria which an ideal taxonomy ought to satisfy. These stipulate that such a taxonomy should:

1. classify teacher-written educational objectives;
2. be logical and internally consistent;
3. agree with the present understanding of psychological phenomena; and
4. be a descriptive system which could represent any type of educational goal (pp.13-14).

From here, they precede by collecting a large number of educational objectives. Each of these written objectives was examined in turn to determine what intended behavior and what content was indicated. The intended behaviors were then grouped into divisions which they felt were implicit in their nature. The result is a hierarchy of six levels of
intended behaviors. Each of these six major categories is further resolved into as many as nine subclassifications. The system is accompanied by an extensive lists of sample test items and objectives, which may be used by the teacher as a guide to assist in the classification process.

Here, let's examine the taxonomy in some detail. According to the authors' explanation, the cognitive domain of taxonomy is divided into two parts. One is the simple behavior of remembering or recalling knowledge. The other refers to so-called "intellectual ability", which is considered the more complex behaviors than the first one. Thus, the knowledge and the intellectual ability are divided into six categories in the following.

1.00 Knowledge
2.00 Comprehension
3.00 Application
4.00 Analysis
5.00 Synthesis
6.00 Evaluation

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20. Bloom and others (1956) originally called for a complete taxonomy in three major parts—the cognitive, the affective, and the psychomotor domain. The cognitive domain includes those objectives which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills. The affective domain includes objectives which describe changes in interests, attitudes, and values and the development of appreciations and adequate adjustment. And the psychomotor domain is skill area.
By knowledge, Bloom and others mean that "the student can give evidence that he remembers, either by recalling or by recognizing, some ideas or phenomenon with which he has had experience in educational process" (p. 28). According to Bloom and others, this type of objective emphasizes most the psychological processes of remembering. However, knowledge may also involve the more complex processes of relating and judging, since it is almost impossible to present an individual with a knowledge problem which includes exactly the same stimuli, signal, or cues as were present in the original learning situation (p. 29).

The authors of taxonomy, always keeping measurement purpose in mind, define knowledge as follow in the condensed version of the taxonomy of educational objectives:

Knowledge, as defined here, involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting. For measurement purposes, the recall situation involves little more than bringing to mind the appropriate materials. Although some alteration of the material may be required, this is a relatively minor part of the task. The knowledge objectives emphasize most the psychological process of remembering. The process of relating is also involved in that a knowledge test situation requires the organization and reorganization of a problem such that it will furnish the appropriate signals and cues for the information and knowledge the individual possesses. To use an analogy, if one thinks of the mind as a file, the problem in a knowledge test situation is that of finding in the problem of task the appropriate signals, cues and clues which will most effectively bring out whatever knowledge is field or stored (p. 201)
In contrast, the intellectual ability refers to cognitive process. That is, the intellectual ability means that students can do something with knowledge. For example, it is expected that when the student encounters a new problem or situation, he will select an appropriate technique for attacking it and will bring to bear the necessary information, both facts and principles. Often, this has been labelled "critical thinking", "reflective thinking", "problem solving", etc.

Bloom and others express the intellectual ability as:

\[
\text{Art or Skills} + \text{Knowledge} = \text{Ability}
\]

According to Bloom and others, "arts and skills" refers to modes of operation and generalization techniques for dealing with problems and "the intellectual ability" refers to situations in which the individual is expected to bring specific technical information to bear on a new problem. Thus, the intellectual abilities represent combinations of knowledge and intellectual arts and skills. For example, in solving problems requiring intellectual abilities, the student is expected to organize or reorganize a problem, to recognize what material is appropriate, to remember such material, and to make use of it in the problem situation. In short, the intellectual abilities mean cognitive process.
Bloom and others describe the intellectual abilities as follows:

Abilities and skills refer to organized modes of operation and generalized techniques for dealing with materials and problems. The materials and problems may be of such a nature that little or no specialized and technical information is required. Such information as is required can be assumed to be part of the individual's general fund of knowledge. Other problems may require specialized and technical information at a high level such that specific knowledge and skill in dealing with the problem and the materials are required. The abilities and skills objectives emphasize the mental process of organizing and reorganizing material to achieve a particular purpose. The materials may be given or remembered (p. 204).

With this distinction between knowledge (1.00) and intellectual abilities and skills (2.00-6.00), the taxonomy of educational objectives in the cognitive domain can be paraphrased as follow.

1.00 **Knowledge** The recollection of specifics and universals, methods, processes, patterns, structures, or settings.

2.00 **Comprehension** The student can make use of information that has been presented, but this does not imply the ability to relate this to any other information, or even to realize its fullest implications.

3.00 **Application** General ideas, rules, procedures or methods can be used in particular and concrete examples.

4.00 **Analysis** Information can be reduced to its fundamental parts in such a way that the relations between implied ideas is made very clear.
5.00 **Synthesis** Individual elements of terrain of information can be assembled into a coherent image or whole.

6.00 **Evaluation** The student can use standards to determine whether or not information satisfies criteria that may be established by the student or by others (p.201-207).

Concerning the taxonomy of educational objectives, the most significant is its **hierarchical structure**. Bloom and others believe that the levels of complexity is hierarchy in student behavior.

They say:

Our attempt to arrange educational behaviors from **simple to complex** was based on the idea that a particular simple behavior may become integrated with other equally simple behaviors to form a more complex behavior. Thus, our classifications may be said to be in the form where behaviors of type A form one class, behaviors of type AB form another class (p.18; underline added).

Bloom and others affirm the reality of this parallel in an early analysis of the taxonomy (1971) as follow.

The taxonomy places the behavioral aspects of the objective within a hierarchical framework; each category is assumed to include behavior more complex, abstract or internalized than the previous category. These categories are arranged along a continuum from simple to complex in the cognitive domain (Hand book on Formative and Summative Evaluation of Student Learning, p.39).

The hierarchy of taxonomy, as we shall see later, has been its pitfall in nature. D.S. Moor (1982) criticizes the taxonomy in that the hierarchical structure of the cognitive domain is in violent disagreement with the plain evidence of the nature of the learning process. Nevertheless, the
hierarchical array of increasingly complex concepts that is the foundation of the cognitive domain of Bloom's taxonomy of educational objectives has captivated the imagination of the American community of educators. Many secondary texts include behavioral objectives appended to the teacher's edition, complete with a numerical indication of their relative position in the taxonomy. In short, the taxonomy intended to apply to the classification of behavioral objectives represent a reductionistic approach to curriculum content.

3.3.3 Gagne's Learning Hierarchy Theory

R.M.Gagne's (1965) learning hierarchy system also shows a typical reductionistic approach to curriculum content. The origin of his learning hierarchy stems from the behaviorist tradition. Although he says "Learning is a change in human disposition or capability, which can be retained, and which is not simply ascribable to the process of growth", Gagne's work is considerably removed from the extreme mechanistic positions which he has inherited. For Gagne, development is subordinate to learning. Essentially, he argues that learning is a process of the cumulative effects of discrimination, generalization and transfer. Development, in effect, is the long-term change resulting from learning. Rather than invoke the traditional viewpoint that learned
associations govern all learning, Gagne believes that children learn an ordered, additive series of capabilities; i.e., the simpler, more specific capability is learned before the next, more complex, and general capability.

A general developmental sequence representing the cumulative effects of learning is shown as eight types of learning in the Figure 4. Eight different classes of situation in which human beings learn have been distinguished—eight sets of conditions and which changes in capabilities of the human learner are brought about.

The varieties of learning are distinguished briefly as follows.

Type 1: **Signal Learning** The individual learns to make a general, diffuse response to a signal. This is the classical conditioned response of Pavlov.

Type 2: **Stimulus-Response Learning** The learner acquires a precise response to a discriminated stimulus. What is learned is a connection of a discriminated operant.

Type 3: **Chaining** What is acquired is a chain of two or more stimulus-response connections.

Type 4: **Verbal Association** Verbal association is the learning of chains that are verbal. Basically, the conditions resemble those for other chains. However, the presence of language in the human being makes this a special
type because internal links may be selected from the individual's previously learned repertoire of language.

Type 5: **Multiple Discrimination** The individual learns to make n different identifying responses to as many different stimuli, which may resemble each other in physical appearance to a greater or lesser degree. Although the learning of each stimulus-response connection is a simple type 2 occurrence, the connections tend to interfere with each other's retention.

Type 6: **Concept Learning** The learner acquires a capability of making a common response to a class of stimuli that may differ from each other widely in physical appearance. He is able to make a response that identifies an entire class of objects or events.

Type 7: **Principle Learning** In simplest terms, a principle is a chain of two or more concepts. It functions to control behavior in the manner suggested by a verbalized rule of the form "If A, then B", where A and B are concepts.

Type 8: **Problem Solving** Problem solving is a kind of learning that requires the internal events usually called thinking. Two or more previously acquired principles are somehow combined to produce a new capability that can be shown to depend on a "higher-order" principle (Gagne, 1965, pp.58-59).
Problem Solving (Type 8) requires as prerequisites:
  Rules (Type 7)
  which require as prerequisites:
  Concepts (Type 6)
  which require as prerequisites:
  Discriminations (Type 5)
  which require as prerequisites:
  Stimulus-Response connections (Type 2)

As an example, let's consider Boyle's law in relation to Gagne's learning hierarchy. The complex rule of Boyle's law states that pressure is inversely proportional to volume assuming that all other variables are equal. The mathematical expression is \( P = \frac{R \times T}{V} \), where \( P \) = pressure, \( R \) = a constant, \( T \) = temperature, and \( V \) = volume. Simple rules define the relationships between pressure and temperature, pressure and volume, and volume and temperature. The concepts which are prerequisites for the above rules are those of pressure, temperature, volume, change and constancy. These concepts are based on subconcepts. For example, the concept of volume
of a rectangle requires the subconcepts of length, width, rectangle, etc. Concepts are, in turn, dependent on the prerequisite ability to make multiple discriminations. Using the length concept as an example, the prior capabilities of discriminating length from area, volume, etc. are the discriminations on which the concept depends.

According to Gagne, to clarify the acquisition of concepts (Type 6) and rules (Type 7), each new concept or rule should be learned but it is not necessary for a child to begin from the simple S-R connections (Type 1 or Type 2) because by the time the child is of school age, he will already have a foundation of S-R connections, chains (Type 3), multiple discrimination (Type 5) capabilities and concepts upon which to build further concepts and higher order capabilities.

Gagne further postulates that concepts and rules represent knowledge which can be verbalized. He views them as capabilities. He (1968) distinguishes between capabilities and knowledge in the following manner; A capability indicates what a child can do. It is an intellectual skill or process which enables a child to perform tasks which require that capability, for example, classification. By contrast, verbalizable knowledge which can be called from memory and verbalized, for example, that knowledge which allows a child to define the term "solid".
It is clear that both knowledge and capabilities are necessary in the educational process. Indeed, the two interact in task performance. Their differences lie in the manner in which they are learned. Capabilities are learned in a sequential manner where a previously learned subordinate capabilities. Verbalizable knowledge, however, is not ordered in a hierarchical sequence. After all, the sequential nature of capabilities acquisition forms learning hierarchies.

A learning hierarchy, according to Gagne, represents a minimally adequate route that a majority of children will take to achieve a final capability. In the light of his learning hierarchy, Gagne(1974) criticizes traditional curriculum content in that the curriculum content employed as a vehicle to teach capabilities, in large part, is irrelevant:

In educational circles, the content of learning is often referred to as large categories of subject matter; English, mathematics, and so on. Although this categories may have a certain usefulness as entities for planning and managing schools and school systems, they nevertheless have some rather unfortunate characteristics as content terms. The existence of such general "subject" categories make it difficult to determine what human capability they do or should include. As a single example out of many possible ones, it is reasonable to think that one kind capability a child ought to acquire in the primary grades is making an accurate description of an unfamiliar object. But is this "English" or "Language" or "Science"?(pp.243-244:underline added).
Thus, Gagne suggests that one would want to include in the curriculum those concepts and rules which are general both within different aspects of a discipline, such as physics, chemistry, and biology within the discipline of science, and between disciplines such as science, mathematics, and history.

3.4 Characteristics of the Approach

So far, I have identified the reductionistic approach to curriculum content through examining three representative ideas such as Tyler's rationale, Bloom's taxonomy of educational objectives and Gagne's learning hierarchy.

As the basis for the reductionistic approach, Tyler's rationale is usually interpreted by most educators as: (1) formation of objectives; (2) selection of learning experiences; (3) organization of learning experiences; (4) evaluation.

Actually, the most important point is the first step of forming objectives because the selection and organization of learning experiences are the means to achieve the goals (objectives), and so-called evaluation is also based on the goals as it measures their achievement.

As Tyler (1949) writes:

These educational objectives become the criteria by which materials are selected, content is outlined, instructional procedures are developed and tests and examinations are prepared. All aspect of the educational program are really means to accomplish basic educational purposes (p. 3).
What are the educational objectives or criteria? and where are they from?

According to Tyler, the criteria are from the sources; learner, the contemporary life and subject-matter. To these three sources of curriculum, he has added two more; philosophy of education and psychology of learning which he has sometimes referred to as philosophical and psychological "screens".

However, from the viewpoint of curriculum content, the objective by Tyler's rationale means, as Tyler indicates, the combination of the aspect of behavior and the aspect of content in behavioral statement. In other words, the connection of behavior and content is the very answer to the his first question "what educational purposes should be school seek to attain?" Think about Tyler's first question. This question in common sense is equal to the question of what to teach. Accordingly, Tyler's answer to the question of what to teach would be, for example, to teach understanding of "nutrition"(see page 94). That is, teacher should teach student to understand the principles about "nutrition". However, what Tyler is concerned with is not the content such as "nutrition", "digestion", etc. but the behavior like "to understand". As mentioned before, Tyler emphasizes the seven types of behavior such as "to develop understanding", "to develop familiarity", "to develop ability to interpret", and so on. The content like
"nutrition" is used as just a means. In Tyler’s rationale, the fact that the content is regarded as means to end leads to a curious educational view that the evaluation guides the objective. Why did Tyler try to specify objective in behavioral terms? Needles to say, he should have had the evaluation in mind. As a result, in order to know what teacher has to do in education, one must specify the behavior of student to be evaluated after instruction, not the content.

From Tyler’s rationale, it is natural that Bloom and others focus on analyzing and classifying behavior (cognitive, affective, and psychomotor) not on the content of subject matter. According to Bloom and other’s idea, the specification of educational objective is to detail what to evaluate and at the same time to clarify what teacher does in education. In this sense, the taxonomy of educational objectives is seen to identify and embody the implication Tyler’s rationale has.

However, there appears the possibility of turnover between the objective and the evaluation in Tyler’s rational itself. For example, the more closely educational objective is related to the evaluation, whoever may evaluate or be evaluated, the more they would think that getting high score in evaluation is achieving the educational objective successfully. This possibility has been hidden in Bloom’s taxonomy and at the height by Mager’s idea.
According to Mager (1962), a meaningfully stated objective is one that succeeds in communicating one's intent. Thus, the best statement is the one that excludes the greatest number of possible alternatives to one's goal. However, he indicates "Unfortunately, there are many "loaded" words". By "loaded" words, Mager means words open to a wide range of interpretation. For example, such words as "to know", "to understand", "to appreciate", "to grasp", and so forth are loaded words. In contrast, "to write", "to recite", "to identify", "to differentiate", and so forth are the words to fewer interpretation. Thus, Mager argues that objectives should describe the terminal behavior of the learner well enough to preclude misinterpretation and suggests the way of stating objectives including three elements: terminal behavior, condition, under which the behavior will be expected to occur, and criteria of acceptable performance.

According to Mager's description, the objectives like "to be able to repair a radio" are appropriate but the objectives like "to know how an amplifier works" are not. Why the latter not good? Mager says "the objective like "to know how an amplifier works" never demonstrates that the learner knows how an amplifier works.

Mager (1962) indicates the problem as follow:

Suppose I taught you about amplifiers, and to show me that you know how they work and you draw a diagram of one. And suppose I failed you, because I say that being able to draw an object doesn't
mean you REALLY know how it works. Then suppose you obtain a collection of parts and some tools and build me an amplifier that works. And I fail you again, because I content that building an amplifier doesn't prove you REALLY know how one works either. You would surely be reaching for my throat by this time and with good reason. But I think you get the point. There isn't anything "wrong" with the word KNOW except that when it is used as the only explanatory term is a statement of objective, it doesn't succeed in explaining very much. It just fails to communicate (p.20).

After all, according to Mager's argument, the objective "to know how an amplifier works" can imply an ability to design one, an ability to build one, to ability to describe, etc. and each of these is fine, upstanding objective in itself but which of them is implied by the word KNOW is not at all clear. Likewise, the word "to develop an appreciation for music" is vague as objectives. Since the objective neither precludes nor defines any behavior, it would be necessary to accept any of the various behaviors to evidence that the learner appreciate music.

On what ground is above Mager's claim of the behavioral statement of objectives? Needless to say, Mager seems to have evaluation after instruction program in mind. Tyler's argument that the educational objectives should be stated in

21. Mager, as examples of evidence, illustrates the followings.
1) The learner sighs in ecstasy when listening to Bach.
2) The learner buys a hifi system and $500 worth of records.
3) The learner correctly answers 95 multiple-choice questions on the history of music.
4) The learner says "Oh, man, I dig this the most. It's just too much".
the form of behavior or Bloom's classification of behavior is on the idea that the object should guide the evaluation. However, Mager's claim inversely leads to the contradiction that the outcomes (performance) to be evaluated should be the objectives. That is, instead of objective's guiding the evaluation, the evaluation regulates the objective.

