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AUTHOR Donald, James J.
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ABSTRACT

The study's purpose is to identify the origin and theoretical aspects of open education. In addition, the study applies the theoretical basis to the practices used by the facilitator and the learner in the industrial arts laboratory. Chapter 1 introduces the topic of open education and its implications for industrial arts. It presents the background statement, the statement of the problem, need for the study, the scope and limits, methods and procedures, and definition of terms. In chapter 2 a brief historical background of the open education movement is presented, followed by an overview of the child development theory of Jean Piaget and a discussion of the rationale of open education as it applies to the facilitator, the learner, and the environment. The purpose of chapter 3 is to analyze in detail the material presented in chapter 2. Chapter 4 synthesizes the material of chapters 2 and 3, from which characteristics for industrial arts programs are formulated. Numerous broad conclusions concerning the central theme and recommendations for the learner, facilitator, and environment are given. The document concludes with a four-page bibliography and 44 pages of supplemental materials, including a statement of guiding principles, a survey instrument, criteria for open classrooms, correspondence, and a summarizing statement by the author. (Author/BP)

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INDUSTRIAL ARTS IN THE OPEN EDUCATION SETTING

An Analysis of the Rationale of Open Education
and its Implications for Industrial Arts

INDUSTRIAL ARTS IN
THE OPEN EDUCATION SETTING

An Analysis of the Rationale of Open Education
and its Implications for Industrial Arts

A RESEARCH PAPER

Presented in Partial Fulfillment
of the Requirements for Industrial Arts Education 399

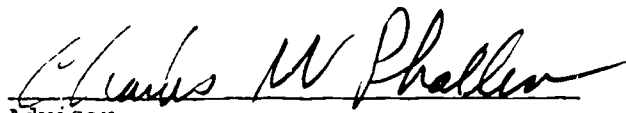
By

James J. Donald, B.S.

State University College
Oswego, New York

1974

Approved by



Advisor

Department of Industrial Arts

PREFACE

The purpose of this study is to identify the origin and theoretical aspects of Open Education. In addition, this study will apply the theoretical basis to the practices used by the facilitator and the learner in the Industrial Arts Laboratory.

A survey of the child development theory of Jean Piaget will be presented, followed by a presentation of the views of many writers concerning the Open Education style of learning. From this a series of characteristics of Open Education will be presented and related to the "open" practices which would then be used in the Industrial Arts Laboratory.

This study is being undertaken because of the belief that the many plans and approaches to teaching Industrial Arts are not based on the knowledge and understanding we presently have of how human beings grow and develop -- learn if you will -- in a natural and human way. It is the desire of the writer that this study will assist others in becoming aware of the deeper and more encompassing understandings of the innate ways in which human beings learn. It is also anticipated that others will be able to better define, on a personal basis, the practices they would necessarily employ in approaching the learner on the basis of how human beings learn.

My deep felt gratitude and thanks is extended to my advisor, Dr. Charles W. Phallen, for his patience and constructive criticism during the writing of this paper. Appreciation is also

extended to my very close friends Victoria Alexander and Lorraine Standera for their proofreading assistance, and to Christine Mintz for typing the final copy, and to my wife, Suzanne Donald, for her patience and encouragement while writing the paper, and the hours of time she spent editing, typing draft, and correcting my spelling.

AUGUST 1974

JAMES J. DONALD

Change is a constant reality of living faced by both individuals and institutions, and its acceleration is one of the most critical problems facing technological man. In the long run, Alternative "O" (openness) must prove more practical than idyllic. Survival may require greater openness than man has known throughout his history.

Vivian S. Sherman

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CHAPTER I

PERSPECTIVE OF THE PROBLEM

This chapter introduces the topic of Open Education and its implications for Industrial Arts. It presents the background statement, the statement of the problem, need for the study, the scope and limits, methods and procedures, and definition of terms.

BACKGROUND OF THE STUDY

Considerable effort has been made by this writer in teaching various contemporary programs of Industrial Arts; such as, the Line Production Experience, the Anthropological Study, the Group Industrial Study, and Research and Experimentation. After having considerable success with these programs, it was still considered unnatural to require an entire class of students to perform within the structure of one program. Individual choice and freedom was present within these programs, but it was still the teacher who had decided to put the students into the specific context of one type of program in the first place. This choice of program, which now seems to be a very critical choice in the process of developing the total individual student, was not his to make.

