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CONCEPT LEARNING AND CURRICULUM DEVELOPMENT

IN ART EDUCATION

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Thesis Abstract

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An attempt is made in this thesis to relate the current interest in concept learning to curriculum development in art education.

In Part One general implications of concept learning are discussed. Two conflicting views regarding the place of concept learning in art are presented in Part Two. Part Three examines "space" as an art concept, and Part Four describes an experimental concept-focused program dealing with space. This is documented by slides and a tape recording.

The author contends that open concepts, significant both in their positive and negative aspects and of relevance to all art activities, could provide a meaningful focus for art activities without restricting the teacher's creativity in selecting and organizing art projects.

The author suggests that those knowledgeable about art should clarify basic concepts which can be implemented in trial programs beginning at the junior high school level.

To be used in conjunction with slides and tape
available for consultation only at Sir George Williams
University.

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INTRODUCTION

Many subject areas in education are currently receiving intensive examination from the point of view of concept learning. Two main reasons for this seem to be in evidence:

1. In an age when knowledge is expanding at such a rate that it is no longer possible for anyone to come to know more than a fragment of the information available, it seems foolish to retain knowledge acquisition as a major goal of education. The knowledge explosion has made it necessary for man to have a conceptual framework in which to operate if he is to become aware of his place in the world. Having acquired a general framework, man can assimilate knowledge, especially new knowledge, and make it useful.
2. The acceptance of Bruner's notion that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development"¹ has led educators to believe that a conceptual framework, based on the essence of subject matter, is possible.

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Bruner, Jerome S. The Process of Education, page 33.

Art is one area which has seen little development in the direction of concept learning. Perhaps art is considered to be too subjective or affective for such an "intellectual" approach. Perhaps it is felt that "doing art" is more important than "verbalizing" about art.

It is the contention of the author that, when developments of such significance and magnitude as the conceptual approach are being explored in other subject areas, art should reexamine its position. Such an examination could help redefine the position of art relative to other subject areas, or it could lead, if desirable, to the adoption of the best applicable aspects of the new developments to its own program. If it turns out that there is no application to art, then at least the unique place of art in total education is acknowledged.

It is suggested, therefore, that a conceptual approach to art be attempted in order to determine whether:

1. Art is of such a nature that it can fit into a conceptual framework.
2. A conceptual framework might act as a meaningful focus for art education activities.

The author is of the opinion that art, like the sciences and social sciences, has a conceptual basis.

Further, it is suggested that, rather than limiting the creative potential of students in an art program, concepts could establish a focus around which creative growth could meaningfully take place.

It is not the intention in this thesis to delineate the conceptual basis of art, although some suggestions will be given. The delineation of the conceptual basis should be done by the experts in the field - aestheticians, artists, art historians and art critics - in a joint, penetrating search for the fundamentals.

Neither is it intended to verify that a conceptual framework is desirable. Once the findings of the specialists are available considerable more study by qualified educators, including art educators, educational psychologists, and curriculum planners would be needed. Finally exemplar programs would have to be implemented and evaluated.

It is hoped, though, that this study will indicate that effort in this direction has real possibilities of bearing fruit.

PART ONE: A GENERAL CONSIDERATION OF CONCEPT LEARNING

A. Current Interest in Concept Learning

Piaget's studies into child development have given a good deal of impetus to studies about concept learning. Bruner, building on Piaget's ideas, has suggested that "the foundations of any subject may be taught to anybody at any age in some form."¹ Since the Woods Hole Conference, out of which Bruner's The Process of Education grew, educators have been increasingly aware of a conceptual approach to teaching. Besides this interest by educators, specialists in particular fields have been trying to determine and elucidate the nature of concepts with which they deal, to the end that concepts presented in school will be true to the subject field and of current significance.

A brief glance at curricular and research studies gives a general impression of an active interest in curricula structured on concept learning, and this interest seems to cut across all subject areas. It is doubtful, however, that the term "concept" means the same thing to the various writers. A number of writers themselves do not seem to have a clear picture of what they mean by the term.

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Bruner, Jerome S. The Process of Education, page 12.

For example, Geraldine Dimondstein in her article "Proposed Conceptual Framework in the Arts"¹ is far from clear as to what she means by "concept". In general, however, "concepts" seem to mean generalizations or categories which are basic to the particular fields of study. A small sampling of the evidence of interest is given below.

Kenneth Lovell in "Concepts in Mathematics"² stresses the importance of a multi-sensory and discovery approach to a study of number. Howard Fehr suggests that one of the values of teaching concepts in mathematics is "the appreciation and aesthetic satisfaction that derives from the knowledge and use of mathematical concepts."³ Robert Noble reports that a concept teaching program for bands in the

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Dimondstein, Geraldine. "Proposed Conceptual Framework in the Arts", Studies in Art Education, Vol. 10, No. 2, Winter, 1969.

2

Lovell, Kenneth, "Concepts in Mathematics" from Klausmeier, Herbert J., and Harris, Chester W., Analysis of Concept Learning, page 211.

3

Fehr, Howard F., "Teaching Mathematics in the Elementary School", from Klausmeier, Herbert J., and Harris, Chester W., Analysis of Concept Learning, page 236.

field of music led to superior performance.¹ Charlotte Crabtree conducted a study into the effects of a concept centered geography program for grades one to three.² Other programs and investigations have included such areas as the sciences, social studies, reading, literature, physical education and home economics.

1

Noble, Robert F., "A Study of the Effects of a Concept Teaching Curriculum on Achievement in Performance in Elementary School Beginning Bands", Office of Education, Washington, April, 1969.

2

Crabtree, Charlotte. "Teaching Geography in Grades One Through Three, Effects on Instruction in the Core Concept of Geographic Theory", California University, Los Angeles, March, 1968.

B. Definition of Concept

At first glance, definitions of "concept" seem to be in general agreement. "A concept is a generalization about related data."¹ "A concept is a class idea."² "A concept is a common response made to a class of phenomena the members of which display certain common characteristics."³ "A concept exists whenever two or more distinguishable objects or events have been grouped or classified together and set apart from other objects on the basis of some common feature or property characteristic of each."⁴ All of these definitions distinguish "concept" as applying generally or to a group, from a common use of the term as explained in The American College Dictionary "the immediate object of thought in simple apprehension." "Concept" as a group word is therefore distinguished from "concept" as any "notion."

1

Russell, D.H. Children's Thinking, page 68.

2

Cole, L.E. and Bruce, W.H. Educational Psychology, page 505.

3

Osgood, C.E. Method and Theory in Experimental Psychology, page 666.

4

Bourne, Lyle E., Jr. Human Conceptual Behavior, page 1.

Differences arise, however, when concepts are considered variously as "entities" or "vehicles for thought"¹ in Harré's words, or as "processes" or as "behavior." The problem becomes more complex when it is related to Stimulus-Response and other learning theories, when it is related to language, and when it is treated variously by philosophers, psychologists, and educators in the various subject fields.

Bruner, Goodnow and Austin in A Study of Thinking² make a number of significant distinctions relative to concepts. For the most part these will be used in this paper. They specify three types of concepts:

1. Conjunctive Concepts

Each conjunctive concept has a particular set of attributes which must be present in any example of that concept. This seems to be the most common type of concept, or at least the easiest type of concept to learn. If the

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Harré, Ron, "The Formal Analysis of Concepts", Klausmeier, Herbert J. and Harris, Chester W. Analysis of Learning, page 3.

2

Bruner, Jerome S., Goodnow, Jacqueline J. and Austin, George A. A Study in Thinking, page 41.

particular attributes are there, one knows that he has an example of the concept; if any of the attributes are absent, it is readily known that the particular instance is not an example of the concept.

2. Disjunctive Concepts

For disjunctive concepts particular examples may have little or apparently no resemblance to one another and yet they fit within the same group. One set of attributes, as well as another set of attributes, or several sets of attributes are the defining properties of these concepts. Therefore, they are more difficult to grasp than conjunctive concepts.

3. Relational Concepts

These concepts specify a relationship amongst the attributes rather than particular attributes.

Morris Weitz distinguishes between Open and Closed Concepts. He refers to Wittgenstein's example of games as an open concept, and quotes him in explanation. "(By games) I mean board-games, card-games, ball-games, Olympic Games and so on. What is common to them all? - Don't say: 'there

must be something common or they would not be called games', but look and see whether there is anything common to all - For if you look at them you will not see something that is common to all, but similarities, relationships, and a whole series of them at that..." Weitz adds, "If one asks what a game is, we pick out sample games, describe these and add, 'This and similar things are games.' This is all we need to say and indeed all any of us knows about games. Knowing what a game is is not knowing some real theory but being able to recognize and explain games and to decide which among imaginary games and new examples would or would not be called 'games'," and further, "But the basic resemblance between these concepts is their open texture. In elucidating them, certain (paradigm) cases can be given about which there can be no question as to their being correctly described as 'art' or 'game', but no exhaustive set of cases can be given...A concept is open if its conditions of application are emendable and corrigible...If necessary and sufficient conditions for the application of a concept can be stated, the concept is a closed one."¹

1

Weitz, Morris, "The Role of Theory in Aesthetics", Smith, Ralph A. Aesthetics and Criticism in Art Education, page 89.

The open concept of Weitz seems related to the relational concept of Bruner. However, although the attributes are related, future new relations are not ruled out. Also the open concept could be disjunctive but, again, including the possibility of new alternative attributes. It seems clear, however, that the conjunctive concept must be a closed one.

Bruner, Goodnow, and Austin make a distinction between Defining Attributes and Criterial Attributes of concepts. People act on the basis of certain conceptualizations whether or not these conceptualizations are founded in reality. This is most important. Whether people know it or not they have certain concepts about the things and events of their lives or else they could not really operate in the world. The attributes that establish the concepts that people use are criterial. Each person has his own set of criterial attributes for any concept he uses. Defining attributes are based in reality and can be verified. They are authoritatively stipulated or "specified officially."¹ A person's criterial attributes for a concept could coincide

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Bruner, Jerome S., Goodnow, Jacqueline J. and Austin, George A. A Study in Thinking, page 30.

with the defining attributes of that concept, but they need not. Of course, if the criterial attributes of a person are quite different from the defining attributes there would be a great problem in communication.