If we think this difference important, we might say that Mager's idea results accidentally from Tyler's rationale. Sure enough? In my view, Mager's idea is not so much an accidental occurrence from Tyler's rationale as an inevitable one embedded in implication of Tyler's rationale, because the most important characteristic of Tyler's rationale, as examined previously, places its priority on the object than the content and moreover regards the content as the means to the achievement of the objective.

To be sure, Tyler's rationale shows its reductionistic nature by specifying and analyzing objectives (especially human behavior), just as Bobbitt approached to curriculum development in the name of scientific curriculum making.

What is the attribute of behavior as curriculum content the reductionistic approach assumes? Let's see the characteristic embedded in the reductionistic approach.

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22. Bobbitt (1918) scientifically and theoretically studied life to identified needed skills, divided these skills into specific units, organized these units into experiences and provided these experiences to children.
Bloom's taxonomy of educational objectives shows the characteristic of the reductionistic view. The taxonomy divides knowledge into three domains: cognitive, affective, and psychomotor. The cognitive domain deals with knowledge itself such as comprehension, synthesis, and analysis. The affective deals with values such as interests, attitudes, and appreciations. The psychomotor deals with motor skills, coordination and adaptation. And these classifications constitute the hierarchical relationship.

In the same fashion, Gagne's learning hierarchy presents a curriculum hierarchy to be taught. It is a guide which indicates the prerequisite subordinate capabilities to be taught and a order in which to present them. In considering curriculum development based on Gagne's idea, the tasks of a curriculum developer are to: (1) decide which superordinate capabilities should be taught, (2) determine a learning hierarchy which, in a psychologically relevant manner, describes the acquisition of the superordinate capabilities and (3) construct a series of situations which could teach prerequisite, subordinate capabilities. That is, the first task is the decision about the type of conceptual framework the curriculum will have. For example, those concept, rule, and problem solving capabilities which can be used in many learning hierarchies are preferable. The second task deals with the determination of a subordinate capability structure within the conceptual framework of the
curriculum. Final task deals with the development of a curriculum sequence since the hierarchy describes a minimally adequate route which a majority of children will traverse in acquiring a particular subordinate capability.

After all, Gagne also divides curriculum content (knowledge) into eight types consisting hierarchy. What is the characteristic implied in the reductionistic curriculum approach? The answer is behavior and its hierarchical relationship. In other words, the reductionists believe that curriculum content or educational content can and should be identified as being consisted of its components or elements, which are based on their hierarchies.

3.5 Critical Discussion on the Reductionistic Approach

The primary purpose of this part is to make a comprehensive critique of the reductionistic approach to curriculum content on the basis of the characteristic identified and the criteria established. Therefore, instead of focusing on the individual ideas, the discussion centers on "behavior" as curriculum content or the reductionistic approach and it's "hierarchical relationship" attached to the behavior.

(Limitations of "Behavior" as Curriculum Content)

The statement "Educational objectives should be stated in behavioral terms" has long been the most important slogan
in the curriculum field. Of course, at various reasons\(^{23}\), it is argued that educational objectives need to be clearly specified.

However, according to Eisner's description (1967), teachers seem not to take educational objectives seriously as useful tools for curriculum planning. He argues that it is not because there is something wrong with the teachers but because there might be something wrong with the theory of educational objectives.

Here, four limitations by Eisner regarding "behavioral objectives" will be suggested to indicate the fundamental deficit embedded in the reductionistic curriculum content view itself. First limitation of behavioral objectives is that it has not sufficiently emphasized the extent to which the prediction of educational outcomes can not made with accuracy because educational objectives are typically derived from curriculum theory, which assumes that it is possible to predict with a fair degree of accuracy what the outcomes of instruction will be.

Eisner (1967) describes:

If you set about to teach a student algebra, there is no reason to assume he will learn to construct sonnets instead. Yet, the outcomes of instruction

\(^{23}\) According to Eisner (1967), at least three reasons, the importance of educational objectives is emphasized. First, they provide the goals toward which the curriculum is aimed. Second, once clearly stated, they facilitate the selection and organization of content. And the third, when specified in both behavioral and content terms they make it possible to evaluate the outcomes of the curriculum.
are far more numerous and complex for educational objectives to encompass. The amount, type, and quality of learning that occurs in a classroom, especially when there is interaction among students, are only in small part predictable. The changes in pace, tempo, and goals that experienced teachers employ when necessary and appropriate for maintaining classroom organization are dynamic rather than mechanistic in character (pp. 253-4).

The point Eisner makes is that the dynamic and complex process of instruction yield outcomes far too numerous to be specified in behavioral and content terms in advance.

The second limitation of theory concerning educational objectives is its failure to recognize the constraints various subject-matters place upon objectives. According to Eisner, in some subject areas, it is possible to specify with great precision the particular operation or behavior the student is to preform after instruction. But in other subject areas, especially the arts, such specification is frequently not possible, and when possible may not be desirable. Thus, he argues that curriculum and instruction should yield behaviors and products which are unpredictable since in the arts and in subject matter, for example, where novel or creative responses are desired, the particular behaviors to be developed can not easily be identified. In short, the second limitation is that theory concerning educational objectives has not taken into account the particular relationship that holds between the subject matter being taught and the degree to which educational objectives can be predicted and specified.
The third limitation is that it has confused the use of educational objectives as a standard for measurement when in some areas it can be used only as a criterion for judgement. Eisner objects to the belief that objectives stated in behavioral and content terms can be used as criteria by which to measure the outcomes of curriculum and instruction. For example, taxonomy is built upon this assumption since their primary function is to demonstrate how objectives can be used to frame test items appropriate for evaluation. Eisner indicates that the assumption that objectives can be used as standards by which to measure achievement fails to distinguish adequately between the application of a standard and the making of a judgment.

The application of a standard requires that some arbitrary and socially defined quantity be designed by which other qualities be compared. By virtue of socially defined rules of grammar, syntax, and logic, for example, it is possible to quantitatively compare and measure error in discursive or mathematical statement. Some fields of activity, especially those which are qualitative in character, have no comparable rules and hence are less amenable to quantitative assessment....The making of a judgment in distinction to the application of a standard implies that valued qualifies are not merely socially defined and arbitrary in character. The judgment by which a critic determines the value of a poem, novel, or play is not achieved merely by applying standards already known to the particular being judged (pp.255-6).

Thus, Eisner proposes "critic" in order to judge its value with respect to the unique properties it displays.
The final limitation is that it has not distinguished between the logical requirement of relating means to ends in the curriculum as a product and the psychological conditions useful for constructing curriculum. According to Eisner's description, the rational approach by Tyler not only emphasizes the importance of specificity in the formulation of educational objectives but also implies when not stated explicitly that educational objectives be stated prior to the formulation of curriculum activities. However, even if the procedure of first identifying objectives before proceeding to identify activities is logically defensible, he says, it is not necessarily to most psychologically efficient way to proceed because one can, and teachers often do, identify activities that seem useful, appropriate, or rich in educational opportunities, and from a consideration of what can be done in class, identify the objectives or possible consequences of using these activities(p.257).

Macdonald(1965) also argues this point:

Let us look, for example, at the problem of objectives. Objectives are viewed as directives in the rational approach. They are identified prior to the instruction of action and used to provide a basis for a screen for appropriate activities. There is another view, however, which has both scholarly and experiential referents. This view would state that our objectives are only known to us in any complete sense after the completion of our act of instruction. No matter what we thought we were attempting to do, we can only know what we wanted to do accomplish after the fact. Objectives by this rational are heuristic devices which provide initiating consequences which become altered in the flow of instruction(pp.613-614).
By indicating above four limitations about behavioral objectives, Eisner shows that educational objectives clearly and specifically stated can hamper as well as help the ends of instruction and that unexamined belief in curriculum can become a dogma which in fact may hinder the very functions the concept was originally designed to serve.

"Behavior" as curriculum content in the reductionistic approach shows highlight with its "hierarchical relationship". Here, let's look at the hierarchical characteristic of the reductionistic approach.

(Inadequacy of Hierarchical Relationship)

As mentioned, the most significant of Bloom's Taxonomy and Gagne's learning hierarchy is their hierarchical relationship. A critical discussion about the reductionistic's hierarchical characteristic is focused on whether this hierarchical characteristic can be reflected in actual situation^24.

If the structure of the taxonomy could, in fact, be applied to the learning of any branch of knowledge, then it must certainly apply to, for example, mathematics. Few areas of knowledge seem so rigidly structured and hierarchical. Arithmetic must be learned before algebra; algebra before trigonometry; trigonometry before calculus—so natural that it would be nearly impossible to imagine teaching

^24. Here, the actual situation mean the learning situation.
mathematics in any but the most rigidly hierarchical fashion. But does this hierarchy in any way parallel the hierarchy of Bloom's taxonomy? The answer is "No". Each topic in mathematics uses symbols to identify concepts, and since each symbol has a definition, each topic incorporates elements of the lowest level of the taxonomy (i.e., Knowledge (1.00)). For example, in arithmetic, "+" is associated with addition; in geometry, "= " is associated with congruence. The hierarchical structure of mathematical topics as they are taught in school does not resemble the hierarchical relations of Bloom's taxonomy. We find each topic in the ascending levels of mathematical complexity (algebra--geometry--trigonometry--calculus) to rely on the lowest level of complexity of the taxonomy. That is, it is another kind of hierarchy.

As another example, consider the learning of language. When a child is first learning to use sentences, it would be silly to state the definition of a sentence first and expect the child to memorize it (Knowledge level in the taxonomy), before later applying the concept of a sentence in free conversation (Application level in the taxonomy). What actually happen in real children is quite different. The child evidently has the ability to learn the rules of language without ever having the laws of grammar or syntax explicitly defined or described. In this process, generalizations and particulars are learned simultaneously,
and without any special introduction. In fact, the child mind seems to be programmed to generalized on the basis of inductive inference. The child not only learn new items of information, but the child is able to apply the rules and generalizations learned, and with them construct totally new sentences for use in conversation (Application level in the taxonomy). We have, in essence, a case in which comprehension occurs after application; the child is able to replicate the rules of grammar without actually having any measurable knowledge or recall of the particular structures and generalized rules of language.

In case of problem solving, the student shall be able to find the volume of a regular tetrahedron, given the length of the apothem of one face. To solve this problem, he must first know what volume, apothem, tetrahedron, and face refer to (Knowledge level in the taxonomy). Second, he must realize that volume, apothems and faces are things which it is possible for a tetrahedron to have (Comprehension). Next, he must be able to apply the general concepts of apothem and volume to the particular case of a tetrahedron, possibly never encountered before (Application). And finally, he must be able to find the proper algebraic relationship between apothem and the volume (Analysis). As examined in this way, problem solving is a skill which necessarily involves each of the first four levels of Bloom's taxonomy. Therefore, the taxonomy cannot distinguish between them.
Above discussion shows that those elements of student learning which correspond to the levels of the taxonomy are neither hierarchical nor distinct. On the other hand, Gagne (1974) also indicates that some capabilities included under the name of subject matter ought to be referred to as the content learning instead of subject matter (see page 107). He criticizes the content of subject matter by indicating, for example, "As a single example out of many possible one, it is reasonable to think that one kind capability a child ought to acquire in the primary grades is making an accurate description of an unfamiliar object. But is this 'English', or 'Language' or 'Science'?" (p. 244). Of course, the capability to make an accurate description of an unfamiliar object which Gagne said is seen as neither English nor Science. However, this ambiguity is likely to result from the fact that the capability itself is not clear enough. Such capability has different meanings depending on the kind of subject matter. In other words, the capability to make an accurate description of an unfamiliar object in English is one thing and that in science is another.

Gagne called the capabilities intellectual skills. When a student performs intellectual operation within a subject, such intellectual skills are required. And he said that learning hierarchy was the best way to describe the "structure" of any topic, course, or discipline (p. 245).
In short, Gagne's learning hierarchy to educational content means that the educational content should be analyzed into lower constructions included in it and be grasped as a learning hierarchy.

One of Gagne's hierarchy illustrations is about the topic of Hydrolysis of Salt. In that, Gagne identifies various "rules" and "concepts" by elaborate hierarchy. Here, we come to find another "reductionism" to educational content. This means that the educational content (or curriculum content) should be analyzed into its elements. One teacher following Gagne's idea, first should make a hierarchy of content in teaching the topic of Hydrolysis of Salt. Why should he do so? Needless to say, as the hierarchy suggests, the internal condition for learning, which means the learning of sub-con structs, must be preceded. According to Gagne, the learning must be made progress from the lower step to the higher one. Thus, in order to understand the Hydrolysis of Salt, students should know the "concept" of oxygen or the "rule" of the measurement respectively.

However, the content included in the topic of Hydrolysis of Salt is never a simple "hierarchy" of such concepts or rules. Rather, the concept of oxygen or the rule of measurement is significant when being a part of or in relation to the knowledge which the topic of Hydrolysis of Salt represents.
Suppose that we teach the topic of the addition of time. The addition of time, according to Gagne, might be divided into "time" and "the addition of integer". However, the addition of time is never the connection between time and the addition of integer. And if the addition in the addition of integer and the addition in the addition of time are identical, we don't have to teach the addition of time separately. The addition of time itself should be understood under the context of proper mathematical knowledge not under the hierarchical context.

Recently, the deficit of Gagne's hierarchy as the approach to educational content is more elaborated in "The Principle of Instructional Design" by Gagne and Briggs (1974). They suggest cognitive strategy, verbal information, motor skills and attitudes in addition to the intellectual skills mentioned above with the internal and external conditions. In other words, teachers should teach motor skills and attitudes besides intellectual skills, cognitive strategy and verbal information and furthermore teach those using the methods adjusted to each of them. Have Gagne ever seen the teacher who has been teaching all of the capabilities suggested by him with the learning hierarchy idea? Does Gagne think who can do such a complicated work even in the future?

Thus far, I have discussed the inadequacy of the reductionistic view as curriculum content by criticizing its
characteristic identified as "behavior" and "hierarchical relationship".

What does it imply by "behavior" and "hierarchy" as the characteristic of reductionistic curriculum content view? As the term "reductionism" implies, "behavior" and its "hierarchy" show the objectivistic temper in nature. That is, the reductionistic curriculum content view holds that curriculum content as object exists "out there" independent of and external to the knowing subject's process of knowing and interpretation of its meaning attached to him. In other words, the reductionists view curriculum content (or educational content) as objective knowledge, which is assumed to possess certain unvarying and ahistorical "essence", which is unaffected by the process of knowing and producing knowledge.

Consequently, the subject (knower) comes to have a passive viewpoint of curriculum content as the object. He is forced to see curriculum content (knowledge) and the world of reality in a particular way regardless of his own conception and consciousness. Curriculum content implied by the reductionists is by no means something to be questioned, negotiated, or criticized. Rather, it is conceived of as something to be mastered, transmitted, collected and accumulated. There is no room for considering the self-formative process of generating and the subject's own
meaning, the process which involves an interpretive relationship between the subject and the object.

The reductionist's curriculum content view characterized as "behavior" and "hierarchy" recognizes neither the constructive nature of knowledge nor the multiplicity of purposes of knowledge. Why? The reductionists claim that behavior as curriculum content should be objective and capable of being investigated and described in a neutral entity, which has nothing to do with the conception of the subject's production or creation of knowledge. In short, the reductionistic curriculum content view alienates the subject from the actual context in which the knowledge is created and formulated. Furthermore, the reductionists assume the objective criteria for verification of the truth of knowledge which are considered to be absolute and universal.

To conclude, the reductionistic curriculum content view does not meet the appropriate conditions as curriculum content in the light of the criteria established in this study.
Chapter IV
Holistic Approach to Curriculum Content

4.1 Introduction

In the previous chapter, I mentioned the way of relating educational situations to life situations between mental discipline theory and life adjustment education. That is, while, as the way of relating educational situation to life situation, the life adjustment education tries to connect them in the way that life situations become educational content, the mental discipline assumes that after teaching the mental characteristics through subjects, these characteristics can be shown in various life situations.

A crucial problem of life adjustment education viewed from the mental discipline is that without specifying what the socially useful characteristics are, it tries to bring up such characteristics. Then can the mental discipline show such characteristics of socially useful people? It might not. However, unlike the life adjustment education, the mental discipline has quite a explicit answer to the question of where such characteristics can be from. According to the mental discipline, the source is "disciplines" represented by subjects. The characteristics
of socially useful people, from the mental disciplinary aspect, are those which people come to have as the results of disciplining.

In fact, as for the mental discipline, it is not so important whether or not those who study subjects become so-called socially useful people. Rather, the mental discipline is more concerned with how to transmit values embedded in subjects to students. In this regard, the conflict between the mental discipline and the life adjustment education is that of whether or not recognizing the value of discipline (disciplinary value).