Since September of 1969 this writer has come in close contact in numerous school districts with the practical application of Individualized Instruction, Open Education, Humanistic Education

Affective Education--all programs which concentrate on the development of the complete individual. As a result of these experiences, it is felt that the many forward looking programs mentioned before, and others as well, are excellent one which should be practiced more widely by the profession. But before they can reach their full potential for releasing a student's capacity for a more encompassing personal growth and development, the programs need to be allowed to become more real, more personal, more intrinsic, and more individual for the student than they are at present. It seems that the element of freedom of choice by the student must be his to exercise before any program in Industrial Arts, be it traditional or contemporary, can release, and consequently develop, the many potentials of the total individual.

The Open Education movement, which originated in England, is now receiving much attention across the United States. Because Open Education is based on the process of developing the physical, emotional and intellectual growth of the complete individual, it is felt that within this context of education there is immense potential for releasing the wider range of an individual's energies, and thus allowing for a broader and fuller development of an individual's unique and productive qualities.

STATEMENT OF THE PROBLEM

This study will concern itself with the following questions:

- (1) What is the rationale of Open Education?
- (2) How does this rationale apply to the process of educating human beings?
- (3) How does this

apply to the field of Industrial Arts?

NEED FOR THE STUDY

Not only Industrial Arts, but the whole of education, is in the dynamic process of rapid change and adjustment. It is becoming clearer that the individual must again turn to himself to find meaning, purpose, and direction in his life, and not looking to the institutions of our society for his personal values and direction. Each human being, being an individual, separate and unique from all other human beings, should be allowed and encouraged to turn himself for clarification and definition of what it is in his real world that gives life real meaning, spirit, inquisitiveness, spontaneity, joy, personal direction, and satisfaction. •

It is, therefore, the purpose of this study to develop a basis for the implimentation of Industrial Arts Laboratory Activities which rests on the development of the intrinsic nature of the individual and how his nature gives clarification, definition, and meaning to the objects and events he experiences in his world.

SCOPE AND LIMITS

The scope of this study will be concerned with surveying Jean Piaget's theory of child development. From this psychological background, the rationale of Open Education will be presented as it applies to the facilitator, the learner, and the environment.

In synthesizing this material, the characteristics of Open Education will be applied to Industrial Arts. This study will not concern itself with an in depth history of the Open Education movement, nor its philosophical or sociological basis.

METHODS AND PROCEDURES

This investigation is descriptive in nature. In this respect the study will proceed as follows:

1. Survey the literature for the Child Development Theories of Jean Piaget.
2. Survey the literature to determine the theoretical basis inherent in Open Education.
3. Analyze all material in terms of the problem.
4. Present characteristics of Industrial Arts programs as would be practiced in an Open Education setting.

Thus the organization of the study shall be discussed in the following manner:

1. Chapter I provides the perspective of the problem.
2. Chapter II presents a survey of the psychological basis of child development as seen by Jean Piaget, plus the rationale and theoretical basis of Open Education.
3. Chapter III analyzes the information obtained in the literature.
4. Chapter IV provides a synthesis of the problem and presents

characteristics of Industrial Arts programs as would be practiced in an Open Education setting.

5. Chapter V summarizes the study, presents conclusions and recommendations drawn from the study.

DEFINITION OF TERMS

The following terms will be used in the study and are here defined:

Accommodation--the outgoing, adjusting process of reaching out to the environment.

Adaption--the process of balancing the elements of assimilation and accommodation.

Assimilation--the taking in process whether of sensation, nourishment, or experience. It is the process by which one incorporates things, people, ideas, customs and tastes into one's own activity.

Egocentricity--the infant's awareness of himself and his lack of awareness of his external world.

Equilibrium--the state of balance between assimilation and accommodation.

Facilitator--the teacher turned learner, the adult who supports and participates in and with the activities of the individual learner.

Intelligence--adaptive thinking and action.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter will be to present a brief historical background of the Open Education Movement followed by an overview of the child development theory of the Swiss Genestic Epistemologist, Jean Piaget; the rationale of Open Education as it applies to the facilitator, the learner, and the environment.

HISTORICAL BACKGROUND

In August, 1963, the Central Advisory Council for Education (England) was asked by Sir Edward Boyle, the then Minister of Education, to consider the whole subject of primary education and the transition to secondary education.

This was in effect a directive to the council to report to the Minister of Education how far the intentions of Sir Henry Hadow and his committee had been carried out. For it was in 1926, 1931, and 1933 that Hadow reported on the Education of the Adolescent, the Primary School, and the Infant and Nursery School respectively. Hadow has been considered ever since as the "Architect of the English Educational System."