Bruner and his associates further distinguish between Concept Attainment and Concept Formation. Where an individual invents a new category, he is forming a concept. Where one discovers the attributes of concepts already in existence, he is attaining a concept. Bruner places great stress on concept attainment in education and explains concept attainment as "the search for and testing of attributes that can be used to distinguish exemplars from non-exemplars of various categories."¹

It should be made clear that there can be and often is an hierarchy of concepts. A concept or category at one level can be an attribute of a concept at a higher level. Smaller or less complex concepts can fit into larger or more complex conceptual units.

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Bruner, Jerome S., Goodnow, Jacqueline J. and Austin, George A. A Study in Thinking, page 233.

C. Values of Conceptual Learning

Unless categories or relationships are established relative to things and events in our environment, we are left with a maze of particular instances, much too complex to cope with. Without concepts we would be left to think on the level of the particular and the concrete. Symbolic and abstract thought would be impossible. There could be no language. Because each object or event would be looked upon as unique, there could be no general terms to describe the particular. There would be little to communicate. The particular instances could be pointed out, but even the act of pointing would itself be a generalization or categorization meaning "Look at this."

Without categories and relationships at a lower level, understandings of a higher order would be difficult to develop. Such questions as "What is the nature of man?", "What is the nature of the universe?", and "What is good?", questions basic to man because he is man, would be outside the reach of man.

Besides using concepts to develop his understandings at broader levels, man needs concepts to develop his powers of observing the particular. It is helpful in observing and remembering a particular bird, for example, to have

some general knowledge about birds. If one has a general notion about beaks, then the peculiarities of a particular beak will be more apparent.

In an age when knowledge is expanding at an accelerating rate, and in an age when particular facts fast become obsolete, it is imperative to develop through education a means of dealing effectively with an ever-changing world. Education which is aimed primarily at pouring facts into children's heads has no relevance in this age. Establishing a framework into which the ever-changing data can be meaningfully placed is much more pertinent.

Education can supply man with some understanding of his relationship to his environment and to himself. This involves getting to the essence of things. Conceptualization is prerequisite for such understandings.

Bruner makes four general claims for teaching the fundamental structure of subjects.¹ They are:

1. A subject is made more comprehensible.
2. When detail is placed into a structured pattern it is remembered better.
3. Conceptual structuring leads to better transfer of learning.

¹

Bruner, Jerome S. The Process of Education, page 25.

4. The gap between advanced knowledge and elementary knowledge can be removed.

All of these points are impressive. The first three, if true, are powerful recommendations for a conceptual approach to any subject. The last point is more readily corroborated. The need is apparent. When new discoveries are taking place in every field, and when new challenges to old concepts are being presented in every aspect of life, it is most obvious that those who are at the forefront of current research and thought need to be consulted about the content of curricula. Those involved in conceptual approaches to education are bridging the gap between what is known at the upper level and what is taught to children.

It is undoubtedly true that people will conceptualize regardless of whether they are educated to do so or not. They have to in order to exist. Education must concern itself with improving, or making more accurate, or memorable, and meaningful the conceptualization which takes place - to bridge the gap between criterial and defining attributes of concepts.

Perhaps even more important is to develop an educational system which will lead to the formation of new concepts which will break through the inadequate systems of dealing with the world in which we live.

D. Stages of Development and Sequence

For Piaget a Sensorimotor stage exists from birth to about age two. Others would suggest that eighteen months would be a better cut-off age because of the beginnings of language. The child adapts to his world by motor-sensory experiments. The Preoperational stage extends approximately from age two to age seven. This is a transitional stage to the stage of concrete operations. The child is able to do in internal thought, perhaps because of language, what previously he was only able to do overtly. The Operational stage is often divided into two parts. The first part, the stage of Concrete Operations, runs from approximately age seven to age eleven. While beginning to think deductively and logically, the child still needs a model to verify his conceptualizations. At the stage of Formal Operations, beginning at approximately age eleven, the child is able to understand the basic principles of causality, to postulate hypotheses and to verify them without reference to the physical world. He is able to conceptualize at a sophisticated level.

Although concepts cannot be formally and abstractly understood until about age eleven, before this age, the child can use concepts and understand them in terms of the

immediately present reality. "Earlier, while the child is in the stage of concrete operations, he is capable of grasping intuitively and concretely a great many basic ideas of mathematics, the sciences, the humanities, and the social sciences, but he can do so only in terms of concrete operations. It can be demonstrated that fifth-grade children can play mathematical games with rules modeled on highly advanced mathematics; indeed they can arrive at the rules inductively and learn how to work with them. They will flounder, however, if one attempts to force upon them a formal mathematical description of what they have been doing though they are perfectly capable of guiding their behavior by the rules."¹

There is little doubt that children do go through different stages or levels in their abilities to use, understand, and form concepts. A question remains, however, about whether the passage from one stage to another can be accelerated. Piaget postulated as prerequisite to gaining a concept of number that children would have to acquire the concept of conservation of substance. Studies

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Bruner, Jerome S. The Process of Education, page 38.

by Mermelstein and others¹ & ² tend to show that training procedures are ineffective in inducing the conservation of substance concept. However, studies by Shantz and Sigel³ and Engleman and Gallagher⁴ tend to show that the conservation of substance concept can be taught.

This conflict of evidence indicates that there is much to be learned in this area which has so much significance for education. The immensity of the task can be appreciated when it is realized that the conservation of substance concept is investigated because the behavior is more readily observable than for others.

1

Mermelstein, Egon and Meyer, Edwina, "Number Training Techniques and Their Effects on Different Populations", Hofstra University, Hempstead, N.Y., August, 1967.

2

Mermelstein, Egon and others, "The Effects of Various Training Techniques on the Acquisition of the Concept of Conservation of Substance", ERIC, April, 1968.

3

Shantz, Carolyn and Sigel, Irving, "Logical Operations and Concepts of Conservation in Children, A Training Study", Center for Developmental Studies in Cognition, Detroit, June, 1967.

4

Engleman, Siegfried and Gallagher, James, "A Study of How a Child Learns Concepts and Characteristics of Liquid Materials", ERIC, April, 1968, page 101.

If readiness to learn concepts cannot be accelerated, at best educators are just wasting their time trying to do so. Much worse, they could give children great frustration by asking them to learn what is impossible for them at their level.

The necessity for motor-sensory experience as prerequisite for conceptualization is born out by a study by Mercer and Peck¹ with cerebral palsied children. Results showed that children with cerebral palsy, who obviously had very limited motor-sensory experience, had poorer discrimination of weight and poorer action concepts than normal children.

The need for sequence and the nature of desirable sequence in concept learning is still quite unclear. Some investigations have shown that "individual children may reveal behavior characteristics of different stages when dealing with the same concept in varying situations."² A

1

Melcer, Donald and Peck, Robert, "Sensory-motor Experience and Concept Formation in Early Childhood", University of Texas, Austin, February, 1967.

2

Wallace, J.G. Concept Growth and the Education of the Child, page 226.

study by Storulow on computer based instruction finds that "a required mastery of each part in sequence does not have a facilitating effect on concept acquisition when an opportunity to review is available."¹ Also a study by Allen² of the effects of a science curriculum improvement study of the classification ability of students showed no significant differences in performance of those who had been exposed to the program and those who had not.

It would be premature to conclude from this data that sequence in concept development is unimportant. More thought, investigation, and experimentation are needed.

In any case, it is abundantly clear that while Piaget's stages of development have quite wide acceptance, positive proof is still not available. Even if Piaget's model of stages is found to be accurate, one still needs to bridge the gap between succeeding stages and adopt a program which will facilitate the transition for individual students.

1

Storulow, Lawrence M., "Computer-Based Instruction: Psychological Aspects and Systems Conception of Instruction", ERIC, April, 1969, page 49.

2

Allen, Leslie, "An Examination of the Classification Ability of Children Who Have Been Exposed to One of the New Elementary Science Programs", ERIC, June, 1969, page 81.

E. Some Questions Regarding the Learning of Concepts

The evidence being accumulated about concept learning still leaves unanswered or partially answered a number of significant questions. Below an attempt is made at drawing attention to several such questions.

To what extent is language necessary for concept formation? "American theorists argue that mediation and language are at the heart of reasoning...Piaget's position is in opposition to this view for Piaget argues that logical structures are independent of language content."¹ Some suggest that "each language embodies and perpetuates a particular world view...Languages are moulds into which infant minds are poured."² James Jenkins asks "What is the relation between thought and language?" He postulates three relationships.

1

Kagan, Jerome, "A Developmental Approach to Conceptual Growth", Klausmeier, Herbert J. and Harris, Chester W. Analyses of Concept Learning, page 113.

2

Brown, Roger W., "Language and Categories", Bruner, Jerome S., Goodnow, Jacqueline J. and Austin, George A. A Study of Thinking, page 304.

- "1. Thought is dependent on language.
2. Thought is language.
3. Language is dependent on thought."¹

He concludes that all three relationships are correct. Hunt equates concept learning with learning the use of names. Ausubel states that the use of language in the acquisition of concepts adds to their clarity, precision, and abstraction.

Is concept learning related to intelligence and analytic ability? A number of studies indicate a positive relationship between measured intelligence and measured ability to learn concepts. One example is a recent study by Leonard Jacobson² who reports that subjects of high intelligence learned concepts more quickly and with fewer errors than those with lower intelligence. Klausmeier and others³ report that high analytic subjects were superior to

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Jenkins, James J. "Language and Thought", Voss, James F. Approaches to Thought, pages 211 to 235.