During the life adjustment education, there has been so-called the controversy of progressive education in American education. This controversy is often understood as that between critics and defenders as to Dewey's educational theory. The critics, assuming that the practice in those day's education represents Dewey's theory, think that the deficit of the practice means that of Dewey's theory. The proponents of Dewey strongly defend Dewey on the ground that the practice is not what Dewey's theory mean actually. However, as long as the assumption of relationship between the life adjustment education and Dewey's theory is not obvious, it seems reasonable to think that the controversy of progressive education is about the position of disciplinary value rather than about the appropriateness of Dewey's theory. When we interpret the controversy of
progressive education in this way, the controversy is thought of as permanent one (permanent educational dilemma). In this controversy, those who recognize disciplinary value would try to place focus on discipline. The holistic approach to curriculum content has been proposed and supported by them.

In this chapter, the background of holistic approach is reviewed and the representative ideas of the approach are identified. Finally, the characteristics of the approach will be critically discussed in terms of the criteria of this study.

4.2 Background

The advocates of life adjustment education thought that they brought Dewey's educational theory into practice. In broad sense, the education based on Dewey's educational theory has been called Progressive Education. And one of the most important principles in Dewey's theory is what we called "the respect of children's interest". Thus, the principle is understood to refer life adjustment education. In other words, the progressive education takes the form of life adjustment education with respect to the purpose and content and the respect of children's interest as a methodological principle. In a sense, the progressive education has the same meaning of life adjustment education or child-centered education.
For progressive educators, the term "interest" is interpreted as psychological concept. For example, the interest is the same in case of "to feel interested in". In this sense, the interest is psychological or descriptive concept and can be grasped by asking "what do you feel interested in?" Of course, when asked so, children would reply that they like the life situation problems than "subject" written in textbooks. The reason that the methodological principle of "respect of interest" is closely related to the educational content might result from such thought. For progressive educators, as the subject is regarded as the opposite to life situation, just so the subject is considered opposing to children's interest. This idea has been more accelerated in terms of the well known slogan "we teach children, not subject". In short, to the progressive educators, the desirable education is meant teaching the problems identified in the life situations through children's participatory activities (learning by doing).

However, it is dubious whether their view about interest as opposing to the subject represent Dewey's idea adequately. The point Dewey argues is that the subject should be applied to "the purposeful problem solving process" and so the subject comes to be into children's interest. According to Dewey, children's interests come from relating subjects to "purposeful activities". In this
sense, the subject or subject matter means "matter of interest".

Dewey never thought that the interest is conflicted with the subject. He(1902) indicates this point in his book *The Child and the Curriculum*:

From these elements of conflict grow up different educational sects. One school fixed its attention upon the importance of the subject matter of the curriculum as compared with the contents of child's own experience. It is as if they said: Is life petty, narrow, and crude? Then studies reveal the great, wide universe with all its fullness and complexity of meaning. Is the life of the child egoistic, self-centered, impulsive? Then in these studies is found an objective universe of truth, law, and order. Is his experience confused, vague, uncertain, at the mercy of the moment's caprice and circumstance? Then studies introduce a world arranged on the basis of eternal and general truth; a world where all is measured and defined. Hence the moral; ignore and minimize the child's individual peculiarities, whims and experiences. They are what we need to get away from. They are to be obscured or eliminated. As educators our work is precisely to substitute for these superficial and causal affairs stable and well-ordered realities and these are found in studies and lessons.... Subject matter furnishes the end, and it determines methods. The child is simply the immature being who is to be matured; he is the superficial being who is to be deepened; his is narrow experience which is to be widened. It is his to receive, to accept. His part is fulfilled when he is ductile and docile.

Not so, the other sect. The child is the starting point, the center, and the end. His development, his growth, is the ideal. It alone furnishes the standard. To the growth of the child all studies are subservient; they are instruments valued as they serve the need of growth. Personality, character, is more than subject matter. Not knowledge or information, but self-realization, is the goal. To possess all the world of knowledge and lose one's own self is as awful a fate in education as in religion. Moreover, subject-matter never can be got into the child from without. Learning is active. It involves
organic assimilation starting from within. Literally, we must take stand with the child and our departure from him. It is he and not the subject matter which determines both quality and quantity of learning.... The source of whatever is dead, mechanical, and formal in schools is found precisely in the subordination of the life and experience of the child to the curriculum. It is because a synonym for what is irksome, and a lesson identical with a task (pp.7-9).

Dewey objects to this fundamental opposition of child and curriculum set up by these two modes of doctrine. According to him, the standpoint of the former (Discipline) is logical and that of the latter (Interest) is psychological. The former emphasizes the necessity of adequate training and scholarship while the latter that of the need of sympathy with the child and the knowledge of his natural interests. However, Dewey, arguing that the child and the curriculum are simply two limits which define a single process, claims to abandon the notion of subject-matter as something fixed and ready-made in itself outside, the child’s experience and to cease thinking of child’s experience as also something hard and fast. Again Dewey (1938) warns progressive educators' dogmatic thought that progressive education is against traditional education and the principles of progressive education can be established on the opposition of traditional education. He argues that the principle of progressive education is not the solution for education. Rather it is another promoted problem. About subject matter, Dewey says:
Admit that traditional education employed as the subject-matter for study facts and ideas so bound up with the past as to give little help in dealing with the issues of the present and future. Very well. Now we have the problem of discovering the connection which actually exists within experience between the achievements of the past and the issues of the present. We have the problem of ascertaining how acquaintance with the past may be translated into a potent instrumentality for dealing effectively with the future. We may reject knowledge of the past as the end of education and thereby only emphasize its importance as a means. When we do that we have a problem that is new in the story of education; How shall young become acquainted with the past in such a way that the acquaintance is a potent agent in appreciation of the living present? (Experience and Education, 1938, pp. 22-23: underline added).

No matter what Dewey's educational theory was, it is true that subject-matter vs life situation and subject matter vs interest are regarded as opposing each other in the practice of progressive education those days. As indicated before, life situations often were treated as important educational content in themselves without regard to the intention to teach them. Furthermore, the respect of children's interest or children's spontaneity was interpreted arbitrarily and presented as methodological principle. The education based on such idea often become nonsense more than the education based on mental discipline. After all, this education was bitterly criticized because of failure to teach student the most important intellectual content. Educational Wasteland (Bestor, 1953), The Restoration of Learning (Alfred Knopf, 1955), The Diminished Mind (Smith, 1952), Education for Freedom (Hutchins, 1943), The
Conflicts of Education on a Democratic Society (1955) etc. are all the critiques about the principle of the progressive education. Among critiques, there was a quite scoffing criticism like:

As one educator describes them, core courses constitute "the understandings and behavior skills needed by all children to live efficiently as good citizens in their homes, the local communities, and the larger national and world communities". Core teachings include courses in reading, writing, arithmetics, and listening, and creation of practical classroom situations designed to inculcate in all students the virtues of adaptability, promptness, dependability, cooperative spirit, and readiness and ability to work with others in solving community problems, he says. He would have children in the early high school years concentrate on the behavior skills of group living, and in the last years he would provide them with courses suited to their developing individualities. He cites an example of a class project that cut across all learnings at once, offering both something to everybody and the same thing to everybody at the same time: a midwestern high school class planted 35,000 seedlings on a lumbered-off bit of land in the school district.

In the process, the main believes, all the children learned the value of conservation while increasing the property value of the school district. He thinks the work stimulated the community's imagination and taught the children how to look analytically and constructively at community needs. He thinks that the class became aware of major economic weaknesses in the community resulting from the lumber company's ruthless and uncontrolled exploitation of the area's natural resources; that they learned how to work together, sharing, and accepting responsibilities and duties growing out of group action, learned how and when to plant seedlings and how to assemble spades and axes, arrange for transportation and set up an organization. Nor, he says, did this project result in lower achievement of subject-matter, for the chemistry teacher got together with the social studies teacher and both tuned their work to the project. The chemistry teacher taught the interrelationship of plant
life, soil and moisture, and the social studies
teacher drove home the point that when, through
their failure to take group action with regard to
t heir area's natural resources, people establish
conditions for erosion to take place, social loss
invariably results (Keats, School without

The author of the above writing, needless to say,
thinks that the educator's advocacy is nonsense. What
important content did students learn in the project besides
digging 35,000 hollows? What significant thinking could
students, digging hollow, have with respect to "cooperation"
or "social relationship"? Of course, this criticism is
applicable to subject-matters. Without exception,
mathematics is "consumer's mathematics" and sciences are
"life sciences". By those, how could students learn the
meaning of mathematics and science? Instead, there were made
all kinds of activities such as sewing, cooking, even tap
dance in the name of practical activity in the life
adjustment schools.

L. Cremin (1961), in the beginning of the history of
progressive education, summarizes the story by Joseph Mayer
Rice, who visited to 36 schools in the following:

Rice's story bore all the earmarks of the
journalism destined to make "muckraking" a
household word in America. In city after city
public apathy, political interference, corruption,
and incompetence were conspiring to ruin the
schools. A teacher in Baltimore told him: "I
formerly taught in the higher grades, but I had an
attack of nervous prostration some time ago, and
the doctor recommended rest. So I now teach in the
primary, because teaching primary children does
not tax the mind". A principal in New York, asked
whether students were allowed to move their head, answered: "Why should they look behind when the teachers is in the front of them? A Chicago teacher, rehearsing her pupils in a "concert drill", harangued them with the command: "Don't stop to think, tell me what you know!" In Philadelphia the "ward bosses" controlled the appointment of teachers and principals; in Buffalo the city superintendent was the single supervising officer for 700 teachers. With alarming frequently the story was the same: political hacks hiring untrained teachers who blindly led their innocent charges in sing song drill, rote repetition, and meaningless verbiage (pp.4-5).

If the education of planting seedlings should be criticized, the education Rice witnessed also needs certain improvement. Here, we can raise a question of what aspects the progressive education failed about in the process of carrying out its intention. It is necessary to clarify the critical points concerning the progressive education in order to answer the question.

It is R. Hutchins who made a criticism about the progressive education systematically. According to him (1955), the progressive education is on the doctrine of "adjustment or adaption", "social reform" and "immediate needs" but those are erroneous. Although every society must have a system of training or instruction, or adaptation, or meeting immediate needs, it is not a system of education. Every man has a function as a man. The function of a citizen or a subject may vary from society to society, and the system of training, or adaptation, or instruction, or meeting immediate needs may vary with it. But the function
of a man as man is the same in every age and in every society, since it results from his nature as a man. Thus, the aim of an educational system is the same in every age and in every society where such a system can exist (p. 68).

If we are going to talk about improving men and society, he says, we have to believe that there is same difference between good and bad. The progressive education, emphasizing "adaptation" or "meeting immediate needs", does not accept the standard of judging. Of course, education must try to reform society, but the reformation of society can be made through not "adaptation" or "meeting immediate needs" but improving individuals. To improve man as man, we must teach the truth such as Good and Bad.

To cite Hutchins (1955):

If the object of education is the improvement of men, then any system of education that is without values is a contradiction in terms.... The prime object of education is to know what is good for man. It is to know the goods in their order. There is a hierarchy of values. The task of education is to help us understand it, establish it, and live by it..... Such an education is far from the triviality of that produced by the doctrine of adaptation, of immediate needs, of social reform, or of the doctrine of no doctrine at all. Such an education will not adapt the young to a bad environment, but it will encourage them to make it good. It will not overlook immediate needs, but it will place these needs in their proper relationship to more distant, less tangible, and more important goods. It will be the only effective means of reforming society (pp. 71-72).
Hutchins called it liberal education. Liberal education as a classical education\textsuperscript{25} consists of training in the liberal arts and of understanding the leading ideas that have animated mankind. It aims to help human being learn to think for himself, to develop his highest human powers. Thus, liberal education with the concept of man as a rational animal, who seeks and attains his highest felicity through the exercise and perfection of his reason\textsuperscript{(p.81)}, shows the tradition of mental discipline in character. In this regard, liberal education is on the opposite of life adjustment education, which tries to adjust youngs to the immediate needs of society.

After all, the controversy over progressive education is summarized the dispute between liberal education and life adjustment education. This dispute, in other words, can be explained as the dispute between traditional education and progressive education. The progressive education, by suggesting an alternative to the mental discipline, comes to contribute to reinforcing and refining the tradition of liberal education embedded on mental discipline. In fact, those who claim liberal education have been in favor of the

\textsuperscript{25} According to Hutchins\textsuperscript{(1955)}, the content of liberal education is the greatest ideas that the greatest men have had, regardless of the time at which they live or the kind of society they live in and the method of liberal education include the method of history, philosophy, and language as well as of science.
mental discipline implicitly or explicitly. For example, Van Doren (1943) advocates it as follow:

It is the fashion now to make fun of what used to be called "formal discipline" in education. The theory of formal discipline is that certain studies if properly pursued yield not only knowledge of their own content but an intellectual skill which can be employed to advantage in other studies: it is the theory that certain studies are good for the mind. As a theory it was often expressed naively; and it was sometimes used in defense for which nobody could discover the reason. But its bad name today can be traced in part to the fact that few living persons have submitted themselves to the sort of discipline under dispute.... The philosophers of a curriculum could make no graver error than to accept the fashionable criticism of formal discipline at his face value. It is superficial criticism, especially when it alleges that the powers acquired are trivial. The accuracy which mathematics requires is not a trivial virtue. But, mathematics, particularly if it is enjoyed, also trains the mind in abstraction, the prelude to a central and major virtue. Particularly, if it is enjoyed (pp.120-121).

While the progressive education is in its culmination, the importance of liberal education has been emphasized incessantly. Among them, General Education in A Free Society by Harvard Committee (1945) is especially noteworthy. This report also, however, could never give a crucial influence on the trend of education of those days. It had to wait the 1960s to do so.

In relation to curriculum, there were two important event in 1959. The one is "Wood Hole Conference", which produced the famous report The Process of Education (1960). The other is the presentation of report by "Council for
Basic Education. These two events can be thought to mirror the problem consciousness in the field of curriculum and also regarded as a moment to divide educational theory into pre and post. Unlike the critique about the progressive education, the two establish the new trend in education. In this new trend, subject matter or discipline constitutes the educational content (curriculum content). The process of education, of course, urges this point.

Bruner's "The Process of Education" gives an more recent answer to the question of what to teach. The book urges to take new view on curriculum content. That is, the educational content we have to teach should be "the structure of knowledge" or "the structure of discipline". The structure of knowledge as curriculum content often refers to the general ideas constituting the base of discipline. Bruner uses the term "structure of knowledge" to refer to "basic concept" or "general principle". The structure of knowledge, although Bruner never defines it exactly anywhere in "The Process of Education", shows his comprehensive view on education including what to teach, how to teach, and even why.

After "The Process of Education", H.S.Broudy(1964) and P.H.Phenix(1964) suggest new curriculum theory emphasizing subject-matter and discipline. Their ideas show two common

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26. Their ideas about curriculum are presented by the book "Democracy and Excellence in American Secondary Education" (1964) and the book "Realms of Meaning" (1964).
points. The first is that the content of education should be not so much something to meet social needs as "subject matter" or "discipline". The second is that curriculum theory should be established through analyzing subject matter itself. Especially, this means the counterargument of Tyler's curriculum model, which tries to develop curriculum in terms of "purpose", "selection of experiences", "organization of experiences", and "evaluation".

According to Broudy and others (1964), since the distinctive feature of a school is that it is a place for formal learning, what is to be learned, the content of instruction should be emphasized as a central of curriculum theory. They, with a distinction of curriculum theory and the account of curriculum theory, oppose to Tylerian curriculum model. From Broudy's description, Tyler's rationale suggests not curriculum theory but general frame of curriculum theory. Broudy and others call their curriculum "common general curriculum" in character. The term "common" means that it is shared by all pupils. "General" refers to a characteristic of the subject being studied. That is, the general is the opposite of the specific or of the particular and is therefore more likely to be abstract than concrete. For example, mathematics, they say, is more general than geography, and geography more general than corn agriculture (p.44). On what grounds can this common general curriculum be from? It is sought not in
the particular jobs that youth are likely to hold, nor in the diverse roles they will play in life, but rather in the ways that schooling or school learnings are used in modern life (p. 45). Thus, Broudy and others distinguish four typical uses of knowledge or school learnings and call them "replicative", "associative", "applicative", and "interpretive" respectively. The interpretive use of schooling, they say, is the most important and fundamental because without a prior interpretation of the situation, we are not sure what we shall replicate, associate, or apply. Therefore, Broudy and others argue that curriculum should be constructed for orientation of interpretive use of schooling.

Phenix's curriculum theory is basically the same of Broudy's. For phenix, the content of education is meaning. Meanings by which human nature is defined are conscious experiences with structural principles, some of which prove capable of elaboration as cultural traditions with corresponding symbolic expressions. These tradition of significant meaning may be found in the most refined and articulate form in the various scholarly disciplines. According to Phenix, for purposes of education, these disciplines may be assigned to six basic logical classes, or realms of meaning, indicating the general kinds of understanding a person must have if he is to function well within the civilized community. Therefore, the purpose of
education is to promote the growth of meaning. In short, his view on the content of education is that all curriculum content should be drawn from the disciplines.

Thus far, I have reviewed the historical background of the reductionistic approach. In the next part, the representative ideas related to the holistic approach as curriculum content will be identified in detail.

4.3 Representative Ideas

Unlike the reductionistic approach, which tries to grasp curriculum content in analytical form, the holistic approach has the view that curriculum content should and can be identified through the structure of knowledge. Thus, the holistic approach is the opposite of the reductionistic approach to curriculum content.

Here, let's identify what the holistic approach mean as a curriculum content view. As mentioned before, Bruner's (1960) structure of knowledge, Broudy's (1964) interpretive use of knowledge, and Phenix's (1964) realm of meaning as representative ideas of the holistic approach, among others, will be examined.