In 1963, the Council (9, p.1) was asked to explore questions such as:

Are children of today at the same stage of development as children of the same age were in 1926? Ought all, or nearly all, children of the same age to be able to do the same things? How great are the differences between boys and girls, and do they vary with age? If a child's intelligence is tested at the age of eight or eleven, will the results hold good five or six years later? What is the relationship between environment and genetic factors in the shaping of human ability?

It was believed because man knows more today than a generation ago about physical, intellectual, and emotional development in children, that we are in a better position to look again at the conclusions drawn by the Hadow reports of 1930.

Other questions which relate more closely to the practical, everyday context of teaching were also explored. (9, p. 2). Some of these were:

Is there any genuine conflict between education based on children as they are, and education thought of primarily as a preparation for the future? Has 'finding out' proved to be better than 'being told'? Have methods been worked out through which discovery can be stimulated and guided, and children develop from it a coherent body of knowledge? Has the emphasis which the Hadow Report placed on individual progress been justified by its result? How can head teachers and class teachers arrange the internal workings of each school and each class to meet the different needs of the highly gifted boys and girls, of the slow learning pupils, and of all the infinite varieties of talent and interest that lie between? Do children learn more through active co-operation than by passive obedience?

In early 1967 the Central Advisory Council for Education (England) published its report in two volumes. Its impact here in the United States stemmed from Joseph Featherstone's articles in The New

Republic in 1967 and 1968 which served to alert educators that some significant changes were taking place in the English schools that had potential for positive incorporation in our own schools. Featherstone (28, p.8) reports:

. . . the example of British Schools is one strand in the growing, turbulent, increasingly confusing reform movement in America for 'open' informal schools--a movement whose ranks include such diverse figures as John Holt, and the head of New York City's teacher Union, Albert Shanker.

He calls attention, "To the fact that British Primary Schools . . . are on their way toward establishing certain good conditions for children's learning on a fairly large national scale." (23) But, nationally, (England) education at the junior level is still fairly conventional, too often resembling the standard dreary fare of the later years of american elementary school. (23)

Reforms developed first in infant schools, and then moved up to the junior schools, where, to date, "There is not the rich backlog of tradition and materials found at the infant level. Partly, too, it reflects real difficulties in organizing active learning for older children." (23)

It is certain there is nothing at the secondary level to compare with the emerging vision of education in the primary schools. In both Britian and America there are strong dissatisfactions with secondary education, but neither country has any clear sense of the proper direction for reform. The Plowden Report (9, p.10) has outlined the tenta-

tive foundations of "a new way of thinking about what schools should be like, involving new conceptions of the role of the teacher, the organization of the classroom, the nature of childrens' learning, how the school day should proceed, and what constitutes a proper curriculum for young children." Word of English practices comes to America at a time when many of them are questioning their schools' inadequate conditions of child learning. In America, a decade of educational innovation (23, p.18) has left a pedagogical vacuum:

Teachers and parents are eager for concrete examples of good practice, and quite naturally, they have concentrated on the external features of good British classrooms; the stores of materials, the variety of activities going on, the absorption and self-discipline of the children, the freedom permitted teachers and children, the use of hallways, playgrounds and other space that gets wasted in too many United States schools, the curriculum arising from interests and activities of teachers and children, and so on. This focus on specifics has been refreshing; too much of our talk on education is divorced from pedagogy and the realities of a life in the classrooms.

This statement describes what one would encounter if one visited a school practicing Open Education.

The theory of open education gains significant support from the life's work of the Swiss Genetic Epistemologist, Jean Piaget (37). It is reported (9, p.192) in the Plowden Report that:

Piaget's thought, which influenced the 1931 report (the Hadow Report) and our own, is not easy to understand. It is almost impossible to express in other technical terms. Although he is not primarily an educationalist, his work has important implications

for teachers. His observations of the sequence in the development of children's concepts are being tested on samples of children in many countries and these tests are tending to confirm his main findings. Much more investigation is needed on the extent to which the school environment and the guidance and teaching provided by teachers can accelerate children's progress. The effect of social expectations on the way children learn also calls for study. Nevertheless Piaget's explanations appear to most educationalists in this country to fit the observed facts of children's learning more satisfactorily than any other. It is in accord with previous research by genetic psychologists and with what is generally regarded as the most effective primary school practice, as it has been worked out empirically.

Piaget's assumptions about children and his theory of child development are explored in the following section.