2

Jacobson, Leonard I., "Relationship of Intelligence and Mediating Processes to Concept Learning", Journal of Educational Psychology. Vol. 60, No. 2, April, 1969, pages 109-112.

3

Klausmeier, Herbert and others, "Strategies and Cognitive Processes in Concept Learning", University of Wisconsin, Madison, March, 1968.

low analytic subjects in ability to process information and attain concepts. Frederick¹ reports similarly about a study of students of Grades Six, Seven, and Eight. At first glance it would seem that an intuitive thinker, as opposed to an analytic thinker, would have greater difficulty in learning concepts. This seems to be true for concept attainment of conjunctive concepts. Could it be, though, that intuitive thinkers would perform better with disjunctive or open concepts? Could it be, as well, that intuitive thinkers would be ahead in the formation of new concepts? Bruner placed the emphasis on concept attainment. Big questions remain about concept formation.

To what extent does perception affect concept learning? This question is too important to be omitted here and too large for more than mere mention. Undoubtedly the sensory data gathered and the mental processes involved in perception have much to do with concept learning.

Of crucial importance to the future of a conceptual approach to teaching is the question raised by Ausubel.²

1

Frederick, Wayne C., "Information Processing and Concept Learning", University of Wisconsin, Madison, March, 1963.

2

Ausubel, David P., "Meaningful Reception Learning and the Acquisition of Concepts", Klausmeier, Herbert J. and Harris, Chester W. Analyses of Concept Learning, Chapter 10.

Ausubel discusses the relative merits of presenting concepts to be learned (receptive learning) and establishing situations in which concepts will be discovered (discovery learning). He maintains that concepts learned either way can be meaningful, and argues further that it would be wasteful to have children go through the process of discovering for themselves what mankind has learned over the centuries. Ausubel, therefore, argues that much of teaching should be in the direction of receptive learning. He explains that concepts should be carefully selected for accuracy and clarity and should be programmed in appropriate sequence. If his ideas were implemented in the extreme, it would seem that the child would become a mere computer handling information or concepts fed to it in order to make the correct responses. Bruner in The Process of Education highlights the same problem regarding discovery and reception learning. He says, "The proper balance between the two is anything but plain, and research is in progress to elucidate the matter, though more is needed."¹ He refers to the finding of an Illinois Committee on School Mathematics which reported that "the method of discovery would be too time-consuming for presenting all of what a student

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Bruner, Jerome S. The Process of Education, page 21.

must cover in mathematics."

It seems clear that both receptive and discovery learning are necessary for quality education. Besides presenting concepts, either by discovery or reception, education should give students help in forming their own concepts, hopefully different concepts from those which mankind has learned to date. What concepts should be "discovered", what concepts should be "received" and the relationship between the two processes need further consideration.

F. Areas of Concern

Is it possible that some areas of curriculum fall outside the scope of conceptual learning? If so, would these areas tend to be neglected in a concept-centered program? Is concept teaching compatible with skill teaching? Would writing, reading, athletic and other skill areas become neglected?

Would a concept-centered program take cognizance of the affective aspects of learning? Concepts can affect attitudes. For example, Kagan reports studies that "suggest that a mother's behavior to her infant derives more from the conceptual label she applies to her child than to his stimulus properties as viewed by an observer."¹ But is it possible to teach concepts in such a way that they will carry or embody positive affective attributes, and if they can, is there not a danger that the personal freedom of the student will be limited by the attributes so imparted?

There also appears to be a danger that children who are forced to attempt to learn concepts before they are ready, or in a manner that they are incapable of at their stage of development, will become frustrated and develop a

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Kagan, Jerome, "A Developmental Approach to Conceptual Growth", Klausmeier and Harris, Analyses of Concept Learning, page 97.

negative attitude towards school.

Richard Jones criticizes Bruner's neglect of the imagination. "Unfortunately Bruner has sought in "The Process of Education and its subsequent companion pieces to found the new psychology on an exclusively cognitive basis."¹ Creative, intuitive learners are likely to be placed at a disadvantage when compared with analytic learners if the emphasis is on the attainment of conjunctive concepts. Again, frustration could lead to a loss of learning motivation on the part of the individual as well as a loss of creativity to society at large.

There is some danger that once a concept is attained, that once a concept has become closed for the student, it will be filed away as a complete entity and close off further growth about the nature of the concept. Bachelard, in The Poetics of Space states "Concepts are drawers in which knowledge may be classified; they are also ready-made garments which do away with the individuality of knowledge that has been experienced. The concept soon becomes lifeless thinking, since, by definition, it is classified

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Jones, Richard M. Fantasy and Feelings in Education, page 4.

thinking."¹

A most serious concern about conceptual curricula has to do with programmed learning. The article on reception learning by David Ausubel² is very frightening indeed. If concepts are selected, put into logical sequence, and programmed into children, there appears to be a particular danger that the individual personality will be forgotten. Michael Wallace echoes a warning. "The 'Hardware Revolution' in education - instruction by teaching machines and computers - not only stultifies the process of expressing possibilities but will eventually lead to increased stress on a curriculum that is taught by machines. This may lead education back to an overly rationalistic view of the thinking processes."³

When concept-centered programs are introduced, care should be taken to avoid possible dangers. Perhaps the

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Bachelard, Gaston. The Poetics of Space, page 75.

2

Ausubel, David P., "Meaningful Reception Learning and the Acquisition of Concepts", Klausmeier, Herbert J. and Harris, Chester W. Analyses of Concept Learning, Chapter 10.

3

Wallach, Michael A., "Creativity and the Expression of Possibilities", Office of Education, Washington, 1966.

best way to guard against these dangers is to recognize that concept learning is not an end in itself. Concept learning should be regarded as a means toward those goals which are central to education, goals such as providing optimum development of human potential. There is nothing especially desirable about mastering a particular number of concepts or about mastering particularly complex or difficult concepts. If concept attainment is looked upon as the end of education, the dangers are very real. If, on the other hand, concept learning is undertaken as a means to achieving the greater educational goals, there is a greater likelihood that these goals will be reached.

G. Conclusion

A great advantage of a concept-centered program which was recognized by Bruner is the fact that experts in the various subject fields may get involved in curriculum development. Many experts are elucidating concepts of their respective fields with a view to keeping curricula accurate and up-to-date. If nothing else is accomplished by the current interest in concepts, this achievement will make the interest worthwhile. Hopefully the interest will be maintained long enough for the essence of the subjects to filter down through the schools to the students. Hopefully, too, a healthy exchange of concepts will occur across the traditional subject boundaries.

There is evidence that many of the aspects of education can be structured with concepts being the focal point. Many such programs have been put into effect. They need to be continually evaluated. Some areas such as skill or tool subjects may not fit into the conceptual framework in total and may require special treatment. Consideration must be given to the affective aspects of learning. Care must be taken to safeguard and advance creative learning.

Concept-centered programs can be implemented in traditional or contemporary school buildings. The recent

trend towards team teaching and open-space schools could facilitate the transfer of concepts across subject areas.

Many questions are still not answered about the nature of concepts, how they are learned and the significance of sequence. These areas must be pursued vigorously as must be the relationship between concept formation and concept attainment, concept reception and concept discovery.

PART TWO: IMPLICATIONS OF CONCEPT LEARNING FOR ART EDUCATION

A. Two Conflicting Points of View

Arthur Efland in "Some Problems of Structure in Art and Their Curriculum Consequences" states "While Bruner's view of structure has been instrumental in spurring needed educational reforms, it cannot provide an adequate theoretical basis for instruction in the arts and humanities for four reasons:

1. The lack of consensus over what can form a structure representing the arts and humanities; 2. The lack of discernible boundaries for artistic and humanistic domains; 3. The fact that artistic-humanistic contents are non-cumulative-hierarchal structures; and finally 4. The fact that artistic-humanistic content does not lend itself to different levels of representation." and later "Structures as conceived by Bruner, while it provided a model of structure for the physical sciences and mathematics, is not an appropriate one to follow in the arts."¹

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Efland, Arthur, "Some Problems of Structure in Art and Their Curriculum Consequences", Studies in Art Education. National Art Education Association, Vol. 9, No. 3, Washington, Spring, 1968, pages 2-11.

Geraldine Dimondstein in "A Proposed Conceptual Framework in the Arts"¹ takes quite a different point of view. She states that "there are basic concepts about the arts, just as basic ideas about math and social studies are essential in making subject matter comprehensible", and adds "there are characteristics which distinguish each art from the other, and which point to their differences and similarities. A conceptual model is offered, with sculpture as an example. The model includes these features: 1. Definition, 2. Distinguishing Characteristics, 3. Experiential Approach, and 4. Art Elements.

Both Efland and Dimondstein seem to recognize the importance of both knowing about art as well as doing art. Dimondstein states "there are many teachers who recognize the necessity for creative expression in young children, but who lack a frame of reference from which to view the arts in regard to the unique nature of aesthetic experience which they offer to the child...The conceptual framework proposed...is an attempt to provide a functional relationship between knowing and doing, theory and practice,

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Dimondstein, Geraldine, "A Proposed Conceptual Framework in the Arts", Studies in Art Education. National Art Education Association, Washington, Vol. 10, No. 2, Winter, 1969, pages 6-11.

impressive and expressive experience."¹ Efland states "the principal task of curriculum development involves the problem of finding ways to represent inquiry in the arts as an act embodying the examination of contending aesthetic values. The purpose of art instruction, then, is to involve students with various conceptions of value in order to clarify and redefine their own views regarding art."² Efland even suggests that at the high school level the knowing aspect could be predominant for some students. Such students could study art history or deal with problems of criticism.

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Dimondstein, Geraldine, "A Proposed Conceptual Framework in the Arts", Studies in Art Education. National Art Education Association, Washington, Vol. 10, No. 2, Winter, 1969, page 6.