4.3.1 Bruner's Structure of Knowledge

Bruner, known to be one of the post-Sputunik scientists and educational theorists, explicates his unique position on
school curriculum. In the The Process of Education (1960), Bruner tried to depict an image of education, which is based on the nature of structure of knowledge embedded in each discipline. That is, curriculum content should be organized and presented according to the inherent basic structure of knowledge for an optimal learning. His curriculum theory encompasses not only the issues of what is to be taught but how to teach the content effectively.

The most crucial concept as curriculum content view is that of "structure of knowledge". It may be meaningless to talk about his curriculum theory without understanding "structure of knowledge". Although the meaning of the structure of knowledge involves the core of his curriculum theory, Bruner does not clearly define the concept anywhere in his book except that he mentions it in terms of "fundamental concepts". Bruner presents the illustration in biology and mathematics with respect to the structure. Thus, we have to understand what the structure mean through some of his illustrations.

For example, Bruner (1960) illustrates the structure of biology in terms of "tropism".

Take first a set of observations on an inchworm crossing a sheet of graph paper mounted on a board. The board is horizontal; the animal moves in a straight line. We tilt the board so that the inclined plain or upward grade is 30°. We observe that the animal does not go straight up, but travels at an angle of 45° from the line of maximum climb. We now tilt the board to 60°. At what angle does the animal travel with respect to the line of maximum climb? Now, say, he travels along a line
75° off the strait-up line. From these two measures, we may infer that inchworms "prefer" to travel uphill, if uphill they must go, along an incline of 15°. We have discovered a tropism, as it is called, indeed a geotropism. It is not an isolated fact. We can go on to show that among simple organisms, such phenomena—regulation of locomotion according to a fixed or built-in standard—are the rule. There is a preferred level of illumination toward which lower organisms orient, a preferred level of salinity, of temperature, and so on. Once a student grasps this basic relation between external stimulation and locomotor action, he is well on his way toward being able to handle a good deal of seemingly new but, in fact, highly related information. The swarming of locusts where temperature determines the swarm density in which locusts are forced to travel, the species maintenance of insects at different altitudes on the side of a mountain where crossbreeding is prevented by the tendency of each species to travel in its preferred oxygen zone, and many other phenomena in biology can be understood in the light of tropisms. Grasping the structure of a subject is understanding it in a way that permits many other things to be related to itmeaningfully. To learn structure, in short, is to learn how things are related (pp. 6-7).

What does the above explanation show about the structure? Bruner says "To learn structure is to learn how things are related". What this indicates about tropism is clear. That is, the locomotion of locusts or insects is not a phenomenon to understand separately. Rather, it is to be understood in the light of the principle of tropism. As an example in mathematics, Bruner illustrates basic rules in equation: commutation, distribution, and association. He explains "Once a student grasps the ideas embodied by these three fundamentals, he is in a position to recognize wherein "new" equations to be solved are not new at all, but
variants on familiar themes". To grasp ideas embedded in basic rules of equation is not so much what the student knows the formal names of these operation as what he is able to use them. Bruner also illustrates the rules for transforming sentences to show the structure of language. For example, having mastered the rules for transforming sentences without altering their meaning—"The dog bit the man" and "The man was bitten by the dog", the child is able to vary his sentences much more widely.

Bruner points out four benefits of structure as 1) understanding fundamentals makes a subject more comprehensible, 2) it relates to human memory, 3) understanding of fundamental facilitates "transfer of training", and 4) understanding of fundamental is able to narrow the gap between "advanced knowledge and elementary knowledge" (pp. 23-26). Among them, Bruner summarizes the first three in the following:

Teaching specific topics or skills without making clear their context in the broader fundamental structure of a field of knowledge is uneconomical in several deep senses. In the first place, such teaching makes it exceedingly difficult for the students to generalize from what he has learned to what he will encounter later. In the second place, learning that has fallen short of a grasp of general principles has little reward in terms of intellectual excitement. The best way to create interest in a subject is to render it worth knowing, which means to make the knowledge gained usable in one's thinking beyond the situation in which the learning has occurred. Third, knowledge one has acquired without sufficient structure to tie it together is knowledge that is likely to be forgotten. An unconnected set of facts has a pitifully short half-life in memory. Organizing
facts in terms of principles and ideas from which they may be inferred is the only known way of reducing the quick rate of loss of human memory (pp. 31-32).

In the light of the importance of the structure, teaching the structure of knowledge means that children are able to comprehend, memorize, and generalize that knowledge. When the child taught to comprehend, memorize and generalize, he must be taught in a way that set of facts are related to principles and ideas from which they may be inferred. In fact, comprehension, memorization, and generalization, among others, are important in relation to general principles and ideas. In this sense, it is natural that the structure of knowledge and basic principles and ideas are used as synonym.

However, about the question of what to teach, the answer that the structure of knowledge should be taught is not new one. Until now, we have taught fundamental principles and ideas and furthermore individual facts in relation to the fundamental principles and ideas in schooling. Then, we can not but think that it is groundless that the term "structure", as accepted usually, means the so-called revolutionary idea as to education. However, this is still a hasty conclusion. We did not examine the fourth benefit of the structure of knowledge. That is, we have not examined what Bruner's remark, "to narrow the gap between advanced knowledge and elementary knowledge" means.
What does it mean by that teaching basic concepts and principles makes student know what a scholar does at the frontier of knowledge? In fact, this fourth benefit of structure is based on so-called Bruner's "central conviction". Bruner describes it:

That intellectual activity anywhere is the same, whether at the frontier of knowledge or in a third-grade classroom. What a scientist does at his desk or in his laboratory, what a literary critic does in reading a poem, are of the same order as what anybody else does when he is engaged in like activities—if he is to achieve understanding. The difference is in degree, not in kind. The school boy learning physics is a physicist, and it is easier for him to learn physics behaving like a physicist than doing something (p. 14).

According to the central conviction, the structure of knowledge means "discipline" or "mode of thought", which characterizes discipline itself. This interpretation that the structure means discipline makes it helpful to clear the ambiguity embedded in the word "teaching the basic concepts and principles". As said before, the problem in traditional education is not because we have not taught basic concepts and principles but because we have made student memorize outcomes from scholar's inquiry without respect to the character of discipline (the unique concept and mode of inquiry of discipline). To cite Bruner, traditional education has not taught "discipline" but middle language. The language of physics indicates the thought itself when physicists inquiry physical phenomena, but the middle
language of physics means outcomes from physicist's inquiry. Bruner(1971) contrasts "teaching language of subject" with "teaching middle language":

Physics should be taught not to spectators but to participant, we should teach physics rather than teach about physics because the basic assumption is that physics is not so much the topic as it is the mode of thought, an apparatus for processing knowledge about nature rather than a collection of facts that can be got out of handbook(p.109).

Now we come to understand what teaching structure, as an answer to the question of what should be taught, means. That is, it is subject matter that we should teach. The subjects consist of knowledge representing them and teaching subject means having student grasp the character of knowledge constituting subjects. The teacher teaching subjects should be one who knows them well and what he does during teaching subjects is controlled by the character of knowledge he tries to teach. To say concretely, the teacher, during teaching subject, demonstrates the inquiry of knowledge he tries to teach and has students participate in the process. This is to say that the teacher who tries to teach subject should know the structure of the subject. Bruner(1960) says "the curriculum of a subject should be determined by the ablest scholars and scientists who have the most fundamental understanding of that field"(p.32).

To summary, the most basic premise of the concept of structure of knowledge is that every respective discipline possesses its own particular structures, which are inherent
and immanent in its nature. The structure of knowledge, often used as a synonym for "fundamental ideas" or "basic ideas", is just what should be taught as curriculum content. In other words, curriculum content should be decided in a way that reflects the basic structures of a field of knowledge, and it requires the most fundamental understanding of the field.

4.3.2 Broudy's Key Concepts

In the previous part, "common general curriculum" by Broudy was mentioned. Common general curriculum, according to Broudy, should be drawn by analyzing uses of schooling. Thus, Broudy and others have distinguished four typical uses of knowledge and especially emphasized the interpretive use of schooling as the most preliminary and important one.

Here, let's examine Broudy's curriculum content view in terms of his interpretive use of knowledge and common general curriculum.

(Interpretive use of knowledge)

According to Broudy, we use knowledge in a variety of ways: 1) replicatively, which is basically a reproduction of skilled behavior, 2) associatively, which involves conjuring up resemblances and related information, 3) applicatively, primarily a problem-solving activity used by specialists, and 4) interpretively, involving orientation or
identification of the focus and nature of the problem (Broudy et al., 1964).

In our post-school "real" lives, we are sometimes asked to replicate a bit of information learned in school. Although some replicative use of knowledge is obviously essential, much that we learn is forgotten. For example, if we were to retake a final examination in tenth-grade physics, most of the facts and concepts would be difficult to recall.

We often use our schooling associatively when we are reminded of something similar to the idea or problem under consideration. The richness of an art work depends, to an extent, on our ability to perceive resonances, echoes and associated images. This use of knowledge, however, is "highly idiosyncratic and uncontrollable" and thus difficult to use "as a basis for curriculum theory" (p. 48).

The applicative use of knowledge depends on expertise, and it is no simple matter to apply a concept learned in school to a task at hand. While some transfer undoubtedly is possible, those who apply old concepts to new situations usually require knowledge and skill of a quite sophisticated order. The very process of application requires a specialist to bridge the gap. Learning the principles of physics and chemistry in order to eventually apply them to everyday life with its assortment of machines and appliances overlooks the
fact that technological changes require continuously new specialization (pp. 20-21).

However, Broudy says that the first three uses of schooling, then, are inadequate bases for a curriculum theory. Replication is inflexible and subject to memory fault; association is unpredictable; and application is usually too difficult for anyone but a specialist in the area.

It is the fourth use of knowledge that Broudy turns again and again as the basis for a theory of curriculum. What we should expect from the school, he (1972) says, is that it provides us with a framework with which we can view the nature of the situation we confront. If we cannot perform the other three processes, at least we should hope to place the new situation in perspective. This framework or matrix may be called the interpretive perspective. The interpretive perspective does not come automatically from mastery the others, but must be consciously cultivated (p. 224). It involves the ability to see a task as part of a scientific, philosophical, aesthetic, moral, or other theoretical scheme, and it is what we mean by "understanding" and "comprehension" (School Review, 1970, p. 45). The interpretive framework involves classifying, hypothesizing, recognizing a situation "as falling under some law or principle", weighing "values and alternatives", using knowledge as "cues", imaginatively
reconstructing and appreciating (1972, pp.220-222) and engaging in "meaningful discourse" (1964, p.58).

(Common, general education)

Based on above analysis of uses of knowledge, Broudy proposes curriculum for grades 7-12. The entire curriculum, K-12 or possibly K-14, should be common to all students, have no electives, and be general in nature, focusing primarily on the key concepts of the basic disciplines.

In the book, "Democracy and Excellence in American Secondary Education" Broudy et al. outline the curriculum grade 7-12, in the following way;

Symbolics of Information: English, foreign language, and mathematics as skills and as sciences.

Basic sciences: general science, biology, physics, and chemistry.

Developmental studies: (I) evolution of the cosmos, (II) evolution of social institutions, and (III) evolution of man's culture.

Exemplars: art, music, drama, literature.


The five-prolonged curriculum provides for the acquisition of essential skills; understanding of crucial, broad concepts; chronological sense; introjection of values and models of quality; and then encourages the use of this knowledge and wisdom for placing current social problems in perspective. It should satisfy those who insist on skill
development, those who believe in the disciplines, and those who desire contemporary relevance. And yet it is more than an eclectic mixture. Broudy says "I would argue that the humanities, in so far as they embody the serious arts, should be the first concern of the school" (1971, p. 148). The emphasis of aesthetic education with its focus on values and development of standards of artistic quality is virtually unique in American curriculum proposals. Likewise, the interdisciplinary gathering of concepts to bear on social problems goes beyond the scattered attempts in individual courses to demonstrate their problem solving potential.

Broudy is fully aware of complexities and pitfalls. The 7-12 school, henceforth referred to as the secondary school, will be ungraded and provide for maximum mobility. Although a student would have no electives, he would have several tracks from which to choose. Combined with instructional technology for didactics, it should be possible to entertain individual differences. For example, mathematics might have five units, each roughly equivalent to a year's work but not necessarily so, for the student moves through them at his own pace. Within each unit, except the last, Broudy envisions three levels of difficulty. Content with the unit does not vary, but adjustments are made in concreteness of examples, so that level A demands greater cognitive proficiency than level C. However, all three levels within a unit present the same basic concept.
What are basic concepts? In discussing science curricula of the sixties, Broudy speaks of "basic ideas" which "if reduced to a minimal set, are worth mastering" (1964, p.196). In search of key concepts or basic ideas, the "logical structure of the discipline" is emphasized by curriculum specialists. Curriculum specialists must also be concerned with psychological ordering of subject-matter. But, of course, choosing the basic notion to be studied is perhaps their primary task. To cite a comment from PSSC, Broudy lists these ideas; "space, mass, mass conservation, light, the particle and wave theories of light, motion, force, gravitation, the conservation of momentum and energy, electrical forces, electromagnetic radiation, the structure of atoms" (p.196). Elsewhere, BSSC list is given: "interdependency of structure and function, regulation and homeostasis, the genetic continuity of life, its evolution, the diversity of type together with unity of pattern, the biological roots of behavior, and the relation of organism to environment" (p.194). These are the biological themes to be treated at all levels. Besides, Broudy illustrates basic concepts of chemistry and economics.

Many of the above "concepts" sound suspiciously like "topics", but this is not an oversight. Broad topics such as the relation of organism to environment yield concepts such as "all organisms attempt to adapt to their environment". When we speak of a basic concept, thinking of a topic or
even a theme is appropriate. Basic theories, basic ideas, or "regulative ideas" (p.195) may be considered interchangeable with "basic concepts".

Certain disciplines which may seem peripheral to Broudy's curriculum are not ignored. Insofar as they yield broad concepts, they can find a place. Industrial arts, for example, can provide perspectives regarding modern technology. "One can hardly understand our economy without understanding the major types of processing that goods undergo and the technological devices used in the processes" (pp.182-183). Development of skill in the use of tools, however, can be learned outside the school, even in do-it-yourself fashion (p.181) and thus, the practice of such skill should be included only when it is directly necessary to achieve the basic concept. Here, let's take a look at Broudy's curriculum in some detail.

(Symbolic skill)

Symbolic skills include skills in reading and writing, foreign language, mathematics, artistic skills, bodily skills, and industrial art skills. How are these justified? By and large, as we observed in the previous paragraph, they are not justifiable on the ground of "current adult utility" (p.167). The reading, writing, and computational skills necessary to get along in our technological society are mastered by most students before entering grade 7. However, as Broudy has often remarked, the question is not
how can one live comfortably but rather how can one live well. For example, any citizen who reads more than newspaper headlines is need of greater reading skill than the elementary school provide. The process of reading in the various disciplines requires rethinking of the author’s thought and "accuracy of insight into the system of relations among ideas" (p. 169). Reading mature literature requires the ability to invoke its imagery (p. 170). Narrative prose and argumentative prose require different uses of language, and one must understand the psychology and logic of communication (p. 172). "By becoming sophisticated and adept at distinguishing the various uses of language and the diverse rule of systems for such uses", the student acquires a conceptual framework for language that serve him well in all types of reading (p. 173). Such an ability is a type of intellectual skill, just as research may become a skill by repetition, but it also involves the manipulation of high level concepts. Therefore, in the secondary school, the study of grammar should yield to concern with the structure of language, logic, information theory, linguistics, and semantics (p. 185).

(Basic science)

Broudy gives three guidelines with which one is forced to choose key concepts because there are so many sciences.

1. To limit each basic science or group of sciences to the minimal set of basic ideas and, whatever possible to
concentrate on those notions that are fundamental to the understanding of more than one discipline...

2. To regard certain of these key concepts to levels of schooling....

3. The notion that a given key concept can be taught at different levels is strategic if grades 7-12 are to give common education(pp.191-192).

Regardless of the above guidelines, the study of key concepts in the basic sciences is not entirely interdisciplinary. The first two units are general science courses, while biology, physics, and chemistry are taught separately thereafter. A special sixth unit in a specific science is reserved for those who finish early. No justification is given for preserving the three separate disciplines, although their complexity seems to be a good reason for maintaining their integrity intact. The most interesting discussion concerns the earliest units in general science. If the elementary schools provide more understanding of concepts rather than isolated facts and experiments and if the three disciplines become more theoretical, the general courses can serve in a transitional role. It would be best if the general courses were devoted to broad topics or themes rather than survey-type leaps from one science to another.

(Developmental studies)
The developmental studies of the curriculum proposes to display how and why various phenomena and institutions have undergone changes and come to be what they are. It is conceived as a replacement for the current courses in history and social science, subsuming them in the interests of developing interpretive maps. In developmental studies I draws upon astronomy, geology, biology, paleontology, zoology, botany, climatology, various ecologies, physical anthropology, and geography (pp. 204-205). In developmental studies II draws upon anthropology, sociology, economics, political science, the history of jurisprudence, psychology, geography, the history of science, technology, and the history of in general (pp. 206-209). Developmental studies III is basically a history of culture. Relevant disciplines are the developmental aspects of the fine arts, philosophy, religion, ideologies, science (history of science), technology, economic systems, and applied arts (industrial arts, home economics) (pp. 210-211). Broudy says that the developmental studies III is the most important of the developmental studies areas, for the interpretive frame which it provides is concerned with the "most human of human accomplishment" (p. 212).