ASSUMPTIONS AND CENTRAL DISCOVERIES

OF JEAN PIAGET

Jean Piaget is a Genetic Epistemologist who has spent most of his life trying, ". . . to discover the psychological structures that underlie the formation of concepts fundamental to science . . . His method (of scientific inquiry) is the semi-clinical interview--a form of non-directive inquiry centered around a verbal or practical issue." (37)

In describing Piaget's method and techniques of investigation Woodward (51, p.229) states:

(He) is interested in the process of development. He has devised techniques which are aimed at discovering the type of thinking used by children when they tackle a problem. Thus, he records not merely the result, but how the child arrived at it. For both successful solutions and failures, he notes the

method the child uses and explores further by varying certain aspects of the problem.

The techniques used vary with the age of the children, but "the process of development" is what is being investigated.

Chittenden (10, p.9) describes Piaget's methods in this manner:

Piaget has never been especially interested in depicting, in a normative way, the various responses that may occur at particular ages, and one finds few statistical descriptions of children's responses in his books. Instead he has attempted to discover the underlying structure which gives rise to children's responses . . . He is interested in the kinds of errors the child may make and in the kind of groupings he may attempt, rather than only the final result or the final arrangement made by the child.

Similarly, Elkind (17, p.28) states the following concerning Piaget's semi-clinical interview method of investigation:

It was in the course of some routine intelligence testing that Piaget became interested in what lay behind children's correct, and particularly their incorrect answers. To clarify the origins of these answers he began to interview the children in the open-ended manner he had learned while serving a brief internship at Bleuler's Psychiatric Clinic in Zurich. This semi-clinical interview procedure, aimed at revealing the processes by which a child arrives at a particular reply to a test question, has become a trademark of Piagetian research investigation.

Individual differences, motivation, and learning, all properly psychological issues, are largely irrelevant with respect to the kinds of questions with which Piaget is concerned. He does not deny them, they simply are not within the specific realm of his concerns. "Piaget

is concerned with those structures which, if they hold true for the individual, also hold true for the species." (37) As Maier (27, p.82) states it:

Piaget proceeds with the assumption that a detailed investigation of any small sample of a species will yield basic information inherent to all members of that species. The children of Geneva, and his own, particularly, are representative of children everywhere. Until recently he made no allowance for sexual differences.

Piaget's assumption concerning the genesis of the species is also explained by Maier (27, p.84) as follows:

Piaget believes in universal order. He suggests a single unity of all things: biological, social, psychological, and ideational, in living as well as non-living things. All science is interrelated. A theorem established in one branch of science, he feels, is directly relevant to the laws and principles of other branches. Altogether, Piaget insists upon cosmic unity, which provides one explanation for his notion that his samples are representative; he assumes that any deviation, whether cultural or hereditary, is an inconsequential variation to the regular process of development.

It is the "regular process of development" that is important to the sequential development of the child. "The order of stages in mental growth is what Piaget is concerned to make clear." (24, p.47) Woodward notes that, ". . ., distinct stages rather than continuous development are postulated; the stages are characterized by different types of behavior and thinking, which succeed one another in the same order in the development of most children" (51) and Maier (27, p.92)

elaborates on the order of developmental growth as follows:

The important thing, as Piaget stresses, is the order of succession of the phases. The succession remains always the same. Developmental phases, then are age-bound on the basis of Piaget's preliminary, cursory observations. They are also age-free in terms of their order of sequence.

Piaget's concept of development can be summarized by the six following generalizations:

1. There is an absolute continuity of all developmental processes.
2. Development proceeds through a continuous process of generalizations and differentiation.
3. This continuity is achieved by a continuous unfolding. Each level of development finds its roots in a previous phase and continues into the following phase.
4. Each phase entails a repetition of processes of the previous level in a different form of organization. Previous behavior patterns are sensed as inferior and become part of the new superior level.
5. The differences in organizational pattern create a hierarchy of experience and actions.
6. Individuals achieve different levels within the hierarchy, although . . . 'there is in the brain of each individual the possibility for all these developments but they are not all realized' (Piaget).

Although sequential order is an important factor in understanding the development of the child, it must not become confused with the sequential age of the child. The rate of sequential age is fixed in time. The rate of sequential development of the child is not fixed--only the order of sequential development. Elkind (17, p.52) states that:

Piaget proposes that intelligence--adaptive

thinking and action--develops in a sequence of stages that is related to age . . . Although Piaget believes that the order in which the stages appear hold true for all children, he also believes that the ages at which the stages evolve will depend upon the native endowments of the child and upon the quality of the physical and social environment in which he is reared.