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Efland, Arthur, "Some Problems of Structure in Art and Their Curriculum Consequences", Studies in Art Education. National Art Education Association, Vol. 9, No. 3, Washington, Spring, 1968, page 8.

B. A Critique of the Conflicting Views

There is much truth in Efland's critique of applying Bruner's view of structure to art. It is true that there is a lack of consensus over the structure of art and that art has no clearly defined boundaries. Surely, though, the lack of consensus about structure does not imply that structure is nonexistent or that it is impossible to organize a meaningful art program consistent with the structure of art. One wonders, too, if the physicists, to whom he refers, are really that much in agreement over the structure of physics. Weitz was quite correct in arguing, as Efland points out, that art is an "open" concept. But what difference does it really make that scientists can agree upon arbitrary divisions between physics and chemistry (if they actually do) while what can be included or excluded in art studies has not been agreed upon? Bruner seems to imply that it is desirable to focus on closed concepts and to have students "attain" them. It is proposed in this thesis that open concepts are quite appropriate for providing a framework, or focus, for understanding in art.

Efland seems to have difficulty discussing the lack of hierarchy in art concepts. He seems to confuse hierarchy of structure within the subject with a sequence for

presenting the subject. These are two different things. No doubt educators in science would have problems comparable to whether a child should paint before he should learn to draw, but this has little to do with the hierarchy within the subject itself. Let's, therefore, put aside for the time being the question of sequence in organizing an art program. It seems obvious that there could be different ways of categorizing or of establishing a conceptual framework for art, if a concept is as Efland claims no more than a name for a class of objects, ideas, or events. From one point of view it is apparent that fine art is a sub-concept of art and that painting is a sub-concept of fine art and further that oil painting is a sub-concept of painting. From another point of view the elements of art (line, shape, etc.), concepts in themselves, are sub-concepts of form, a more complex concept because it involves interrelationships of the elements. Perhaps there isn't the range from simple to complex concepts in art that there is in science, but this would require considerable evidence to prove. But even if the range is small, or if no hierarchy existed at all, this would not rule out the importance of focusing on the concepts which are pertinent to art.

Efland quotes Bruner: "Any idea or problem or body

of knowledge can be presented in a form simple enough so that any particular learner can understand it in a recognizable form" and "any domain of knowledge can be represented in three ways: by a set of actions..., by a set of summary images or graphics that stand for a concept..., and by a set of symbolic or logical propositions..." Efland then states "Now, in art, learning which occurs on one level of representation cannot be represented on other levels... language about a painting is no substitute for the painting itself!"¹

There are, however, many fundamental aspects of art that can be represented in different ways. The concept of space, for example, important in all the visual arts, can be represented and understood at different levels. Running through spaces, manipulating blocks in space, placing collage pieces to make negative spaces, talking about space, looking at space in works of art and in the environment provide an illustration of various representational levels and experiences. Perhaps the criticism of Efland should be that he did not find appropriate concepts. Surely there

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Efland, Arthur, "Some Problems of Structure in Art and Their Curriculum Consequences", Studies in Art Education. National Art Education Association, Vol. 9, No. 3, Washington, Spring, 1968, page

are many meaningful concepts in art that can find representation or enactment at different age levels.

Dimondstein does not clarify at all the meaning of "concept". Indeed the word seems to be used in a variety of ways - "basic concepts about the arts", "conceptual model", "space as a concept", "concept of 'haptic'", "his concept that the sensation of specific plasticity involves three factors", and finally, "There is a right physical size for every idea..." is given as an example of a concept. While there is some confusion about the meaning of the term "concept", it seems clear that medium or process would establish the structure of the instruction for Dimondstein. This is emphasized by the choice of sculpture to introduce the model.

It seems likely, if this model is followed, that although conceptual learning will likely be increased, teachers could be restricted to developing their programs around media or processes. It would seem appropriate, if such a model were used, to divide the curriculum content into units of time, each unit being assigned a particular medium. Teachers would have students proceed from one medium to another. The focus would be on a particular medium or process. When a conceptual framework based on

such a model is written into a curriculum guide with headings of "Painting", "Sculpture", etc., the restrictive nature is more apparent. It is the author's contention that a conceptual framework should provide for meaningful conceptual learning without imposing such a rigid structure. A conceptual framework of a different nature could provide for those teachers who wish to organize their projects around media as well as those who prefer to organize their projects on some other basis regardless of the media or processes being used.

C. Possible Values of Concept Learning in Art Education

It is the author's opinion that, at its best, much of what has gone on in art education has been either highly structured according to media and with emphasis on skills, or it has been centered on expression with children expressing themselves about certain subjects or topics. More generally, though, art has been taught as though the objective were to make objects, and at its worst, thirty-of-a-kind objects that teacher proudly displays while planning a thirty-of-a-kind project for the next week. Often, too, because the teacher is unknowledgeable about art or because he feels that art cannot be taught, the student is left entirely on his own and told to create. All too often students are left confused about the nature of art.

This is not to deny the importance of media, or of skill, or of personal expression. It is not implied either that subject matter is unimportant. Neither is it suggested that the importance of the art product should be overlooked. These are important aspects of art and should be included in art education. Any future art program should take note of their importance.

What is suggested, though, is that an art program should leave students implicitly or explicitly with an

understanding about the nature of art. Besides doing art, children should come to know about art. The points raised by Bruner and referred to on page 14 may have just as much application to art as to other subjects.

All too often students in art have been left with the impression that art is made up of a series of unrelated activities - one period, one project; the next period, quite a different one. The connection from one to another is not established.

In the past the in-depth experiences in art have been focused on materials or medium or subject. It is suggested here that a conceptual framework could provide depth experiences which are more compatible with the nature of art and more meaningful to the children. Concepts important in the field of art can be used to focus the child's attention on art, and to provide a framework for his doing and his knowing.

Perhaps one of the greatest values of a concept-centered program is that it encourages participation in curriculum development by those who are most competent and knowledgeable in the subject area. For too long art in education has been separated from art, especially contemporary art. Now there is an opportunity to revitalize art

education with life that comes from the subject itself.

If it is found that concepts in art are related to concepts in other subjects, the relationships between the fields will be better understood. If space, for example, is studied as a concept in art, there will be relationships to space in physics and geometry. More integrated understandings may be possible.

D. The Nature of Meaningful Concepts for an Art Education Program

Many educators who have considered concept learning as a major aim in education fear conclusions that might be reached from writings by such authorities as Bruner and Ausubel. It might be concluded from their writings that a conceptual approach would be largely intellectual, certainly structured, and probably programmed in some form into the child. At its extreme in this direction, then, there would be little emphasis on the affective aspects of education and practically no room for creativity to develop. Jones in Fantasy and Feeling in Education criticizes Bruner for his overly intellectual approach. It is suggested here that Jones' critique be kept in mind to see to what extent feeling and the preconscious processes can be meaningfully related to concept learning.

Let us be clear, then, that no attempt will be made here to give concepts a purely intellectual basis or to suggest a definite sequence for programming information.

It is proposed that a conceptual framework for curricula need not exclude any activities that the teacher may wish to have undertaken regardless of the concept being studied at any time.

The concepts, either by their presence or absence, should apply to all visual art. "Movement", for example, could be an appropriate concept because both movement and no movement have meaning. The absence of movement in a work of art is as significant as movement itself. However, if subject-matter concepts such as "still life" are considered, the absence of the concept has no meaning relative to the concept itself. If a conceptual program based on subject matter were used, and still life was the concept under consideration, all students would be forced to do still lifes. If they did anything else, such as a portrait, it would have no meaning relative to the still-life concept. Like subject-matter concepts, media concepts such as "clay" or process concepts such as "sculpture" are too restricting to provide a flexible conceptual framework for curricula.

At the highest level perhaps "Art" itself is the most appropriate and relevant concept covering the whole field of art, and under it could be such concepts as "expression", "beauty", and "communication". These sub-concepts seem to apply more generally than concepts of subject matter or medium.

At another level art elements - line, color, texture,

and the like - are concepts which cut across most art activities. No subject matter or medium needs to be excluded when considering any of these elements, although a particular element, line, may be more evident in a wire sculpture than it would be in a tempera painting. From a different point of view, form, or the relationship of elements; or principles of design, might be considered as concepts. Concepts such as unity, rhythm, and harmony are concepts of form.

Perhaps besides concepts in these three areas - the nature of art, art elements, and form - there are other areas of broad concepts which are meaningful in art.

"Art" as a concept is relevant throughout the whole of an art program. It is too general, though, to provide a particular focus or framework for a series of lessons. However, "expression", for example, could encompass a wide range of thought and activities and still provide a more particular focus. Any medium, any subject matter, any skill could be included within the framework of "expression". An "expression" theory of art does not have to be accepted by teacher or student in order to operate relative to the concept "expression". As it just provides a focus, the negative aspect could be considered with the possibil-

ity of students coming to the conclusion that "art is not expression" or that "art is not just expression" or that "art is not always expression". In any case the nature of expression would be considered relative to the nature of art and this could provide a framework for thought, not just in the school program, but as a focus for further meaningful thought about art.

Some programs have been developed around the art elements. Perhaps these have been too rigid or highly structured with, for example, a series of activities pertaining to line followed by a series of activities dealing with shape. A conceptual framework should not necessitate such rigid structuring.

There is a danger, too, that concepts centering on form or design would lead to rigid structuring. Perhaps this is unnecessary. If, for example, balance is chosen as a focus, there is no need for a regimented program to maintain the focus. There is still a danger that balance might be taught or learned as a normative or evaluative concept to the extent that "balance is good" and "imbalance is bad". Such normative conclusions need not take place, although by referring to the concept "balance" a student may conclude that for this or that reason the type of balance in his

particular painting is either good or bad. If a form concept such as sequence is selected there is perhaps less danger of blanket normative judgements. Sequence cannot be avoided, and is obviously neither good or bad in itself. Yet it is obviously an important consideration in any work of art.