(Exemplars)

The fourth strand of the curriculum is entitled Exemplars. It calls for the development of aesthetic sensitivity, connoisseurship, or enlightened cherishing. It
is the representative of the value area of education and helps the student to develop interpretive maps for making choices based upon qualitative judgments. Why not educate directly for moral standards through courses in ethics, philosophy, or theology? Broudy's answer is two-part. First, ethics is not an appropriate study for the young, because they have simply not lived long enough to have experienced moral predicaments in their profundity (p. 222). Second, Broudy answers that people shape their values by "introjecting or identifying with a model". Therefore, he chooses fine arts as the major repository of value education in the curriculum.

(Molar problems)

In many respects, the climax of the curriculum is the Molar Problems. It calls on the student to use the cognitive and judgmental maps which he has built by thinking systematically about multidimensional problems. Broudy is concerned with the development of good citizenship in the highest sense. The citizen in a highly complex society requires cognitive and judgmental maps, plus the ability to problems on perspective. Multidimensional problems (topics) include taxation, foreign trade, juvenile delinquency, disarmament, the problem of economic democracy, racial integration, federal aid to education, the control of mass media, and the emerging nations (pp. 232, 241, 273). The Molar Problems asks the student to decide which disciplines bear
on the problems, to determine what specific information is relevant, and to develop the ability to pinpoint and define the problem itself.

Thus far, I have examined Broudy's idea about curriculum. To repeat, for Broudy the importance of curriculum content lies in facilitating the interpretive use of schooling and the curriculum content should be one, which can play a role of "cognitive or evaluative map" necessary to interpret the phenomena. In this regard, Broudy et al. suggest 1) facts, 2) concepts, 3) principles, 4) value as curriculum content. The facts, as Broudy mentioned, are significant in the context in which facts are used to make a great deal of difference as to what facts are relevant. In short, the importance of facts is recognized when they become a part of map that interpret them in relation to the principles and values. Thus, curriculum content by Broudy is summarized "Descriptive concepts and principles" and "Valuative concepts and norms". These curriculum contents are organized into various categories of instruction. As

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28. According to Broudy's explanation, Descriptive concept and valuative concept are distinguished as follow. Descriptive concepts are neutral with respect to our preferences or our picture of the world as we would have it. For example, our concept of a meter is free of preferential elements. In contrast, valuative concepts by their nature embody preferences. We ordinary include in our concept of democracy whatever we think a society ought to be and have. The liberal concept of democracy embodies preferences not to be found in the conservative concept, and the preferential aspect of the communist concept of democracy differs radically from that of conservative view.
examined, these categories are broadly Symbolics, Basic sciences, Developmental studies, Exemplars, and Molar problems.

4.3.3 Phenix's Realms of Meaning

Phenix (1964) also represents the holistic approach to curriculum content by his Realms of Meaning. With the belief of discipline-centered that all curriculum content is to be derived from the disciplines and each discipline has its distinctive concepts and methods that set it off from other disciplines, he proposes six realms of meaning. After acknowledging the importance of the influence of Bruner's The Process of Education on the structure of knowledge and processes of disciplinary inquiry, Phenix suggests a similar reform in general education.

Phenix (1964) expresses his intention:

In a somewhat similar vein, the present volume is an attempt to elaborate a philosophical theory of the curriculum for general education based on the idea of logical patterns in disciplined understanding. The central thesis is that knowledge in the disciplines has patterns and structures and that an understanding of these typical forms is essential for the guidance of teaching and learning. This thesis grows out of a concept of human as rooted in meaning and of human life as directed toward the fulfillment of meaning. The various patterns of knowledge are varieties of meaning, and the learning of these patterns is the clue to the effective realization of essential humanness through the curriculum of general education (1964, p.x).
From his view, the next step one faces is how to organize all knowledge in a structure of underlying ideas or principles. In the area of the humanities, the structure is not as clear as in the nature science. Phenix tries to solve this problem by defining the word "meaning" as a broad base, which covers all realms of knowledge.

He says:

This difficulty can be avoided by using a unifying concept that expresses the broader connotations of the idea of reason. The concept proposed is **meaning**. This term is intended to express the full range of connotations of reason or mind. Thus, there are different meanings contained in activities of organic adjustment, in perception, in logical thinking, in social organization, in speech, in artistic creation, in self-awareness, in purposive decision, in moral judgment, in the consciousness of time, and in the activity of worship. All these distinctive human functions are varieties of meaning, and all of them together—along with others that might be described—comprise the life of meaning, which is the essence of the life of man (p. 21).

Phenix projects four dimensions of the concept "meaning". The first dimension is that of **experience**. A meaning is an experience, in the sense that it pertains to human consciousness.... The second dimension of meaning is **rule**, **logic**, or principle. The many types of meaning are distinguished from one another by some difference in characteristic form. Each type of meaning has its own rule that makes it one kind of meaning and not another. Each is defined by a particular logic of structural principle.... The third dimension of meaning is **selective elaboration**.
Theoretically, there is no limit to the varieties of meaning.... From the endless variety, selection occurs. The types that are significant in actual human life are the ones that have an inherent power of growth and lead to the elaboration of the enduring traditions of civilization.... The fourth dimension of meaning is expression. Meanings that have civilizing power are communicable. They are not private property. The communication of meanings takes place through symbols, which are objects that stand for meanings. The symbolic expressions of meaning are of particular concern to the communities of scholars representing the various types of meanings. Each kind of meaning has its distinctive expressions, the symbolic forms of each corresponding to the peculiar rule or logic of the type( pp.21-25).

After all, the meaning is obtained through organizing the experience of reflective self-consciousness in terms of logical principles by which this experience is patterned. This meaning is elaborated selectively by scholarly tradition and expressed by means of appropriate symbolic forms. In this sense, the meaning refers to "entire products of reason"(p.21). Thus, Phenix categorizes the meanings along lines of general similarity of logical structure.

According to Phenix, any disciplines can be analyzed from the aspects of both "quality" and "quantity". And there are three degrees of quantity: singular, general and comprehensive. That is, knowledge is either of one thing, of
a selected plurality, or of a totality. Furthermore, there are three distinct qualities of meaning, which can be designated as fact, form, and norm. The combination of three quantity aspects and three quality aspects presents nine generic classes of meaning. Phenix confirms six "realms of meaning" by categorizing them along the similarity of them.

The resulting logical classification of meanings is summarized as follow:

**Logical Classification of Meanings**

<table>
<thead>
<tr>
<th>Generic classes</th>
<th>Quantity</th>
<th>Quality</th>
<th>Realms of meaning</th>
<th>Disciplines</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Form</td>
<td>Symbolics</td>
<td>Ordinary language, mathematics, non-discursive symbolic forms</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>Fact</td>
<td>Empirics</td>
<td>Physical science, life science, psychology, social sciences</td>
<td></td>
</tr>
<tr>
<td>Singular</td>
<td>Form</td>
<td>Esthetics</td>
<td>Music, visual arts, arts of movement, literature</td>
<td></td>
</tr>
<tr>
<td>Singular</td>
<td>Fact</td>
<td>Synnoetics</td>
<td>Philosophy, psychology, literature religion, in their existential aspects</td>
<td></td>
</tr>
<tr>
<td>Singular General</td>
<td>Norm</td>
<td>Ethics</td>
<td>The varied special areas of moral and ethical concern</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Fact</td>
<td></td>
<td></td>
<td>History</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Norm</td>
<td></td>
<td></td>
<td>Religion</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Form</td>
<td></td>
<td></td>
<td>Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Phenix, P.H. Realms of Meaning, 1963, p.28.*
The above six realms of meanings have their own characteristic "general logics of meaning". Within each realm, there are special fields of study, each defined by its own subject matter, typical concepts and methods of inquiry(p.48).

What is curriculum content to Phenix? Like Bruner and Broudy, Phenix believes that knowledge contained in the disciplines should be appropriate to the curriculum. That is, the structure of knowledge is considered curriculum content. As to the structure of knowledge, Phenix identifies three fundamental features, all of which contribute to the availability of knowledge for instruction and thus provide measures for degree and quality of disciplines("The use of the Discipline as Curriculum Content",1962,1971). These three are (1) analytic simplification, (2) synthetic coordination, and (3) dynamism. These three are criteria for good discipline.

As for analytic simplification, Phenix says:

The test of a good discipline is whether or not it simplifies understanding. When a field of study only adds new burdens and multiples complexities, it is not properly called a discipline. Likewise, when a real discipline in certain directions begins to spawn concepts and theories which on balance are a burden and hindrance to insight, in those areas it degenerates into undisciplined thinking (1971,p.153).

However, the second criterion, synthetic coordination, emphasizes its function of synthesis. Phenix indicates that a discipline is a conceptual structure whose function is not
only to simplify understanding but also to reveal significant patterns and relationships. By synthesis, which means the coordination of elements into significant coherent structure, the new wholes are constructed. According to Phenix, such synthetic coordination is not opposed in tendency to analytic simplifications. Rather, both are aspects of common process of intelligible ordering. That is, a discipline is a synthetic structure of concepts made by the discrimination of similarities through analysis (p.154).

The third quality of knowledge in discipline is its dynamism. By dynamism, Phenix means the power of leading on to further understanding.

According to Phenix (1971):

A discipline is a living body of knowledge, containing within itself a principle of growth. Its concepts do not merely simplify and coordinate; they also invite further analysis and synthesis. A discipline contains a lure to discovery. Its ideas excite the imagination to further exploration. Its concepts suggest new constructs which provide larger generations and reconstituted modes of coordination (p.155).

Phenix discerns disciplined understanding from the undisciplined in terms of above three features of knowledge. He says "Not all areas of study are disciplines since not all of them display analytic, synthetic, and dynamic quality" (p.156). Therefore, Phenix's structure means organized knowledge comprising the established disciplines. He deals with the concept of structure of knowledge like
Bruner, who tries to understand in terms of four benefits of the structure of knowledge.

4.5 Characteristics of Holistic Approach

The holistic approach, unlike the reductionistic approach which attempts to grasp curriculum content in terms of human behavior and its hierarchy, holds that knowledge from disciplines should be curriculum content. In other words, the holistic approach emphasizes the knowledge and its structure. That is, human behavior and its hierarchy in the reductionistic approach vs knowledge and its structure in the holistic approach is sharply contrasted in their character.

What does knowledge as curriculum content mean concretely? K.B. Henderson (1961) shows well how the meaning of subject matter is defined as knowledge by analyzing the use of subject matter. Here, let's take a look at what the knowledge as curriculum content mean through Henderson's analysis of the use of subject matter.

Henderson, identifying some uses of the term "subject-matter", asserts that it is inadequate to think of subject-matter as concreta. In fact, the biology teacher speaks of animal and plant as the subject-matter of biology or the English teacher speaks of novels, plays, poems, and essays as representative of the subject-matter. However, there are at least two inadequacies in defining the meaning of
subject-matter in this way. First, if the concept of subject-matter is regarded as concreta, mathematics can not be subject-matter, because mathematics has no any concreta to deal with. Such subjects as mathematics, logics, and grammar never deal with their concreta. Second, the concreta is ambiguous as subject-matter in nature. If subject-matter is a kind of concreta, whatever is sensible to say about subject-matter. For example, it makes sense to speak of teaching subject-matter, learning subject-matter, and testing a student’s acquisition of subject-matter. But it makes no sense to speak of teaching certain concreta like nitric acid, trees, or basketballs; it makes no sense to speak of learning tractor, plants, or milk. If a person actually uses such odd expressions, we would interpret them as meaning teaching knowledge about nitric acid, trees, or basketballs; learning knowledge about tractors, plants, or milk.

The inadequacy of the concept of subject-matter as concreta is the same as the case that unit of topic such as quadratic equation, separation of the three powers, chemical changes, etc. is regarded as subject-matter. Consider Tyler’s pointing out that content only such as nutrition, digestion, etc. can not be established as objectives. Thus, Tyler suggests specifying objectives as the way of

29. For example, surely the numerals, signs of operation, equation, and other symbols are not the concreta of mathematics.
eliminating the ambiguity embedded in the title or topic. We have examined how Tyler's way of stating objectives has been accepted and what problems it has in the reductionistic approach.

Henderson, in eliminating the ambiguity embedded in concreta or topic as subject-matter, believes that the concept of subject-matter should refer to knowledge. According to him, there are two kinds of knowledge. One is knowing-how and the other is knowing-that\(^{30}\). He calls the former non-cognitive knowledge and the latter cognitive knowledge. Of two kinds of knowledge, the non-cognitive knowledge is ambiguous just as concreta as subject-matter. For example, in order to teach how to play base ball, showing the demonstration of good base ball player is not sufficient because learners do not know what aspects of his action are important. Language is necessary to make learner know the meaning of action. According to Henderson, knowing-that depends upon language. Without language there is no way we can determine the presence or absence of this kind of knowledge. It is in language and only in language that this kind of knowledge can be expressed. For this reason, knowing-that may be called cognitive knowledge as opposed to non-cognitive knowledge which is knowing how.

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\(^{30}\) This distinction is similar to Ryle's (1949). Following Ryle's language, know-how is knowledge of how to do something and know-that is knowledge that something is the case.
Henderson (1961) explains the difference between these two kinds of knowledge in detail:

A difference between these two kinds of knowledge is apparent when one considers how they are learned. A boy can learn how to play baseball by mimesis—theoretically without using language other than the linguistic cues of the umpire such as "strike", "you're out", "foul", and "batter up". Cognitive knowledge consisting of rule and maxims is not necessary. And he can learn how to speak a foreign language without recourse to cognitive knowledge expressed in metalanguage (grammar), or language about language. Nevertheless, cognitive knowledge is helpful in both instances. Knowing that keeping your eye on the ball will improve both hitting and fielding, that with men on base the pitcher should use a short wind up, that opposing coaches try to steal the catcher's sign, and other items of cognitive knowledge will facilitate immeasurably learning how to play baseball. Because cognitive knowledge is so useful as means to ends, teachers depend greatly upon it (p.49).

Thus, Henderson argues that subject matter refers only to cognitive knowledge. He furthermore classifies cognitive knowledge or "knowing that" according to statements expressing that knowledge.

1. Statements
   1.1 Analytic
      1.11 Singular
      1.12 General
   1.2 Contingent
      1.21 Singular
      1.22 General
2. Prescriptions
   2.1 Singular
   2.2 General
3. Value statement
   3.1 Singular
   3.2 General (p.50).
In his category, an analytic statement is a statement of the form A is A, or if P, then P; or which can be reduced to one of these forms by replacing certain of its term by synonyms. For example, the statement "a bachelor is an unmarried male" is an analytic statement. Statement of knowledge which are not analytic are contingent. A contingent statement gives information about the world derived from our experience with the world. This kind of a statement is not necessarily true; its truth is determined by observing how things actually are. For example, the statement "magnet attract iron filings" is contingent statement. A second kind of cognitive statement is prescriptions. A prescription is an order, directive or command such as "write from left to right across a page", "begin each statement with a capital letter", "people ought to tell the truth" (p. 53). This prescriptions are not statement because they do not have the property of being true or false. The third kind of knowledge is value statement. A value statement is a statement containing a word which is used to rate or grade something. For example, the statement "Democracy is the best form of government" is a value statement. Here, we can find that Henderson's classification of subject-matter corresponds to that of Phenix's Realms of Meaning closely.

From this point, Henderson's classification is considered to cover all the subject matter we teach in the
school. When viewing above cognitive knowledge as subject matter, what does Henderson have in mind? For Henderson, having knowledge expressed in the form of statement (i.e., "all acids produce hydrogen ions in aqueous solution") does not mean being able to reciting the statement. Even if a student can memorize the statement, we do not agree that he has such a knowledge. Whether he acquires such knowledge depends upon that he understands the mode of thought and attitude embedded in the knowledge.

Henderson (1961) emphasizes this point by indicating the difference between "subject-matter" and "a name of subject-matter":

Usually, courses of study present names of subject-matter to be studied rather than the subject-matter itself. This is done by naming topics, problems, or ideas. For example, in stating the subject-matter of mathematics involved, lists "fundamental processes, fractions, scale drawing, discount, taxation, and simple trigonometry" among others. For science it includes "properties of water, diseases from water, sewage disposal, ventilation..." Now these topics are not subject-matter; they name subject matter. When a teacher decides what to teach about each of these topics, he again may name some topics. These are not subject matter either. It is when he comes to select subject matter, teach it, and test its acquisition of the names, that is, the knowledge represented by the names. And when he does this, the theory advanced above becomes practical (p.55).

Knowledge as subject-matter Henderson has discussed is more clear in relation to the concept of structure embedded in it. As repeated again, the Bruner's thesis states that "Curriculum of a subject should be determined by the most
fundamental understanding that can be achieved of the underlying principles that give structure to the subject" (Bruner, 1960, p. 31). Henderson's knowledge as subject-matter, after all, is in the same context of Bruner's structure of knowledge, Broudy's key concept, and Phenix's realms of meanings. Then what is the characteristic of the holistic approach to curriculum content? It is summarized as knowledge and its structure. The persons with this mind believe that curriculum content should be identified by analyzing disciplined knowledge not by analyzing human behavior.

4.5 Critical Discussion

In the previous part, an examination of the holistic approach to curriculum content reveals the characteristic of the approach as structured knowledge (knowledge and structure). From the aspect of curriculum content, the terms "structure of knowledge", "disciplined knowledge", and "structured knowledge" are interchangeable in that the holistic approach argues that curriculum content should be identified in terms of structured knowledge drawn from disciplines.

This part, as a critique about the holistic approach to curriculum content, focuses on the weakness of the epistemological assumptions embedded in the concept of
structure characterized in the approach in terms of criteria of this study.

It goes without saying that the phrase "structure of knowledge" popularized by Brunerian perspective throughout the sixties, gives a paradigm to workers in the curriculum field. However, as Kliebard warned that the phrase might become a slogan, the potency of the phrase has diminished. Yet its failure as continuing paradigm may be linked to the inaccuracies and confusion inherent in its epistemological assumptions.

Let's think about Bruner's concept of structure, as Bruner(1960) uses the term, refers to the set of "fundamental principles and ideas" or, alternatively, it is set of "underlying principles that gives structure to the subject"(p.31). In another context, he states some of the qualities of the structure:

Every subject has a structure, a rightness, a beauty. It is this structure that provides the underlying simplicity of things, and it is by learning its nature that we come to appreciate the intrinsic meaning of a subject(1963,p.26).

For one thing, Bruner seems to imply that structure inheres in the discipline reflecting the "simplicity of things". What is the relation of the knowing subject to this objective structure? Structure is frequently "learned", even more frequently the structure is "grasped". Bruner's vantage epistemologically resembles that of a "common sense" realist. One implication of this implicit realism is that
structure is predicted inevitably in the singular. Therefore, one dispenses with the possibility of alternative modes of organization of reality. However, we find multiple ways of organizing realities with the exception of mathematics where structure and the subject (knower) are fused. Bruner's structure never promises the single way of organizing realities.

The inconsistency with the notion of single structure inhering in the discipline lies in Bruner's (1960) famous claim:

We begin with the hypothesis that any subject can be taught effectively in some intellectually honest form to any child at any stage of development. It is a bold hypothesis and an essential one in thinking about the nature of a curriculum. No evidence exists to contradict it; considerable evidence is being amassed that supports it (p. 33).

The hypothesis is doubtful in the light of Bruner's notion of structure. Since Bruner does not hold that the child's cognitive capacities are the same throughout life, then he must envision structures as possessing great malleability. Indeed, it must be extremely flexible to fit the dramatically different minds of the child and the adult. In other words, the concepts with structure taught ironically might be said to lack of structure of their own. For example, consider the notion of an atom. To arrive at the idea of an atom in an "intellectually honest" fashion, one must construct from evidence the idea of an atom as a
plausible explanation of that evidence; that is, the atom thus constructed will possess characteristics which are inferred from the evidence used in its construction. Yet to make such mental constructions—constructions entailed by the logical structure of the concept—is not an ability of the child at every age. It must await the development of capacities which generally reach fulfillment only at adolescence. Any idea of the atom given to a child before that age must be a counterfeit. If Bruner were to teach the child the concept of the atom, he would need to do it in some "dishonest" fashion.

Bruner's position is not only inaccurate but also inconsistent. He, on the one hand, as an implicit realist, seems to presuppose the existence of a unitary structure embedded within the discipline. On the other hand, he presupposes something that is totally inaccurate, that the concepts comprising this structure lack any necessary logical structure. In short, his epistemological stance shown in his structure implies an objectivism by the claim that the structure of knowledge as objects independently exists "out there" apart from the knower's personal states. That is, the basic ideas, fundamental concepts, or principles which lie at the heart of all disciplines while constituting curriculum content, can be identified and determined through devoted endeavors of the experts and, specialists who are at forefront of their respective
disciplinary areas. In this regard, we can infer that the structure of knowledge is something to be mastered, acquired, internalized, and discovered by the knower. In short, the notion of structure involves a realist position that the objects to be known are there waiting for the knower to grasp and discover.

Bruner, in his latter writings, seems to have recognized certain inadequacies in his conception since 1962:

Knowledge is a model we construct to give meaning and structure to regularities in experience. The organizing ideas of any body of knowledge are inventions for rendering experience economical and connected. We invent concepts such as force in physics, the bond in chemistry, motives in psychology, style in literature as means to ends of comprehension.... The power of great organizing concepts is in large part that they permit us to understand and sometimes to predict or change the world in which we live.... Indeed, we know now, after a quarter of a century of research on perception, that experience is not to be bad directly and neatly, but filtered through the programmed readiness of our senses. The program is constructed with our expectations and these are derived from our models or ideas about what exists and what follows what (p.120 underline added).

Phenix also implies the concept of structure in terms of his "Key concept". Even if Phenix did not use the term structure, he referred to the "Key concepts" which were found in every disciplines. In order to communicate the

meaning of a discipline, the "Key concepts" must be taught. Phenix's epistemological position, in fact, is clear in his paper "The Disciplines as Curriculum Content" (1968). There he describes a discipline as "essentially nothing more than an extension of ordinary conceptualization" (p. 134). And he states "The priority and primacy of the disciplines in education are generally buttressed by a realistic view of knowledge, as opposed to a nominalistic one" (p. 136).

According to him, when concepts and theories are conceived nominally, "the structure of thought is a matter of convention" (p. 136). Thus, rejecting nominalism as "epistemologically impious", he says:

There is a logos of being which it is the office of reason to discover. The structure of things is revealed, not invented, and it is the business of inquiry to open that structure to general understanding through the formation of appropriate concepts and theories.... The nature of thing is given (p. 136).

We find at least one similarity between the position of Phenix and Bruner. In Phenix's conception, since structure inheres in the discipline and is merely abstracted from it, we have, as in the case of Bruner, the possibility of single structure. Multiple form of organizing realities is eliminated by the claim that "logos of being" and the "structure of things" are revealed. The mind does not organize or create, in Phenix's view, it merely "discovers" the pre-existent organization of realities. Such a position has definite curriculum consequences. In this regard, a take
a look at Phenix's view of the particular discipline reveals it. Often Phenix overlooks the fact of multiple organizations of discipline and presents a version of the particular discipline which is monolithic.

One example of this occurs in Phenix's treatment of history. We find how epistemological misconceptions can lead to dangerous distortions of a discipline. "History", according to Phenix, is "like art—especially literature—in that its goal is particular unique presentations in the form of convincing stories. The events of the past are recounted in an imaginative way so as to move the reader by their drama and by their universal human appeal" (Realm of Meaning, p. 237). It is, of course, unlike art in that it seeks to depict events in the actual world. The goal of historical inquiry, Phenix continues, "is to attain an understanding of past human events from the inside (p. 239). Such a goal demands "an imaginative identification by the historian... with the persons whose decisions have caused the happening of the past" (p. 240).

Phenix's view might be thought somewhat romantic by the majority of historians. However, what is debatable is the view that the position described by Phenix is the conception of the discipline. For example, any alternative (possibility) of a scientific historiography where general laws from the social sciences would be utilized in interpreting specific historical events, is discarded as "not sufficient to
account for the unique particulars of history" (p. 241). Yet such a view is at least as legitimate as one which holds that those "unique particulars" may be accounted for by the intuitive genius of the historian. Clearly, in order to fit Phenix's idea, the disciplines must rest on arbitrariness.

Although both Bruner and Phenix seem to agree on the unitary nature of structure, they apparently depart when one considers their conceptions of the knowing subject. Bruner views the child in a process of evolution. Although the structure would remain the same, for Bruner it would be "translated" to fit the child's present logical development. However, Phenix maintains "the identity of the psycho-logic of the teaching and learning with the logic of the discipline" (Phenix, The Disciplines as Curriculum Content, p. 138). Readiness is a factor worthy of consideration in Phenix's system but how the knower changes is never considered by him. Obviously, his view gets rid of any need to restructure the discipline for purpose of instruction; one need only follow the "natural" logic of the discipline. Such a view, in the eyes of teachers, might fail to take into reality account.

Besides Bruner and Phenix's structure, Schwab's (1964a) conceptualization of structure also shows an epistemological weakness. Schwab's structure represents theoretical progress as to the conception of structure. In Schwab's thinking, the
teaching of the structure of the disciplines involves
complexities:

I have no doubt that many professional educators
would dearly love a clear, uncomplicated and
definitive description of some univocal
"structure" for each of the disciplines normally
involved in the school curriculum. They wish,
quite naturally, to be about their business of
reconstructing the school curriculum and would
like to a firm foundation for doing so. Nothing,
however, could be more unfortunate at this stage
of the game than such an easy settlement. In the
first place, American education has suffered too
much in the past thirty years from the adoption of
most recent doctrines about other commonplaces
(e.g., learning theories). In the second place,
problems about the structures of the disciplines
have only recently been realized. What is wanted,
then, is enquiry, not dogma (p. 6).

Schwab (1964b) makes certain productive distinction
about structure: Substantive and Syntactical structure of a
discipline. Substantive structures are conceptions playing
the "role of guide to the enquiry" aiding the scientist in
making distinctions between "relevance and irrelevance,
importance and unimportance" (p. 25). Syntactical structure,
on the other hand, "concerns itself with concrete
descriptions of the kinds of evidence required by the
disciplines, how far the kinds of data required are actually
obtainable, what sorts of second-best substitutes may be
employed, what problems of interpretation are proposed, and
how these problems are posed" (1964a, p. 28).

Among the epistemological advantages of Schwab's
conception is its dynamic constructive quality: in the
cyclical passage from substance to syntax and syntax to
substance one conceives of knowledge as a continuing process of divergent and emergent evolution. Schwab (1964a) shows it in criticizing the traditional teaching of mathematics:

It is still the case that much mathematics is taught as if number and figure were indubitably abstractions from experience of physical things. Such curriculum practice ignores the live possibility that mathematics derives from exploration of the furniture of the human intellect or from the invention of logical forms or from the exhaustion of a more or less arbitrarily chosen set of rules and starting points. Real differences accrue to the content of the curriculum and the understanding of mathematics from adoption of one or another of these views (p. 23).

However, the possible epistemological weakness of Schwab's position derives from an absence of a conception of the "furniture of the human intellect" not only in terms of mathematics, but also in terms of scientific disciplines. Schwab has described the mechanism of development within the science but has not correlated these mechanism to processes within the knower.

So far I have critically discussed the concept of structure, which is revealed as the characteristic of the holistic approach to curriculum content. Needless to say, the above critique has been made in the light of criteria of this study.

Based on the above discussion, the holistic approach to curriculum content is characterized as follows. First, the structure is considered unitary object (structure) inhering in disciplines. That is, the proponents of the holistic
approach believe that the structure is predicted inevitably in a singular and thus it is to be mastered, acquired, and discovered by the knower(subject). They, emphasizing the unitary structure in the discipline, ignore the knowing process. Their failure to encompass the relationship of the subject and the object due to their intention to identify curriculum content by analyzing subject or discipline itself is similar to that of the reductionists, which tries to identify curriculum content by analyzing human behavior.

Second, the holistic approach never assumes the constructive nature of knowledge. As indicated repeatedly, the structure is the object to be discovered, mastered, or acquired, not that of invention or construction. That is, in the holistic approach, the knowing process is ignored. And finally, the holistic approach fails to recognize the multiplicity of organizing realities. The claim that the single structure is revealed cannot choose but eliminate multiple form of organizing realities. After all, the holistic approach to curriculum content also fails to meet the criteria in this study: the relationship of subject and object, the constructive nature, and the multiplicity of purposes of knowledge.
Chapter V

An Alternative and Conclusion

5.1 Introduction

In this study, my purpose was to analyze two different approaches to curriculum content and to propose an alternative one.

With this purpose in mind, I have set four major questions to be studied as follows.

1) On what basic assumptions should the curriculum content view be based?

2) What is the characteristic of the reductionistic approach to curriculum content?

3) What is the characteristic of the holistic approach to curriculum content?

4) What is the alternative view? and does it meet the criteria employed?

The reductionistic curriculum content view assumes that curriculum content ultimately can and should be reduced to its constructs. This view attempts to identify the nature of curriculum content in a scientific manner. This view has been represented by Tylerian Rationale, Bloom's Taxonomy of Educational Objectives, Gagne's Learning Hierarchy Theory, and so on.
The opposite view, the holistic curriculum content view, emphasizes the curriculum content itself as a totality. This position often known as "discipline-centered curriculum" argues that the structure of knowledge (discipline) be identified as curriculum content. In this study, among others, Bruner's "structure of knowledge", Broudy and Phenix's idea about knowledge are referred to as the representative ones.

Essentially, the key process of the study is a reconceptualization of existing curriculum content views. The process of reconceptualization as discussed previously includes three steps. The first was to establish a set of criteria on which curriculum content view, in order to be appropriate and viable, is based (see Chapter II). The set of criteria refers to paradigmatic assumption areas such as epistemology, ontology, and axiology.

The set of criteria for a curriculum content view that were established are:

1) The curriculum content view chosen should encompass both terms in the subject-object relation of knowing simultaneously.

2) The curriculum content view chosen should recognize the constructive nature of knowledge.

3) The curriculum content view chosen should encompass the multiplicity of purpose of knowledge.
The second step of reconceptualization involved analyzing two generally accepted yet conflicting curriculum content views in terms of the set of criteria. The reductionistic approach was characterized as seeking to identify curriculum content as human behavior and its hierarchical relationship. The approach holds that curriculum content is an object that exists "out there" independent of and external to the knowing subject's process of knowing and interpretation of its meaning attached to him. This view failed to meet the criteria for appropriate conditions as curriculum content. Likewise, the holistic approach characterized curriculum content as "the structure of knowledge" but failed to meet the criteria due to inherent weakness of conception of the structure because it does not recognize multiple ways of organizing realities.

If these two generally accepted views do not meet the criteria, then what might be a curriculum content view that meets the set of criteria? The final step of the reconceptualization of curriculum content view is to propose a new alternative. As an alternative view, I propose the recent Sociolinguistic Perspective on teaching-learning process. In this chapter, then, I will explain why the sociolinguistic view is an appropriate alternative and what it is.

In this final chapter, I deal with the background of the alternative view in relation to the criteria established
in the study and what the sociolinguistic perspective, from the aspect of curriculum, is.

5.2 Language and Reality

As discussed already, two existing curriculum content views have been shown to fail to meet the set of criteria established in this study. The major reason for the failure was that both views do not recognize the constructive nature of knowledge embedded in curriculum content view.

Where does the constructive nature of knowledge come from? This part focuses on the role of language in relation to the constructive nature of knowledge. The alternative view in this study argues that the constructive nature of knowledge can be found or made by recognizing the importance of language functions in educational process.

Bruner (1986), with a premise that the medium of exchange in which education is conducted (language) can never be neutral and that it imposes a point of view not only about the world to which it refers but toward the use of mind in respect of this world (p.121), argues that language necessarily imposes a perspective in which things are viewed and a stance toward what we view. As he cited Nelson Goodman's Way of World Making and Language of Art,\(^{31}\).

\(^{31}\) According to Nelson Goodman, there is no unique "real world" that preexists and is independent of human mental activity and human symbolic language. Thus, what we call the world is a product of some mind whose symbolic procedures construct the world.
Bruner's epistemological stance shows the constructive temper. Bruner, proclaiming that neither mind alone nor hand alone can accomplish much without the aids and tools that perfect them, views language and its use as the most principal among those aids and tools.

Bruner's view of social world in which we live is that the realities of society and of social life are themselves most often products of linguistic use as represented in such speech acts as promising, abjuring, legitimating, christening and so on. Thus, a culture itself comprises an ambiguous text that is constantly in need of interpretation by those who participate in it. After all, in creating social reality, language plays a constitutive role.

He says:

Meaning is what we can agree upon or at least accept as a working basis for seeking agreement about the concept at hand. If one is arguing about social "realities" like democracy or equity or even gross national product, the reality is not the thing, not in the head, but in the act of arguing and negotiating about meaning of such concepts. Social realities are not bricks that we trip over or bruise ourselves on when we kick at them, but the meaning that we achieve by the sharing of human cognitions (p.122).

The above negotiatory, "hermeneutic", or transactional view of meaning has direct implications for the conduct of education (schooling). According to Bruner, a culture\(^{32}\) is

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\(^{32}\) A culture is defined by Bruner as much a forum for negotiating and renegotiating meaning and for explicating actions as it is a set of rules or specifications for actions.
constantly in process of being recreated as it is interpreted and renegotiated by its members. He says, "Education is (or should be) one of the principal forum for performing this function—ways of exploring possible worlds out of context of immediate need" (p. 123).

In this view, it follows that induction into the culture through education, if it is to prepare the young for life as lived, should partake of the spirit of a forum of negotiating, of the recreating of meaning. How is the meaning negotiated or interpreted? Linguists like Halliday (1975) and Sapir (1949) and psychologists like Vygotsky (1934) and Bruner (1987) and so on try to find it in the functions of language.

Halliday (1975) divides the functions of language into two superordinate—pragmatic and mathetic. In the pragmatic are such functions as the instrumental, regulatory, interactional, and personal, and to the mathetic he assigns the heuristic, imaginative, and informative functions. The pragmatic functions are concerned with orienting oneself toward others and using the tool of language to obtain the ends one seeks through affecting the actions and attitudes of others toward oneself and toward the world. The mathetic functions serve a different order of function. The heuristic is the means for gaining information and correction from others; the imaginative function is the means by which we create possible worlds and go beyond the
immediately referential. In short, Halliday's explanation about language is characterized as two functions. One is about the communication or transmission of language and the other is about reflections through language.