Besides being broad in nature, the concepts should be "open" in Weitz's terms and probably "disjunctive" in Bruner's terms. Two reasons are behind this assertion:

1. The nature of art is such that closed and conjunctive concepts are often not possible. This is evident when we consider such concepts as "art" and "design".
2. Closing a concept is like closing a legal case. The information is likely to be filed away and forgotten. As long as the case is open it is a focus of attention.

It is not the intention in this paper to stipulate what the concepts should be nor their exact nature. It is suggested, though, that a search be made for meaningful concepts in art which cut across the whole field and which are open. Once the appropriate concepts are agreed upon they can be incorporated into curriculum guides as focal

points for art programs. It is hoped that the evidence presented here will indicate that the search for appropriate art concepts can lead to improved art programs.

E. Concept Attainment and Concept Formation in Art

So far the discussion has centered on concept attainment - on students dealing with concepts already established with the hope that they will come to understand the concept's properties or attributes. Although the thesis is centering on concept attainment, attention must be drawn to some possibilities regarding concept formation.

1. Bruner states that concepts are inventions rather than discoveries.¹ The concept of "cubism" was invented after the fact of cubism. Is it not possible that students, having a fresh vision, can arrive at new generalizations or concepts about art that have evaded the experts who have been steeped in the tradition of their subject?

2. Making works of art might be considered as concept formation, and the works of art as concepts. For a particular concept certain attributes or their relation are relevant; others are not. An artist selects attributes or qualities which are pertinent to his work and rejects others. The artist invents the category of his work; he forms a concept. The teacher, while encouraging students to make unified art products might well be encouraging them at the same time to form art concepts.

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Bruner, Jerome S., Goodnow, Jacqueline J. and Austin, George A. A Study of Thinking, page 232.

F. Significance of Sequence in Concept Learning in Art

If one accepts Piaget's stages of development from preoperational to concrete operational and formal thought, then one treats a concept differently at the different levels. If a teacher accepts Lowenfeld's stages of child art, he doesn't expect a student to understand perspective in the preschematic stage. If Bruner's statement that "the foundations of any subject may be taught to anybody at any age in some form"¹ is true, one still needs to find out the form that is required for that age.

Bruner's statement, quoted above, will be accepted as true for the purpose of this thesis. It is not our concern, however, to attempt to show how concepts can be meaningfully presented at different levels, but merely to suggest that they need to be translated to a level, or presented in a form that is appropriate to the particular group to which they are addressed.

At the junior high school level and above students are normally capable of dealing with concepts intellectually as they have moved into Piaget's stage of formal

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Bruner, Jerome S. The Process of Education, p. 12

operations. Though this is the case there may still be more or less effective ways of dealing with concepts according to the manner and sequence of presentation. It is certainly not suggested, because of the intellectual capacity of the students, that they should deal with art concepts strictly in intellectual terms. This could remove students quite far from the nature of art itself.

A conceptual framework need not impose any particular sequence of activities for any particular concept. Thus a conceptual framework in art can provide a focus on art while permitting sequences to be developed which will be of maximum benefit to particular students in any classroom.

By establishing a conceptual framework which does not delineate the order in which projects are to be undertaken, or media, the curriculum guide can dispel notions that a concept-centered program brings with it a rigid structure which will confine creative teaching.

G. Conclusion

For too long art education has been more-or-less separated from its subject matter - art. In order to establish art education as a meaningful subject considerably more attention needs to be given to the concepts inherent in the subject.

For the purposes of establishing a conceptual framework or conceptual focus for curriculum, concepts should be selected which will provide for maximum flexibility regarding projects which can be undertaken. The teacher's creative role in organizing and presenting the art program should be clearly recognized. No attempt should be made in a course of studies to impose a rigid sequence of projects in art education. The conceptual framework should permit a variety of teaching strategies including both closely structured and loosely structured possibilities.

Open concepts, as discussed on page 8, perhaps provide the best opportunity for such flexibility.

Needless to say, the concepts, as well as being flexible, must be relevant and of significance to the field of art. Such concepts as space, movement, light, sequence, abstraction, and expression are significant art concepts which would provide for flexible curriculum structuring.

Concept formation, although beyond the scope of this thesis, is a related area which needs investigation.

It is hoped that the preceding discussion will draw attention to the need for serious consideration to be given to a study of conceptual learning relative to art and art education. Aestheticians, artists, art historians and art critics need to be involved along with art educators, administrators, and curriculum planners. First priority should be given to selecting relevant, significant, and flexible art concepts.

PART THREE: SPACE IN A CONCEPT-FOCUSED ART PROGRAM

A. Dictionary Definition of Space

"n. 1. the undelimited or indefinitely great general receptacle of things, commonly conceived as an expanse extending in all directions (or having three dimensions), in which, or occupying portions of which, all material objects are located. 2. the portion or extent of this in a given instance; extent or room in three dimensions: the space occupied by a body. 3. extent or area; a particular extent of surface: to fill out blank spaces in a document. 4. a seat, berth, or room on a train, airplane, etc. 5. linear distance; a particular distance: trees set at equal paces apart. 6. extent, or a particular extent of time: a space of two hours. 7. an interval of time; a while: after a space he continued his story. 8. Music. one of the degrees of intervals between the lines of the staff. 9. print. one of the blank pieces of metal used to separate words, etc. 100 Teleg. a period of time having a fixed relation to dots and dashes, during which no signal is transmitted in Morse or similar systems."¹

All of the above attributes of space can have relevance in art. Some, perhaps the first three, have more direct relevance, but the relationship of art to the other attributes should not be overlooked.

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The American College Dictionary. New York: Random House, 1963.

B. Space as an Art Concept

Space as an art concept seems to be of a disjunctive nature, perhaps relational, and most likely open. As well it is broad enough in scope to so completely cover the area of the visual and even the fine arts that most other concepts and activities can be thought of in relationship to it. It is always present in one form or another.

On one level, particularly today, it can be looked upon as subject matter - outer space, as a place where the moon and stars and rocket ships and astronauts and cosmonauts play their games. The private space where one is inwardly focused at his personal self may be regarded as the subject matter of "inner space." Or again, "outer space" may be regarded as the subject matter of that space outside one's self and in the real world.

Space may be regarded as a void or emptiness between objects or around objects. Conversely space may be considered as that volume which is taken up by objects.

On a two-dimensional plane, space may be regarded in a similar way. The empty or negative areas of "ground" may be regarded as space, but also the objects or "figure" may be regarded as positive space. Many artists play with figure and ground in such a way that all spaces become positive.

Three-dimensional art objects are surrounded by space, but they also occupy space. More and more in the modern period sculptural objects contain spaces which often tend to become positive forces rather than voids. Modern techniques of welding and modern materials such as steel and plastic make it possible for the sculpture to open up and to enclose or delineate space. Kinetic sculpture involves not just static space but spatial relationships which continually change.

Applied arts such as architecture and pottery are concerned primarily with creating spaces. The form, or positive space, is used to create negative spaces to contain positive forms. Cups have spaces to hold tea and coffee. Houses contain spaces for people. "The ancient Philosopher Lao-tse once remarked that the essence of a vessel is its emptiness. A city, in a sense is a vessel, too - a container for people and for life. A city's essence, like a vessel's, also lies in its voids - its public spaces...poorly designed spaces inhibit life and movement. Well designed ones raise the ordinary rituals of life to a high level of intensity and purpose. The conclusion seems to be that a city, so far from being a cluster of buildings, is actually a sequence of spaces enclosed and

defined by buildings."¹

Perhaps never before have people thought and felt as much about space as they do today. In an age in which man is filing himself into little boxes in large cities, into body-filled subways and arenas, into car-filled parking lots and thoroughfares, space is becoming increasingly important. In an age in which grave concern is expressed about an exploding world population, people live in fear that there just won't be enough space. In an age in which the air we breathe and water we drink are being polluted, there is growing concern for clean living space. Never before has space been as significant a social consideration as it is today. Undoubtedly the affective aspects of these concerns will be felt in the art work of this age.

In the history of art, space has always been a significant consideration for the artist. If the artist works in three dimensions as a sculptor, potter, or architect, he is forever working with actual space, both positive and negative. If he is working on a two-dimensional drawing or painting, he deals directly with two-dimensional space. As well he often relates the three-dimensional space in which he lives to the two-dimensional space of the canvas.

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Pei, Ieoh Ming, "The Nature of Urban Spaces", Hall, James B. and Ulanov, Barry. Modern Culture and the Arts, page 506.