The work of Vygotsky (1934) also shows how the negotiation of meaning is socially arrived at in relation to the thought of mind. Viewing thought and speech as instrument for the planning and carrying of action, he assumes that language is a way of sorting out one's thoughts about things:

Children solve practical tasks with the help of their speech, as well as with their eyes and hands. This unity of perception, speech, and action, which ultimately produces internalization of the visual field, constitutes the central subject matter for any analysis of the origin of uniquely human forms of behavior (Vygotsky, 1978, p.26).

Thought and speech as instruments are from the society. That is, society provides a tool kit of concepts and ideas and theories that permit one to get higher ground mentally. Vygotsky says "The new higher concepts in turn transform the meaning of the lower. The adolescent who has mastered algebraic concepts has gained a vantage point from which he sees arithematic concepts in a broad perspective" (Vygotsky, 1962, p.115).

Emphasizing the functions of reflecting through language, Vygotsky (1934) proposes the Zone of Proximal Development
(ZPD)\textsuperscript{34}. It is an account of how the more competent assist the young and the less competent to reach that higher ground, from which to recollect more abstractly about the nature of things. He says "Human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them"(p.86). And then, "Thus the notion of a ZPD enables us to propound a new formula, namely that the only 'good learning' is that which is in advance of development" (p.89). In the ZPD, Vygotsky tries to explain human behavior by elucidating how the ZPD manages to shape growing consciousness with the aid of language.

Here, we can see the importance of social nature of language embedded in Halliday's functions of language and Vygotsky's ZPD. Bruner(1986) also supports this view. He argues that education becomes a part of "culture making" through negotiatory process by which facts are created and interpreted. For him, as for Halliday and Vygotsky, the social nature of language must have been the essence in creating realities.

Bruner(1986) confirms the constructive nature of knowledge associated with the social nature of language and

\textsuperscript{34}. To Vygotsky(1978), "the ZPD is the distance between the actual developmental level as determined by independent problem solving and the level of potential developmental as determined through problem solving under adult guidance or in collaborate with more capable peers" (p.86).
in doing so shows his changed epistemological position again.

What I am proposing here is an extension of that idea (his discovery learning or Piaget's learning by inventing), or better, a completion. My model of the child in those days was very much in the tradition of the solo child mastering the world by representing it to himself in his own terms. In the intervening years I have come increasingly to recognize the most learning in most settings is a communal activity, a sharing of the culture. It is not just that the child must make his knowledge his own, but that he must make it his own in a community of those who share his sense of belonging to a culture. It is this that leads me to emphasize not only discovery and invention but the importance of negotiating and sharing in a world, of joint culture creating as an object of schooling and as an appropriate step en route to becoming a member of the adult society in which one lives out one's life (1986, p. 127; parenthesis added).

In this context, Bruner indicates that much of the process of education consists of being able to distance oneself in some way from what one knows by being able to reflect on one's own knowledge. He criticizes contemporary theories of cognitive development that focus on the achievement of more abstract knowledge (i.e., through Piagetian formal operations or by the use of more abstract symbolic systems).

He says:

And it is doubtless true that in many spheres of knowledge, as in the sciences, one does indeed climb to "intellectually higher ground" (to use Vygotsky's phrase) by this route. One does indeed come to see arithematic as a special case when one reaches the more abstract domain of algebra. But I think it is perilous to look at intellectual growth exclusively in this manner, for one will
surely distort the meaning of intellectual maturity if one use such a model exclusively (1986, p.128).

Why does Bruner come to emphasize the constructive nature of knowledge or negotiatory nature of culture creating so much? As we know well, his famous "structure of knowledge" was assumed as the object to be discovered, mastered, or acquired by the learner. Why did he change his epistemological stance into the constructivistic temper? One reason for the change can be seen in his view on "self". He shows the view that self is a construction.

About how we shall deal with self, Bruner expounds as follow.

I am by long persuasion a constructivist, and just as I believe that we construct or constitute the world, I believe too that Self is a construction, a result of action and symbolization. Like Clifford Geertz and Michael Rosaldo, I think of Self as a text about how one is situated with respect to others and toward the world—a canonical text about powers and skills and dispositions that change as one's situation changes from young to old, from one kind of setting to another. The interpretation of this text in situ by an individual is his sense of self in that situation. It is composed of expectations, feelings of esteem and power, and so on (1986, p.130).

With the conception of constructed self, Bruner says:

"One cannot avoid committing oneself, given the nature of natural language, to a stance as to whether something is, say, a 'fact' or the 'consequence of a conjecture'. The idea that any humanistic subject can be taught without revealing one's stance toward matter of human pith and substance is, of course, nonsense" (p.128).
When Bruner is talking about the constructive nature of knowledge, negotiatory nature of creating culture, Self as a construction and so on, what does he have in mind? Needless to say, that is language (especially the functions of language). Bruner, in relation to the conduct of schooling and the language in which it is carried out, recognizes a "two faced" nature of language, which serves the double function of being both a mode of communication and a medium for representing the world about which it is communicating. He says "how one talks comes eventually to be how one represents what one talks about" (p. 131).

Thus far, I have discussed how language functions in the context of knowledge construction or reality making in terms of the views Halliday, Vygotsky, and Bruner suggest. Especially, Vygotsky (1934) provides the importance of social nature of language by elucidating major relations between language, thought and socialization. His basic view, to repeat, is that learning is a collaborative enterprise involving an adult who enters into dialogue with the child.

When we assume the close relationship between language and reality of the society, that is, if we accept the view that language not only transmits but also creates or constitutes realities, there can be no doubt that we should attend to the linguistic view of education (especially the sociolinguistic view on teaching-learning process). The sociolinguistic view to be introduced next part is
considered the most appropriate curriculum content view based on the above assumption as well as the set of criteria established in this study.

5.3 Sociolinguistic Approach as Curriculum Content View

A classroom in its nature is a place where communication goes on. People talk to one another there. There are usually an older person called "teacher" and youngers called "pupil" or student. And a closer looking into a classroom shows that there seems to be some agreement about who talks to whom, and when and how. Every classroom has its own way of going about things. There are surprisingly consistent from one classroom to another. They include very complex patterns of expectation about who says what to whom and when as well as the ways of making sense of what happens. In this sense, I dare say that education is a form of communication (Erikson, 1986; Green, 1983).

The recent sociolinguistic approach to teaching-learning process can be thought of as the representative one in which its focus is on the aspect of communication such as the descriptions of students' and teachers' use of language in the classroom.

One of the most important assumptions of the sociolinguistic approach is that successful participation in classroom life, generally called communicative competence
(Hymes, 1974), requires not only the abilities to speak and listen but also an understanding of when, where, to whom about what subject, and in what manner to use language (Mehan, 1979). After all, it is natural for a number of recent researchers on teaching-learning process to place their focuses on the nature of the classroom as a communicative context of teaching-learning by adopting a linguistic perspective (Cazden, John, & Hymes, 1972; Dunkin & Biddle, 1974; Erickson & Wilson, 1980; Green, 1983).

The purpose of this part is to examine what the basic assumptions of sociolinguistic perspective on teaching-learning process are and how the view can be interpreted from the aspect of curriculum and to propose an alternative view on curriculum content. Needless to say, the responsibility of curriculum is the answer to the questions of "what to teach" and "how to teach" and also the sociolinguistic perspective on teaching-learning process may give the implications to the answer.

Here, it is necessary for me to define or make it clear what the curriculum means. When we talk about "the school curriculum", we often mean "what teachers plan in advance for their students to learn". But a curriculum made only of teachers' intentions would be an insubstantial thing from which nobody would learn much. To become meaningful, a curriculum has to be enacted by students as well as teachers, all of whom have their private lives outside
school. By "enact" I mean come together in a meaningful communication. Accordingly, a curriculum as soon as it becomes more than intentions is embedded in the communicative life of teachers and students by which they exchange meanings.

In this sense, curriculum can be defined as a form of communication. When I relate curriculum to a form of communication in this way, it is meant that the form of curriculum can change the form of what is learned. For example, one kind of communication will encourage memorizing of details, another will encourage students to reason about the evidence or some other will direct them toward the imaginative reconstruction of a way of life. From the communication, they will also learn what is expected of them as students, how teachers will apply their own criteria of relevance, whether students are expected to have ideas of their own or to remember what they have been told.

With this conception of curriculum in mind, the focus now shifts to examining the basic assumptions or a conceptual framework underlying sociolinguistic perspective on teaching-learning process in the classroom since an examination is necessary to determine the adequacy or appropriateness of sociolinguistic perspective as an alternative curriculum view. To determine the adequacy of this view, it will lie necessary to determine whether the
basic assumptions satisfy the criteria established in this study.

For this purpose, this part deals with following problems.

1) What is the sociolinguistic perspective on teaching-learning process?

2) How is such view conceptualized into the aspect of communication?

3) What implications can such view give toward the context of curriculum?

5.3.1 Assumptions of Sociolinguistic Perspective

Wilkinson (1982) describes the sociolinguistic approach to the study of social interaction in the classroom as follow:

This approach focuses on descriptions of students' and teachers' use of language in the classroom. The descriptions provide us with a rich understanding of life in classroom, revealing the diversity of students and the complexity of communication in this context (p. 3).

With focusing on communication, Woolfolk (1985) identifies three important assumptions related to the sociolinguistic perspective. First, successful participation in classroom life requires communicative competence which includes the ability to speak and listen as well as the understanding of the context of language use (Hymes, 1974). A second assumption is that classrooms are particular types of
settings for communication which have their own characteristic activities, each with particular rules and obligations for participation, called social participation structure (Erickson & Shultz, 1977). Another assumption of the sociolinguistic perspective is that children vary in their communicative competence, particularly since the participation structures of school activities may differ from requirements for appropriate participation in the activities of home or community.

This view has been synthesized well under an framework which consists of some general assumptions that define and guide teaching as linguistic process by Green (1983).

These assumptions are as follows:
1) **Face-to-face interaction is rule governed**
2) **Contexts are constructed during interactions**
3) **Meaning is context specific**
4) **Classrooms are communicative environment**

Let's review what these constructs of sociolinguistic view mean in some detail.

First, the conceptualization of face-to-face interaction as a rule governed is central to understanding the nature of teaching as a linguistic process. The rule governed nature of face-to-face interaction has been demonstrated by the work in sociolinguistics, child language, ethnography of communication, etc. Rules of conversational participation and discourse construction have
been shown to be culture specific and learned from interacting with others. In other words, the conceptualization of face-to-face interaction as rule governed does not mean that participants follow fixed scripts. Rule governed, in this instance, means that expectations for performance exist that are culturally determined, and that these expectations guide participation and act to constrain the options for what will or can occur (Green, 1983).

Second, the contexts of the interaction are constructed by people as they engage in face-to-face interaction. As the constructs related to the view of contexts, the contextualization cues (Cook-Gumperz & Gumperz, 1976; Corsaro 1981), the notion of participation structure (Philips, 1972; Erickson & Mohatt, 1981; Erickson & Shultz, 1981; Florio & Shultz, 1979), and the notion of communicative competence (Hymes, 1974) are introduced.

Contextualization cues are the verbal and non-verbal cues that people use transmit meaning. Those include verbal aspects such as syntax and lexical items and non-verbal aspects such as gesture, facial expression, proxemic distance, and so on.

Participation structure refers to the demands for participation and the varying rights and obligation that occur within and across activities. According to Erickson (1982), two types of structures are signaled as part
of the evolving activities; the academic task structure and social participation structure. These two structures co-occur and can work together. Green and Harker (1982) have identified three types of demands: academic, social, and contextual. According to them, the failure to read the demands can lead to inappropriate performance during lesson.

The notion of communicative competence refers to an individual's ability to enter a situation and to engage in appropriate behaviors. This means the ability to know when to talk, to whom to talk and how to talk within a given situation. According to Cook-Gumperz and Corsaro (1970), this ability is developmental.

Third, the conceptualization of meaning as context specific is embedded in the notion that contexts are in the situation where the interactions occur. From this view, what a behavior means depends on how it is used, what precedes it and what follows. According to Green and Wallat (1979), the meaning in each instance is signaled by the verbal and non-verbal aspects of the delivery—where there is a pause surrounding the item, the speed of delivery, and the intonation pattern used.

And finally, the conceptualization of classrooms as communicative environment means that the classroom is a dynamic communication setting in which students and teachers are constantly monitoring what is occurring and how it is occurring. Classrooms have their own characteristic
activities, each with particular rules and obligations for participation called social participation structure (Erickson & Shultz, 1977). In order to learn the academic contents of lessons, students must be able to participate successfully in the changing activities of the classroom. They also must be able to read the contextual cues that signal what types of activity is in progress and what rules for communication are in force (Hymes, 1974).

The conceptualization of classroom as communicative environment assumes that in the classroom, a different set of rules exists between teachers and students. That is, the relationship between teacher and students is asymmetrical. Florio (1980) argues that the teacher is the only native in the classroom. The task of student is to discover the cultural expectations of teachers and to learn a act appropriately. Therefore, unlike other free conversational situations in which participants may negotiate topic, the classroom is more constrained communication environment.

So far, I have reviewed the basic assumptions underlying sociolinguistic perspective on teaching-learning process. Although the above constructs (assumptions) are not a complete sets of those involved in the conceptualization of teaching-learning as a linguistic process, they help show and define the difference between this perspective and
others\textsuperscript{35}. As shown above, the sociolinguistic perspective emphasizes what is going on in the situation. In other words, the sociolinguistic perspective attempts to identify what meanings are created in the situation. This perspective assumes that the meanings arise out of social interaction and persons develop and change these meanings in terms of the situation and their own actions.

If a school's curriculum is taken to be a system of making meanings and exchanging meanings, which are available to and used by teacher and students alike, curriculum can be viewed as a form of communication. If we accept this view, it can be argued that the sociolinguistic perspective provides the basis for the reconceptualization of curriculum.

5.3.2 A Model for Classroom Teaching-Learning as Sociolinguistic Approach

In the previous part, I have identified four major conceptualizations(assumptions) which constitute the sociolinguistic perspective on classroom teaching-learning process. As reviewed before, the four major frameworks of sociolinguistic perspective each not work separately from others but work together one another.

\textsuperscript{35} The other major approach often called "process-product" model to the study of teaching-learning focuses on the relationships between specific observable events and outcomes.
Here, based on the four frameworks, I depict sociolinguistic perspective as below figure.

![Sociolinguistic Perspective Diagram](#)

**Figure 5. Frameworks of sociolinguistic perspective**

All of the four factors shown in the Figure 5 are based on a particular view of language. What is the concept of language? How is it defined? The implication of sociolinguistic perspective on classroom teaching-learning depends upon how language is defined.

The idea of language as a tool for making meaning as well as for communicating existing meanings was presented by the anthropologist Edward Sapir (1949).

He wrote:

Once the form of language is established, it can discover meanings for its speakers which are not simply traceable to the given quality of experience itself but must be explained to a large extent as the projection of potential meanings into the raw material of experience (p.10).
A similar view has been held by Russian psychologist, Vygotsky (1962) in his influential book *Thought and Language*. He says:

Speech for oneself originates through differentiation from speech for others.... It does not merely accompany the child's activity; it serves mental orientation, conscious understanding; it helps in overcoming difficulties (p. 133).

As mentioned before, Bruner (1986) also urged the importance of language in cognitive development. He emphasizes this importance to the act of speaking when he describes language as not only the medium of exchange but also the instrument the learner can use himself in bringing order into the environment. As Sapir, Vygotsky and Bruner see language both as a means by which we learn to take part in the life of communication and a means by which we can actively interpret the world about us. In other words, we both receive a meaningful world from others, and at the same time make meanings by interpreting that world for our purpose through language. In short, language has both one as communication and another as reflection.

Thus far I have distinguished language as communication from language as reflection. However, as mentioned before, if a school curriculum is considered to be those systems of meaning which are available to and used by teachers and students alike, language must enter into the curriculum in two ways; 1) as the communication system of classroom and 2) as a means of learning (reflection function of language).
These two look at the same phenomena from two different aspects. If we consider language solely as the communication system, this relegates the learner to a passive role as the recipient of socialization. Similarly, if we regard language as a means of learning, we see the learner as only an active participant in the making of meaning. However, since the social functions of language go on simultaneously with the making of meanings, we should consider how the two functions interact.

In my classroom learning model, the two functions of communication, each having different emphasis on the teacher and students, are input into the social context of the classroom. In other words, language as communication is emphasized on teacher side, while the language as reflection is emphasized on students side.

In addition, the text is another variable of input in designing my model, since the dynamic, interactive relationship between texts and their teacher-and-students results in creating meaning as context specific. Here, the text as a participant in instruction is meant as providing the curriculum as well as dynamic forces that can change and grow with their readers. Bernhart (1987) describes three meanings of text as participant: lexical knowledge, syntactical knowledge, and background knowledge and suggests that teachers need to perceive texts as agent with which students interact and students derive meaning from text.
Based on the above variables and conceptualization of classroom instruction, I can represent this as a diagram.

![Diagram of classroom teaching-learning as sociolinguistic perspective](image)

**Figure 6. A model of classroom teaching-learning as sociolinguistic perspective**

1. **Teacher**
   - purpose; goal
   - frame of reference
   - prior experience
   - conceptual knowledge
   - facts, concepts
   - belief, value
   - knowledge of language
   - processing skill
   - e.t.c.

2. **Student**
   - background knowledge & view of the world (frame of reference)
   - knowledge of language
   - processing skills
   - e.t.c.

3. **Text**
   - function; purpose to inform, entertain

4. **Sociolinguistic context**
   - participant; age, sex, role
   - relationship, cultural
(Figure continued)

.content & structure; background
what is about topic, setting; time, place
ideas, kind of text task; activity
.language; how ideas are mode; oral, written; verbal,
expressed non-verbal
word, syntax, language strategies, etc.

The oval at the left of diagram represents the text as participant, which includes subject matter as well as participant’s (including teacher) meaning constructed regarding the subject matter. But a learner’s opportunity to put it into effect depends on the patterns of communication of the classroom. This is represented by central circle of the diagram. The classroom setting can be regarded as social context including communication system which results from teacher-students interaction. The texts as participant are filtered through this communication system and symbolized by the heavy broken arrow. The communication system is a matter not only of how the teacher sets up classroom relationships and discourse^3^ but also of how the students interpret what the teacher does^3^7. The communication pattern of any classroom is the outcome of a history of mutual interactions by teacher and students. In the long run, the meaning as the result of instruction comes into being.

^3^6. This means that teacher needs language as communication

^3^7. This means that students need language as reflection
5.3.3 An Implication of Sociolinguistic Perspective from the Aspect of Curriculum

In the previous part, I define the curriculum as a form of communication. When I refer curriculum to a form of communication, it means that a curriculum, to become meaningful, should be embedded in the communicative life of teacher and students by which they exchange meanings. From the aspect of communication, a curriculum can encourage students to learn what is expected of them as students, how teacher will apply his own criteria of reliance, whether students are expected to have ideas of their own or to remember what they have been told.

In this part, I will suggest issues raised by the sociolinguistic perspective for curriculum—what the curriculum means, what to teach, and how to teach.

From the sociolinguistic aspect, curriculum and instruction is a dynamic and constructed process through which students gain access to both the social and the academic content of lesson. Weade(1987) suggests that the natural relationship is to merge the two concepts: curriculum and instruction. Arguing that the distinction between curriculum and instruction may be unduly academic, she presents a model of how the merger of "curriculum'n' instruction" in the classroom context functions as bellow.
Figure 7. The Merger of Curriculum’n’instruction in the Classroom setting

According to her, the model is divided by a circle that represents the curriculum setting. Inside the circle, the curriculum’n’instruction process is depicted as a continuous cycle that occurs within the classroom setting. In contrast, the concept identified by curriculum theorists as different types of curricula are positioned outside the circle. Thus, the model provides a graphic representation of the relationship between the curriculum perspective described in traditional way and the curriculum’n’instruction process that takes place within the classroom.
She talks about the construction of meaning, emphasizing it as the central sector of the model.

The curriculum'n'instruction cycle encompasses the process through which academic and social meanings are constructed through the interactions among teachers and students.... Through interaction, new meanings get acquired, and old meanings become modified, suspended, or abandoned. That is, knowledge is extended or transformed. Students engaged in processes of interactive curriculum development are not merely receiving knowledge but rather are actively constructing with the teacher the academic and social knowledge of substantive information and procedures for participating that are becoming the developing curriculum(p.17).

Classrooms are complex and differentiated communication environments in which lessons develop as a dynamic series of context. In this sense, the above model called curriculum'n'instruction can explain the new conceptualization of curriculum, linking two concepts(curriculum and instruction) as a continuous recurrent and interactive chain of actions and events, from the view point of sociolinguistic perspective on classroom teaching-learning process.

As another implication suggested by sociolinguistic perspective, I would like to insist that the view on knowledge be changed.

What counts as knowledge from the sociolinguistic perspective? From the learner's point of view, language provides a set of strategies for interpreting the world, and a means of reflecting on this interpretation. Language performs two functions simultaneously; it carries the message that we are wanting to communicate and at the same time it
conveys information about who we think we are, who we think we are talking to, what we believe the situation to be, and so on (Barnes, 1979). Whenever we talk, our speech both carries the conscious message and -usually unconsciously- negotiate the social relationships in which we are taking part. Similarly, in school, whatever is said by teacher or students tends to relate both to what is learned, that is, to the manifest curriculum, and to social relationships.

Speech is not only a tool which each of us can use in making sense of the world, but also a means of imposing our views of the world on others. What people around us say and do influences our interpretation of the world and ourselves. This interpretation may constitute a major source of knowledge about who we are and where we are and so on.

Here, let's think about knowledge to be taught in the classroom. If we think that what a teacher teaches is quite separate from how he teaches, it would be mistake. Books of curriculum planning often show the selection and ordering of subject-matter as a separate stage from the planning of learning activities. However, it is possible to show that the way in which teacher's think about what constitute knowledge is often linked to what they think learning and teaching are. That is, a teacher with sociolinguistic view of knowledge, is likely to carry with it a view of classroom communication and of the roles of teachers and students in formulating knowledge. According to the study carried out by
Barns and Shemilt (1974), teacher's view of knowledge can be placed on a dimension which runs from a Transmission view to Interpretation view. Lists of those categories which fall nearer the Transmission or the Interpretation ends of the dimension are described in the following.

<table>
<thead>
<tr>
<th>Transmission</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of cognitive</td>
<td>Cognitive development</td>
</tr>
<tr>
<td>information</td>
<td></td>
</tr>
<tr>
<td>Emphasis on product</td>
<td>Emphasis on context</td>
</tr>
</tbody>
</table>

Figure 8. A continuum of Knowledge view

In terms of these categories, it is possible to assume that a teacher with the Transmission view may see the purpose of teaching-learning primarily as the acquisition or recording of information, while a teacher with the Interpretation view will see the purpose of teaching-learning either in terms of cognitive development or personal development. With respect to these two views of knowledge, there can be contrasting views of classroom communication. The transmission teacher, for instance, may see it as his task to transmit knowledge and to test whether the students have received it. However, for the
interpretation teacher, the student's ability to reinterpret knowledge for himself is crucial to learning, thus he may see this as depending on a productive dialogue between the students and himself.

This view of transmission and interpretation of knowledge has significant implications for conceptualizing knowledge. If a teacher sees knowledge as existing primarily in a discipline, he will set up classroom communication so that transmission and assessment predominate. This will compel students to be mainly passive in the classroom interaction, while if a teacher sees knowledge as existing primarily in the student's ability to interpret, he will emphasize the reply aspect of his classroom role, thus making possible a negotiation between his knowledge and his student's knowledge.

The sociolinguistic perspective places its focus on the meanings and ways are constructed in the context through interaction between teacher and students. Thus, knowledge is constructed by teacher and students during the classroom interaction. If we accept this as a viable perspective, then the interpretation view of knowledge will be helpful for teachers and curriculum specialists to teach and to develop curriculum. But to advocate an interpretation view of knowledge is not to argue that teachers should never present knowledge to their students, but rather to imply that certain patterns of communication should follow the
presentation, as students negotiate their own ways of grasping the knowledge thus presented.

To conclude, I would like to argue that curriculum phenomena, especially in classroom teaching, should be understood as a form of communication. Accordingly, the curriculum should be conceptualized as a dynamic and constructed process through which students gain access to both academic and social contents. This concept of curriculum is quite a very different from the traditional one in that while traditional concept focuses on such variables as "what to teach" and "how to teach" with a positivistic mind. In contrast, the sociolinguistic perspective emphasizes the construction of meaning with a phenomenological orientation. In short, the sociolinguistic perspective on teaching-learning process can be thought of as the most appropriate paradigm which is capable of synthesizing two concepts: curriculum and instruction which should never be separated in teaching-learning process.

5.4 Conclusion

In the end, I have proposed the sociolinguistic perspective as an alternative curriculum view on the ground that the assumptions underlying the sociolinguistic view meet the set of criteria established in this study.

But to propose the sociolinguistic view as the alternative is not to negate the signification of the
existing two curriculum content views. Rather, the proposed view in this study attempts to remind us of the possibility to see curriculum content from quite different aspect. While the reductionistic view tries to identify curriculum content as "human behavior and its hierarchy" and the holistic view tries to identify curriculum content as "knowledge and its structure", the alternative view emphasizes the nature of knowledge as constructed meaning during social interaction with recognition of the importance of language.

Although existing two curriculum views (the reductionistic and the holistic) show a difference as to what counts as curriculum content, they are in same position that curriculum content—be they behavior or knowledge—as an object exists "out there" independent of and external to the knowing subject's process of knowing and interpretation of its meaning. After all, the difference between two existing curriculum views and the alternative one is whether or not recognizing constructed knowledge. While the alternative tries to see the nature of knowledge as the constructed one, the existing views recognizes the discovered nature of knowledge only. Again are we in another dilemma of selecting one or all of them? The answer, of course, is "no".

Human beings have the capacity to create an infinitive number of ways to characterize phenomena. At the same time, human beings have the capacity to categorize the infinitive
number of ways or discover it. Bruner(1986) implies it in
terms of two modes of thought in human being as follow:

One mode, the **paradigmatic or logico-scientific**
one, attempts to fulfill the ideal of a formal,
mathematical system of description and
explanation. It employs categorization or
conceptualization and the operations by which
categories are established, instantiated,
idealized and related one to the other to form a
system.... At a gross level, the logico-scientific
mode deals in general causes, and in their
establishment, and makes use of procedures to
assure verifiable reference and to test for
empirical truth.... The imaginative application of
the paradigmatic mode leads to good theory, tight
analysis, logical proof, sound argument, and
empirical discovery guided by reasoned hypothesis.
But paradigmatic "imagination"(or intuition) is
not the same as the imagination of the novelist or
poet. Rather, it is the ability to see possible
formal connections before one is able to prove
them in any formal way. The imaginative
application of the narrative mode leads instead to
good stories, gripping drama, believable account.
It deals in human or human-like intention and
action and the vicissitudes and consequences that
mark their course. It strives to put its timeless
miracles into particulars of experience, and to
locate the experience in time and place(pp.12-13:
underline added).

The above two modes Bruner argues constitute the views
on knowledge. In my view, Bruner’s paradigmatic mode of
thought seems to be the positivistic view of knowledge while
his narrative mode of thought corresponds to the
subjectivism of knowledge(or relativism).

Toulmin(1961, 1972, 1983) also makes distinction about
human understanding forms in terms of analysis of notion of
purposes. He points out important distinctions between both
science and art and science and public policy fields.
Concerning the first distinction, he notes that, although there is a historical continuity and coherence in the development of artistic technique, all painters or poets of novelists do not share a common purpose. Thus, at best, the arts and various genres of literature can only be considered quasi-disciplines. Similarly, public policy fields differ from scientific disciplines in that public policy fields have no unanimity with respect to purpose. According to him, the adequacy of human constructions—be they scientific paradigms, artistic or literary creations, or public decisions—must always be judged in terms of particular purposes.

The implication Bruner's two mode of thought and Toulmin's analysis of human understanding can suggest provides an important solution for resolving both the emptyheadedness of relativism and the narrowmindedness of positivism.

Bruner, by recognizing both the paradigmatic mode of thought and the narrative mode of thought in humanbeing simultaneously, seems to be able to encompass two conflicting views on knowledge: the discovered nature of

38. Toulmin shows the difference between public policy fields and scientific disciplines by using an example; "Even if civil engineers recommend that a dam be built in a particular location, policymakers will not necessarily heed such a recommendation, for the engineers' technical concern will only be one of a multitude of concerns that policymakers will have to consider" (cited from Donmoyer's article: The Rescue from Relativism, 1985, p. 18).
knowledge and the constructed nature of knowledge. Perhaps, Bruner's earlier conception of "the structure of knowledge" might have recognized the former only. His later view on knowledge, as we examined, shows his modified epistemological stance to accommodate both the former and the latter.

The distinction Toulmin makes between scientific disciplines, quasidisciplines, and nondisciplines, on the other hand, articulates a conception of human rationality that generalizes to all aspects of human understanding without challenging the claim that human rationality is fundamentally the same no matter what the context. As we discussed in the Chapter II, Toulmin provides a theoretical basis for resolving the problem of relativism by analysis of notion of purposes. He clearly believes that there are ways to rationally assess the relative worth of conflicting claims by arguing that differing purposes will inevitably result in different criteria for appraising the relative adequacy of conflicting conceptual framework or language. Thus, his conception clearly recognizes what the positivists ignore: the primacy of questions of meaning over questions of facts. At the same time, his position accommodates what the relativists are apt to ignore: the concept of mistake (to use D.C. Phillips' words) (see p. 52 in chapter II).

R. Donmoyer (1985) argues that if we accept Toulmin's analysis of notion of purposes and conception of human
rationality, there appear three kinds of mistakes. First-order mistakes, according to Donmoyer, occur when the evidence cannot support the propositions that have been framed by using a particular language. For example, the problems addressed by methodologists concerned with more traditional experimental and correlational design-problems like inappropriate generalization and inadequate sample size—can serve as a possible first-order mistake. Second-order mistakes occur when the language used to frame propositions is not appropriate or adequate for particular purposes. For example, Newtonian physics is the most obvious example. And Third-order mistakes relate to the inadequacy of purposes themselves. For example, the critiques recent curricular scholars called "reconceptualists" make are related to the third-order questions. Their critiques focus on questions of purposes themselves.

The above categorization of mistakes seems to be very useful for policymakers and practitioners, or individual researcher as well as educational research community in that they can avoid the possible mistakes by recognizing them. For example, policymakers and practitioners should be alert to the dangers of permitting empirical researchers to transform value-laden policy issues into technical questions that can be answered empirically. Especially, as to education (in particular curriculum field) considered a public policy field, the questions of purposes (third-order
mistakes) are at least as important as questions of research procedures (first or second-order mistakes). Donmoyer indicates that educational researchers have little experience with rationally confronting second-order issues, and even less experience with confronting third-order questions (p.19). To be sure, we members of research community cannot avoid questions of purposes themselves.

The conflicting views on curriculum content such as the reductionistic, the holistic, and the alternative dealt with in this study are directly about the questions of purposes. The alternative view proposed in this study emphasizes the constructed nature of knowledge (curriculum content) unlike the existing curriculum content views (the reductionistic and the holistic) which recognize the discovered nature of knowledge.

To conclude, even if the sociolinguistic view, which recognizes the constructed nature of knowledge, is proposed as an alternative to existing curriculum content views, which recognize the discovered nature of knowledge, the alternative view only is not sufficient for proper curriculum content view. I believe that, to be a proper curriculum content view, the alternative curriculum content view should accommodate both the discovered nature of knowledge and the constructed nature of knowledge because, as Bruner's two mode of thought and Toulmin's analysis of human understanding imply, two conflicting natures of
knowledge are considered two different aspects of the same substance of knowledge.

5.5 Recommendations

Rather than settling the dispute over conflicting curriculum content views, this study provides a basis for further discussion as to epistemological position of curriculum content for further growth within the field of curriculum. As the third-order mistake implies the inadequacy of purposes themselves, the alternative curriculum view criticizes traditional curriculum content views and suggests the constructed nature of knowledge.

However, for a proper assessment of the relevance of curriculum content view, we would need to examine more than three criteria involved in this study because other issues may potentially affect the epistemological position of curriculum content view. Thus, there will always be more research to be done. The following suggestions are for further study along with this study.

The alternative curriculum content view needs to be examined in terms of triangular or circular relationship among theory, practice, and policy. For example, more efforts should be made to bridge the gaps between the theoretical level of discourse and practical level of application and policy level of control. This study mainly focuses on the epistemological criteria for evaluating a
curriculum content view. In fact, the relevance of theoretical level should not be the only criterion for judging the adequacy of curriculum content view. The relevance of practicality and possibility of policy will be rewarding for curriculum practitioners and curriculum policy makers to take advantage of the advance made in the theoretical area.

Secondly, for practicality of alternative curriculum content view, it is suggested that more investigations of role of language in the context of classroom communication be made to determine how the social nature of language is related to the constructed nature of knowledge. When accepting the sociolinguistic perspective as a valid curriculum content view, the next step is to focus on examining language use and its influences between teacher and students in the classroom.

Thirdly, for development of curriculum, the work of teacher should be considered as playing a key role. Traditionally, curriculum has been thought of as what students have an opportunity to learn under the auspices of schools or formal written document. This is the formal policy-level curriculum. The less formal, but perhaps more important, curriculum is the curriculum enacted in the classroom. The curriculum seen from the alternative view has the characteristic to encompass the concept of both curriculum and instruction. Furthermore, the alternative
view can encompass both so-called overt curriculum and hidden curriculum.\(^{39}\) In the classroom communication where teacher plays his or her major role, the work of teacher, to be sure, is regarded as both teaching and developing curriculum at the practice level.

Finally, in the curriculum area, which is considered as a public policy field which needs concensus, policy makers or decision makers of curriculum can make a bridge between theorists and practitioners within the field of curriculum. For the curriculum field to become vital and significant, theorist, practitioner, and policy maker must be reliant on one another.

\(^{39}\) The hidden curriculum can be thought of as bearing two characteristics: 1) it is not intended, and 2) it is transmitted through the everyday, normal goings-on in schools.
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