C. Significance of Space to Artists

Eli Bornstein, in "Notes on the Structurist Process", attests to the artist's concern with space. "In art, the preoccupation with plastic space, both two and three dimensional, has concerned man from his earliest perception of the environment...The Renaissance rediscovered the illusion of space through perspective. Impressionism discovered the illusion of light in space through color. Cézanne discovered the realization of space time technique to painting, through juxtaposition of colour planes. The early attempts at cubism, and subsequently those of Mondrian, carried the discovery beyond the illusionary, mimetic, and representational relationship to subject matter. In sculpture a similar exploration of tactile space occurred from the Renaissance through impressionism and cubism to constructivism, moving through volume and gradually opening into space...Structurist art now explores the visual-tactile organization of real colour and form in space and light, parallel to nature's creations."¹

Georges Vantongerloo, in "Conception of Space"

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Bornstein, Eli, "Notes on Structurist Process", Hill, Anthony. DATA: Directions in Art, Theory and Aesthetics, page 195.

speaks about his continual grappling with the concept of space as he paved the way for later explorations into space in sculpture and construction. "One can ask oneself how this space can be represented and how it can be communicated in a work. Here the problem no longer resolves itself by means of geometry, for this space is active; one can feel it and its variety is infinite."¹

Tarmo Pasto in The Space Frame Experience in Art places great stress on the upright nature of man as a factor in how space is represented in art. "Truly, it can be said that man walks about in two space dimensions, the vertical and the horizontal, interpenetrating volumes of which he is the dynamic and controlling center. And it is to his own body posture that he relates movement and position and resultant meaning...The dynamics of human perception and artistic expression are ultimately and intimately related to a mode of psychobiological living in, and being part of space. It is perhaps the unconsciously expressed feeling of belongingness, of relation to the total cosmos through everyday objects...Thus the human sees and feels in three dimensions too, and he finds a happy relationship to his

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Vantongerloo, Georges, "Conception of Space", Hill, Anthony, DATA: Directions in Art, Theory and Aesthetics, page 27.

world in this knowledge. Being vertical and looking out from his body image in lines of sight that are at right angles to his axis he feels secure in realizing other vertical forms about him and tends to arrange his visual experience into parallelisms with right-angled terminations as seen in Rembrandt, Brueghel, Daumier, Cézanne and others."¹

Rudolph Arnheim discusses the significance of space in Henry Moore's sculpture. "Among the great sculptors, Henry Moore is the first in whose work the surrounding space is not simply pushed out of the way by the aggressive protrusions of the wood, stone, or metal, but in turn thrusts into the figure from the outside, carving depressions into the yielding matter and adding to its substance...the two-way relationship in which the statue and the surrounding space assume figure as well as ground functions makes for a dramatic interchange of the forces between the two partners. The sculptural body ceases to be a self-contained neatly circumscribed universe. Its boundary has become impenetrable. It has been inserted into a larger context...The tendency to avoid delimitation and isolation, to unite parts in an exchange of forces...turns out to be applied to the relation of figure and environment. This is a daring

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Pasto, Tarno. The Space-Frame Experience in Art, page 253.

extension of the sculptural universe, made possible perhaps by an era in which flying has taught us through vivid kinesthetic experience that air is not empty space but a material substance like earth or wood or stone, a medium that carries heavy bodies and pushes them and can be bumped into like a rock."¹

Gyorgy Kepes also gives space a place of special significance in art. "Before one begins to use the visual language for the communication of a concrete message, he should learn the greatest possible variety of spatial sensations inherent in the relationships of the forces acting on the picture surface...A playful manipulation of each element: points, shapes, lines - varying them in position, in colour, in value, and in texture - is the shortest way to an understanding of their interrelationships. Just as the letters of the alphabet can be put together in innumerable ways, and each particular relationship generates a different sensation of space."²

The sculptor Archipenko gave space very serious consideration, both in his sculpture and in his writing.

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Arnheim, Rudolph. Toward a Psychology of Art, page 253.

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Kepes, Gyorgy. Language of Vision, page 23.

The following quotation relates space in sculpture to space in music. "There is another psychological state in relation to the absent. It can be compared with the musical pause and can be explained as follows. Rhythm in music is possible only if the sound is significantly sequent to the silence, and silence is sequent to sound. Each musical phrase is formed from certain lengths of sound and the length of silence between the sound. Each has its own meaning, as has each word in a phrase. Silence thus speaks. In the Ninth Symphony of Beethoven, a long pause occurs twice and evokes mystery and tension. The use of silence and sound in symphony is analogous to the use of the form of significant space and material in sculpture."¹

These few quotations give evidence that space is a significant concept in art and might well be used as a focus for meaningful activities in an art education program.

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Kranz, Stewart and Fisher, Robert. The Design Continuum, page 98.

C. Treatment of Space as a Concept in Art Education

It is not the intention here to specify in what way space should be treated. A number of possibilities will be suggested, however. These will indicate that the concept "space" is a broad one and in no way limits the activities which can be undertaken. Some of the possibilities will be illustrated in Part Four.

It is not suggested either what sequence of activities, dealing with the concept "space", might be used. Obviously, however it is arrived at, a sequence will result if students are engaged for a number of periods in activities which are focused on a concept. Whether it is planned by the teacher or by the students, whether it is left to the choice of the individuals or to chance is another question. Whatever the approach, it is suggested that teachers make observations about the nature of the sequence with a view to determining its significance.

Employing space as a concept does not demand any specific teaching strategy. The program could be quite strongly teacher directed with the emphasis on concept reception, or student centered with the emphasis on concept discovery. It is presupposed, though, that whatever intellectualizations occur will have their roots in art experiences

on the part of the students and not be divorced from the art process itself. Students may all work on similar projects or on individual projects related to the concept. A particular medium such as clay may be used by a class, or several media - clay, plaster, wire, pencil and paper, paint, etc. - may be used simultaneously by various students. A single subject or topic may be used, or students may select their own subject. The length of time spent focused on the concept "space" could vary from several periods to a whole year. Again it is suggested that careful observations be made in order to determine the most effective strategies for particular students and the particular teacher.

Space may be approached as subject matter, though this could be limiting. Inner space of the individual, his outer space in the world and outer space in the universe are meaningful topics. However, if the concept stops with space as subject matter, most of what artists referred to in the last section would be overlooked.

For Piaget sensory-motor experience precedes the ability to conceptualize. Sensory awareness has been found in a number of studies to aid conceptualization. Walking through spaces, feeling spaces, and looking at spaces can be meaningful activities relative to the concept of space.

Chandler Montgomery, in Chapter Seventeen of Art for Teachers of Children makes suggestions of this order.

Some materials by their very nature lend themselves to positive and negative spatial relationships. Building blocks, boxes, play houses and the like can involve students intuitively with spatial relationships. Clay responds to the positive force of the hand to leave negative impressions. Chicken wire and papier maché, as described in the next section lead naturally to forms with hollows. By manipulating wire, lines are formed which break into space. Cut or torn paper when placed on other paper automatically create two-dimensional figure-ground relationships. Linoleum or wood-block printing lend themselves to discoveries about positive lines or shapes cut away printing negatively.

Environment boxes of any size from matchboxes to cereal or soup-box cartons to the classroom itself can give experiences of interior or enclosed spaces or enclosed spaces opened up. The relationships here as elsewhere can be expressive, felt relationships as well as visual and tactile. Constructions of various kinds can grow up into space or mobiles can grow down into and move through space.

Perspective is a spatial concept which has traditionally received great attention and which more recently has

generally been removed from the art program due to its rigid, non-expressive qualities. But perspective does not need to be dealt with in that way. If art education is to lead to understandings about art, it is obvious that the concept of perspective should not be omitted due to its prevalence for most of the last four hundred years in Western art. Children may come to associate Renaissance perspective with the space age of the discovery of America, with the opening up of the mediaeval world to the living space of the here and now. Relationships to the camera and architectural drawing can be made. The realness of the canvas may be discussed relative to the realness of the three-dimensional world. Various implications about truth-to-nature may be discussed. Perspective need not be dealt with as "good" or "bad", but rather, children can learn to discuss the relative merits and means for creating the illusion of depth when desired.

Pottery can be approached from the point of view of creating spaces - spaces which function and relate to the form being created with ceramic materials.

Nicolaides in The Natural Way To Draw and Collier in Form, Space and Vision suggest numerous exercises for dealing with the three-dimensional world on a two-dimensional canvas. Kaupelis, in Learning To Draw, devotes a chapter to "Modelled Space". Chapter Eighteen of Art for Teachers

of Children is entitled "Experiments in Constructing and Modifying Three-Dimensional Space".

Painting, intaglio, relief sculpture, and sculpture in the round can be treated according to how they physically occupy space and according to what extent there is a need for or possibility of the illusion of space.

Kranz and Fisher in The Design Continuum provide a detailed analysis of two and three-dimensional space. While establishing categories based on the treatment of space, the authors also clearly illustrate the transition from one category to another.

Finally, art education involves developing aesthetic sensitivity. Children can be led to appreciate the spatial qualities in the world around them. They can be encouraged to look at spaces and feel about spaces - from the space of a small snail shell, to the space of their rooms, to the space of the school auditorium, to the space of a city, to the space of a country like Canada, to the space of the universe.

This list is by no means intended to be all inclusive. If it is taken as a prescription for dealing with the concept "space", it will entirely have missed its intent which was to point out that a variety of meaningful experiences is

possible in dealing with any particular concept. It is suggested further, though, that children frequently be shown works of art through which they can develop their sensitivity to space, in terms of how artists have dealt with space, why they have done so, and what means they used.

PART FOUR: DESCRIPTION OF A TEN-SESSION CONCEPT-FOCUSED
ART PROGRAM FOR TWELVE AND THIRTEEN-YEAR-OLD
CHILDREN

A. Nature of the Saturday-Morning Class

The class was conducted as a part of the regular Saturday-morning program at Sir George Williams University. The Saturday-morning classes provide an opportunity for undergraduate art education students to observe and assist in teaching children while providing an opportunity for graduate art education students to do research.

A two-hour session was conducted each of ten Saturday mornings from nine to eleven o'clock, October 18 to December 20 inclusive.

Seventeen twelve and thirteen-year-old students were enrolled for this class with an average attendance of fourteen. During the week students attended their own schools in the Montreal area, twelve different schools being represented in this class. Several students had attended the Saturday-morning classes previously from one to five years.

The class was conducted in a drawing studio on the fifth floor. The room was equipped with easels and drawing horses plus a few tables with sinks in an adjacent hallway. Supplies were available from a central supply closet on the

same floor.

The instructor was the author of this thesis, a student in the graduate program leading to the degree of Master of Arts in art education. He was assisted by two undergraduate students who shared responsibility for teaching, observing, and assisting.

B. Purpose of the Ten-Week Program

The purpose of the sessions was to determine in some degree the possibility or desirability of using space as a concept in a concept-centered art program. More specifically it was hoped to determine whether space might be useful as a concept in art education, whether children would respond well to the ten-sessions all dealing with the same concept, whether children would be able to verbalize about the concept as well as create objects involving the concept. While it was realized that the students involved did not constitute a random or representative sampling, still it was hoped that the sessions would yield some information about the desirability of further study in this direction.

C. General Plan of the Sessions

A series of lessons was planned by the instructor in consultation with the assistants. The plan was tentative and subject to change according to the wishes of the students and/or teacher. No necessary sequential arrangement was planned. During the sessions several changes were made from the original plan but not altering the intent. Below is the plan which in general was followed.

1. Oct. 18 - Introduction, Outer Space - a Topic
2. Oct. 25 - Inner Space - Environment Boxes
3. Nov. 1 - Inner and Outer Space - Mobiles
4. Nov. 8 - Negative Space Drawing
5. Nov. 15 - Papier Mâché and Space
6. Nov. 22 - Clay and Space
7. Nov. 29 - Space in Works of Art
8. Dec. 6 - Positive and Negative Space in Lino
Prints
9. Dec. 13 - The Illusion of Space in Painting
10. Dec. 20 - Review and Evaluation

Some sessions, such as the one dealing with negative space drawing, were largely teacher directed in that the teacher established the problem or area of study and the students solved the problem in their own way. Other sessions,

like the one involving papier mâché, were established so that the students were directed by their reactions to the materials. In the session dealing with perspective, discussion centered on the concept of illusory space, but children either chose to use perspective or not in the work that they did. Provision was made for the students to finish work begun the previous week or to modify or change the activity according to their need.

Frequently a tape recorder was used to record various aspects of the lessons, including introduction and evaluation. Slides were taken of student work.

In general each class began with an introduction to an aspect of space by the teacher with discussion involving the students. Sometimes field trips or other motivations were used. The work period was followed by clean up and often evaluation of the project by the students.

D. Descriptions of Individual Sessions

1. Session One: Introduction, Outer Space - a Topic:

Introductions were made. Students were made aware that the teachers were also students and that the lessons would be used as research for a thesis. Interest was shown in the tape recorder, and students were made aware that recordings would be made during many of the sessions.

When told that the organization of the class centered on a concept - space - some students expressed concern that they would not be able to do what they wanted to do. Most fears seemed to dissipate when it was suggested that activities centering on space could include painting, carving, pottery, printmaking, making of environment boxes and the like. Also the teacher made clear that suggestions from the students would be welcomed.

The teacher elicited from the students what space meant to them. The tape recording which accompanies this thesis will testify to the ability of students of this age to respond to a concept in intellectual terms.

The topic for the first session was "outer space". Students used a variety of media from pen and ink to tempera, oil pastel and dripped wax crayon. Paper size ranged from 24" X 36" to 9" X 12". It is to be noted that space

for this assignment was a topic which is a concept in a narrow rather than in a broad sense. It was thought that the topic would be of interest to young teen-agers and would provide a good starting point for future "space" activities. Many of the students, however, treated outer space as a concept rather than a topic. One student painted a lonely red figure in a large empty room. Another painted flat rectangular spaces.

The painting period was relatively short - less than half an hour.

At the end of the work period, materials were cleaned away and students were asked to discuss the work that they had done. First each student explained what he had done. Then other students had the opportunity of asking questions or making suggestions. Students were asked to be critical from the point of view of giving the student, whose work was under consideration, something to consider rather than to condemn what the student had done.

Session Two: Inner Space - Environment Boxes:

Students briefly discussed the concept of enclosed space. Then they were taken on a "space walk" through the university. The purpose of the walk was to notice and feel hollow, inner, or enclosed spaces in and around the building.

An assistant conducted the tour. Students were bunched into a corner of the locker room in order to feel compact or compressed space. They looked at the space of the long corridors, observed the space in the large elevator as they went down to the second floor. Here they looked at the enclosed or partially enclosed pieces of sculpture. They looked down to the first floor from the balcony and after going down the escalator they looked up to the second floor. Next they were taken to the seventh floor on the escalator, keeping as close together as possible. From the seventh floor they looked down through the buildings to the spaces below. In the cafeteria they looked at the spaces over the long conveyor belt which carries dishes to be washed, and also through the crevice in a room divider. On the way back to the studio on the fifth floor the students examined such things as the space in a waste basket. On reaching the studio they huddled under the work tables and moved on hands and knees looking up to the ceiling above.

A discussion followed in which the students told about the various space experiences which they enjoyed. Their comments included a wide range of descriptions of the space which they noticed.

For the project period the students were permitted to

use any available materials for creating their environment boxes. Some had brought materials from home. Some worked in pairs while others worked independently. No one took up the suggestion of creating an environment of the furniture in a corner of the room.

Projects ranged in size from tiny match-box environment spaces to large boxes about three feet in height. Several involved outer as well as inner space and these included a chicken wire construction which enclosed ribbons of colored materials and a cardboard box which was made to crawl through. Two projects seemed to involve inner space only incidentally. One was a computer which was operated by a student from the inside; however, the main interest seemed to be in making the "computer" work.

Students discussed their work. Several instances of carry-over from the "space walk" were observed.

Session Three: Inner and Outer Space - Mobiles:

After a short introduction, students were encouraged to choose from a wide range of materials - including balsa wood, wire, string, paper and the various cloth and other materials which they brought with them. The introduction was kept brief in order to permit more working time.

Most of the objects produced were quite linear and

were hung from the lights in the room. A few students only produced mobiles with several parts moving independently. Balance was a problem for many. In general interest was high.

There was adequate time for most students to complete the mobiles before evaluating their results. This session gave evidence that if much importance is to be given to the finished product, children should have more than one opportunity to work with the materials.

Session Four: Negative Space-Drawing:

The furniture from the room was piled randomly on the tables with the easels and horses enclosing interesting and somewhat unusual negative spaces.

The teacher discussed the possibility of indicating positive areas by drawing or painting the negative or empty parts surrounding or enclosed by the positive areas. After the discussion students were encouraged to look through the room and to choose interesting spaces to draw. It was made clear, in response to a student's question, that the purpose was not to copy exactly the shape of the space, but to see it accurately and modify it as desired. It was also suggested that negative shapes can be very interesting in themselves. Some students became quite interested in establish-

ing a spatial depth in the negative areas as well as just separating them from the positive areas. One girl cut the negative areas from black paper and pasted them onto another sheet. One boy made a three-dimensional drawing horse by cutting away the negative area between the legs and folding the paper. Several students became aware that what shapes were negative to others were positive in themselves.

This was the first lesson of this kind for all the students except one. All, with perhaps the exception of one boy who arrived late, did work which gave evidence that they had gained some idea of the concept. Few finished, but this was not considered important by the instructor. Many students seemed to get quite involved with the concept.

Session Five: Papier Mâché and Space:

This lesson was conducted by one of the assistant teachers. The children were blindfolded before entering the classroom. They walked into the room and were asked to feel the objects which they found in the dark space. Items were arranged randomly around the room and included a large pail of prepared paste and a large roll of chicken wire. After taking off the blindfolds, the lights were turned on. The students divided into two groups to work cooperatively. Later, for convenience, they divided into smaller groups -

two groups of five, two groups of two, while one student worked independently.

Without instructions as to how to proceed and without reference to the concept of space, the children began to experiment with the materials and to build objects.

One group constructed a wire figure, with a few adornments, which represented the assistant. The figure included some inner parts, the heart in particular. No papier mâché was used and so the figure was essentially transparent.

The other objects had a characteristic nature of chicken wire curved into bumps and hollows covered with the glued newspaper strips. Space was obviously an important element in all the pieces, perhaps with the exception of a pig which was totally covered by the paper. It seemed, however, that space was used intuitively without the students really being aware of it.

Students were very much involved in what they were doing.

Clean up was considerable.

Session Six: Clay and Space:

This lesson was conducted by a second assistant. As the children entered the room each was asked to take a piece

of prepared clay and to get the feeling of the material. Most of the children had not used clay before and their interest was at a high level.

Students worked independently in a self-directed fashion on their clay projects with the assistant discussing problems of space, rhythm, and over-all unity with them as they worked. Relationships between the inner space of the mass pushing out and the outer space of the air pushing in were discussed with individuals.

A number of students made heads and these were discussed in terms of the inner bone and muscle structure. Some students were asked to walk around their work in order to view it from all sides. A few students made crude pots and thus worked with the problem of creating form to hold space.

Some students painted their objects. Others left them to complete the next period.

Session Seven: Space in Works of Art:

This session was set aside to look at and discuss the use of space in works of art. A projector was used to show slides. Examples were selected from the fields of sculpture, painting, architecture and pottery. An attempt was made to select works which used space in a variety of ways. For

example, in sculpture, the "kernel" or enclosed form of Brancusi and the open reclining form of Henry Moore were selected for contrast. The perspective of Vermeer was contrasted with Barnett Newman's untitled painting.

A complete list of the slides which were shown follows:

1. Eskimo Sculpture, Mother and Child
2. Brancusi, The New Born
3. Brancusi, The Seal
4. Arp, Feuille se reposant
5. Arp, Configuration of Serpent Movement
6. Degas, Galloping Horse
7. Moore, Reclining Figure
8. " "
9. " "
10. " "
11. " Stringed Figure
12. " Family Group
13. " King and Queen
14. Butler, Torso
15. Boccioni, Bottle Evolving in Space
16. Smith, Raven III
17. Smith, Hudson River Landscape
18. Smith, The Letter
19. Rivers, Head
20. Stankiewicz, Number 13
21. Stankiewicz, Number 2
22. de Rivera, Construction 56
23. Segal, The Dinner Table
24. Kahane, Queue
25. Vermeer, Woman with a Water Jug
26. Vermeer, Lady and Cavalier Drinking
27. Vermeer, The Girl with a Pearl
28. Pollock, No. 1
29. Pollock, No. 27
30. Noland, Morning Span
31. Stella, Black Adder
32. Newman, Untitled
33. Temple of Amub, Karnak, Egypt
34. Wright, Avery House, hall
35. Skidmore, Owings and Merrill, Long Island Airport
36. Cretan Pottery, Harvester's Vase
37. Greek Pottery, Chalcidian Vase

Students were asked to view and discuss space as it appeared to them to be treated. Students participated readily. Some of the discussion focused on non-spatial qualities. For example, a mild argument ensued about whether Brancusi's seal looked like a seal. This was taken as an opportunity to discuss briefly the notion of abstraction.

Student observations were penetrating at times. For example, one student was interested about why Moore's sculptures were sometimes placed in the countryside and speculated about what social comment might be made relative to urban large-city life.

Session Eight: Positive and Negative Space in Lino Prints:

This lesson was conducted by the second assistant. Linoleum cutting tools, bench hooks, battleship linoleum, inks and brayers were provided. A demonstration was given of cutting and inking, and the need for care to prevent injury was brought to the students' attention.

Children were asked to relate the use of the cutting tool to the use of the pencil and to notice that the part over which the lino tool is used becomes negative while the marks made by a pencil are positive.

Linoleum blocks were cut to size according to the

wishes of the students. One student made a reduction print, cutting away more and more positive space for successive colors. A few students cut out words and noticed the reversal which occurred in the printing. Some students cut out representational subjects; others did geometrical patterns.

Few students had had previous experience in linoleum printing, and again, if the emphasis were on the product, several sessions could be devoted to this medium.

Session Nine: The Illusion of Space in Painting:

Students were asked to discuss the meaning of perspective, and agreed that it was a means for giving the illusion of three dimensions on a two-dimensional surface.

The students were then taken on a tour of the building to look at distances both inside and out. Also several paintings on the mezzanine floor were viewed to determine whether the artist was interested in achieving a sense of depth, and if so, how he achieved it. Interesting and varying points of view were presented by the students.

Upon returning to the studio, the students discussed in more detail, means that might be used for achieving the illusion of depth. Also discussed was the possibility of using perspective in a non-representational painting.

Students were asked to use color, line, etc., either

in a representational painting or in a non-representational painting to either give the illusion of depth or to emphasize the flatness of the canvas.

Most students did non-representational paintings with a limited range of colors.

The students' discussion of what they did was often more convincing than the actual treatment of space. It seemed clear, however, that a basis was established for later thought on the topic.

Lesson Ten: Review and Evaluation:

As this session came on December 20 only nine of the seventeen students attended. Parents were invited and several attended as well as a few friends of the students.

Slides that had been taken during the previous sessions were shown and discussed.

Students then discussed space as a concept as they now understood it to be. It was obvious that some had grown much more than others in their understandings.

A questionnaire was filled out by the students. Results are shown on the next page.

E. Student Evaluation

The following questionnaire was filled out by the nine students who attended the last session. The numbers in the spaces indicate the number of students who checked either yes or no. Questions eight and nine contain the actual student answers.

1. Do you think that you will notice space qualities in painting, sculpture, or other works of art in the future?	<u>8</u> YES	<u> </u> NO
2. Do you think that you will be more aware of space in your own art work?	<u>7</u> YES	<u>2</u> NO
3. Do you think that you are becoming more aware of space in your everyday world?	<u>9</u> YES	<u>1</u> NO
4. Do you feel that you have learned something significant about space in the lessons we have had?	<u>8</u> YES	<u>2</u> NO
5. Do you think that space is an important concept in art?	<u>8</u> YES	<u> </u> NO
6. Did you feel rushed for time in doing the projects in this class?	<u>3</u> YES	<u>5</u> NO
7. Do you think that it would be meaningful to have a series of art lessons about another concept such as movement or expression?	<u>8</u> YES	<u>1</u> NO

8. What did you enjoy most about our classes?
- working with boxes
 - I enjoyed working with each other
 - the tape recorder
 - the casualness of the class
 - meeting people
 - the idea of making anything we wanted with our imagination without being criticized
 - linoleum
 - making the things
 - meeting somebody new
 - informal
 - clay-sculpting and lino-cutting
9. What suggestions would you like to make about the kind of classes we have been having?
- nothing
 - I think there should be more combined work.
 - There should be more time to do a project.
 - You should always have every type of material on hand.
 - I would like to have had more time for projects, less talk.
 - to just continue them
 - nothing. It was really wonderful.

The following are individual responses given to questions 1 to 7.

- Question 1. - already did
- Question 3. - somewhat
- Question 5. - it depends
- Question 6. - sometimes

F. Introduction to the Tape Recording of the Sessions

The tape recorder became an integral part of most of the sessions. To begin with the students were curious, if not anxious about having a tape recorder in the room. However, it wasn't long before the recorder was taken for granted.

Due to a number of difficulties, technical and otherwise, the sound is not all of good quality nor were all sessions recorded. However, it was felt that the reader of the thesis may wish to catch the tone of the class, the spontaneous remarks as students made them and in general gain an impression of the effectiveness of the project. For this reason, sections of the tape were put together for inclusion with the thesis.

The tape is self-explanatory, and includes the introduction to the sessions, student's thoughts about space, and some of their evaluations.

G. Introduction to the Slides

Slides were taken of all projects in which students were involved over the ten weeks. Forty have been included with the thesis. The first one shows the room in which the classes were conducted. The rest are divided into six sections - Slides Representative of Projects Undertaken, Slides of "Space Walk", Slides of Environment Boxes, Slides of Negative Drawing, Sample Work by One Student, and Sample Work by a Second Student.

The following is a complete list of the slides included.

1. Slide of the Studio

Slides Representative of Projects Undertaken

2. "Outer Space"
3. Environment Box
4. Mobile
5. Negative Drawing
6. Photograph of Negative Space (taken by a student)
7. Wire Sculpture of an Assistant
8. Group Papier Mâché Project
9. Clay Work
10. Pulling a Print
11. Evolution of a Reduction Print

12. Illusion of Space - Non Representational

13. Illusion of Space - Figurative with Flat Figure

Slides of "Space Walk"

14. The Long Halls

15. View from the Escalator

16. Space in a Basket

17. Under the Tables

Slides of Environment Boxes

18. In the "Submarine"

19. A Crawl-Through Environment

20. Matchbox Environment

21. Student at Work

22. A Mouth Environment

Slides of Negative Drawing

23. Stacked-up Room

24. Negative Spaces in Black Paper

25. Student at Work

26. Inventive Pattern

27. Negative Spaces Make Positive Horse

28. Student at Work

29. One Student Painted Color

30. Student Photograph of Negative Space

Sample Work by One Student

31. Deviation from "Outer Space" Subject
32. Environment Box
33. Negative Drawing
34. Photograph of Negative Space
35. Perspective - Non Representational

Sample Work by Second Student

36. Outer Space
37. Environment Box
38. Negative Drawing
39. Clay Sculpture
40. Perspective - Non Representational

H. Conclusion

The purpose of these sessions was to determine the desirability of further study of a concept-focused art program. There seems to be ample evidence from this series of lessons centered on the concept of space that deeper study in this direction would be warranted.

The concept was broad enough to permit great flexibility in teaching strategies, grouping, and sequence. It was narrow enough to provide a focus. Although this cannot be adequately measured, the author believes that students were left with a new dimension around which to hinge future thinking about art.

Their responses to the questionnaire indicated that by and large students thought that they were more aware of space in works of art, in their own art work, and in their environment as a result of the sessions. Further, eight out of nine thought that other meaningful art lessons could be focused on concepts.

When asked, though, to tell what they enjoyed most and what recommendations they had no one referred directly to space or to concepts.

Three out of eight students felt rushed in doing their projects. One suggested that there should be more

action and less talk. The teacher and assistants also felt that more working time was needed for each project. Perhaps the answer lies in spending several periods with a particular medium within the framework of a particular concept.

The atmosphere was relaxed and students appeared to enjoy their work. Participation was good for all projects including the picture-appreciation session.

Although not always articulate, students showed a willingness to take part in discussions concerned with the concept. There was no indication that this had any negative effect on intuition or creativity.

It must be remembered that, although no restrictions, except for space, were imposed for enrollment in the class, this was a select group. Only those willing to devote Saturday mornings to art came and several had attended for several years previously. Therefore, it cannot be implied that what happened in this class would be applicable to others. Trial programs in regular class situations are needed.

PART FIVE: SOME IMPLICATIONS OF THIS THESIS

If it is accepted as the author suggests that further investigation is desirable, the following directions seem necessary.

1. The gathering together or at least communication amongst the specialists in the field - aestheticians, art historians, art educators, artists and art critics - is necessary in order to determine the concepts essential and appropriate to a study of art.
2. The concepts arrived at should be broad enough so that no particular sequence would be imposed on teachers. There should be no attempt to limit the study to conjunctive and closed concepts. Open and disjunctive concepts may be the most appropriate.
3. Educators, including psychologists, art teachers and supervisors, school administrators, and curriculum planners should be involved in translating the concepts into a meaningful context for the various age groups.
4. Trial programs should be put into effect and evaluated.

5. Initial emphasis should be at the junior high school level or above, where students generally have arrived at Piaget's stage of formal operations. Two reasons lie behind this suggestion:
 - (a) Students generally are able to handle concepts intellectually at this level. It would seem easier at first to combine doing and knowing at this level.
 - (b) There is more chance that there will be qualified art specialists to put trial courses into effect at this level than earlier.
6. Evaluators should look at the controversy surrounding concept discovery and concept reception, as well as concept attainment and concept formation, as they pertain to art.
7. The effects of concept-centered art programs should be evaluated in terms of their effects on both creative and analytic or intellectual learners.
8. Effects of sequence should be studied.
9. Studies should be made about the length of time that would be appropriate to devote to particular

concepts at the various levels.

10. Discussion should take place across subject boundaries in education in order to arrive at those concepts which will lead to a more meaningful and integrated program.

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