Furthermore, Isaacs (24, p.47) says that:

The order of stages in mental growth is what Piaget is concerned to make clear; but whether they will be passed through with greater or less speed or zest or all around gain, or whether the latter stages will be reached at all, is a wide open question . . . Furthermore, (Piaget's) detailed figures plainly show a large overlap between the stages. Thus, some 4 to 5 year olds produce replies characteristic of the 7 to 8 year old average, and some 7 to 8 year olds respond like average 4 to 5 year olds.

Piaget's theory involves the process of intellectual development and provides a conceptual framework from which to understand and study the behavior of individuals. Ever present in the evolving process of development is a constant striving for equilibrium. Elkind notes, "Piaget's theory in the most general sense, is that of subject-object equilibration, the view that mental growth is governed by a continual activity aimed at balancing the intrusions of the social and physical environment with the organisms need to conserve its structural system." (37, p.1) Piaget describes equilibration, or equilibrium, as "An overriding principal of mental development in the sense that all mental growth progresses toward an ever more complex and stable level

of organization." (37, p.1.)

To further explain the concept of equilibrium as it applies to the individual's tending to further and more complex development or organization, Piaget (37, p.38) explains:

The Psychological Development that starts at birth and terminates in adulthood . . . consists essentially of activity directed toward equilibrium. . . . all action--that is to say, all movement, all thought, or all emotion--responds to a need. Neither the child nor the adult executes any external or even entirely internal act unless impelled by a motive; this can always be translated into a need (an elementary need, an interest, a question, etc.) . . . a need is always a manifestation of disequilibrium: There is need when either something outside ourselves or within us (physically or mentally) is changed and behavior has to be adjusted as a function of this change.

Conversely, action terminates when a need is satisfied, that is to say when equilibrium is re-established between the new factor that has provoked the need and the mental organization that existed prior to the introduction of this factor. (This is to say) Human action consists of a continuous and perpetual mechanism of readjustment and equilibrium.

It is through the process of equilibration, says Woodward (51, p. 316 and 298) that the child himself "Constructs a formless world of sensations into a meaningful world of objects." His developing world is, "Extended, modified, and co-ordinated through the child's exploratory behavior with physical objects." In fact, according to Elkind (17, p.52), one of Piaget's major discoveries is "the importance of reason in the child's spontaneous construction of his world. . . . The child does more than reflect what is presented to his senses." His

image of reality, says Elkind, is in fact, . . . "a reconstruction of the world and not a simple copy of it." (17, p.52)

Maier (27, p.85) explains the child's exploratory behavior in terms of Piaget's explanation of the etiology of human behavior:

(Piaget's) theory of cognitive development rests upon a chain of assumptions which find explanations in two different aspects of his developmental theory: First, biological growth points to all mental processes; and second, in the processes of experiences--the origin of all acquired characteristics--the organism discovers the separate existence of what he experiences. In experiencing his own native reflexes, the individual is led to use them and to apply them, resulting in the acquisition of new behavior processes. Consequently, Piaget establishes the basic assumption that human systems of organizations are not acquired purely socially, but evolve from an individual's natural patterns of living. In Piaget's words, "they constitute a law of nature" and the evolution of cognitive organizations is explained by two different assumptions which Piaget alternately implies:

1. The organization and interrelationships of objects, space, causality, and time presume a priori, the existence of definite patterns of intellectual development.
2. The intellect organizes its own structure by virtue of its experience with objects, space, causality, and time, and the inter-relationship of these environmental realities.

Consciousness, judgement, and reasoning--in fact, all attributes of personality--depend primarily upon the evolving intellectual capacity of the individual to organize his experience. Consequently, the totality of his experiences shapes the interests of an individual and the specific experiences he tends to pursue.

Isaacs (24, p.48) says that true learning is growth that starts from birth and in some degree goes on all our lives. Growth occurs through the child's own experiences with active doing, and his learning and understanding from doing. "Above all else, (his experiences) are cumulative. That is, (experiences) form a structure in the child's mind which he himself keeps building up. Each new level is only made possible by what has been built before but then leads on to a further advance and a greater and richer whole."

With respect to equilibrium and the child's exploratory behavior-- as well as his exploratory behavior throughout his lifetime--Piaget (27, p.85), using a Genetic Epistemologist View, maintains that "achieving a near equilibrium in a constant changing situation is the goal of all human functions; biological, affective, and above all, mental." He proceeds to explain the relationship of the affective human function to the biological and mental function. Piaget (37, p.33) thus presents the following:

In all behavior the motives and energizing dynamisms reveal affectivity, while the techniques and adjustment of the means employed constitute the cognitive sensor-motor or rational aspect. There is never a purely intellectual action, and numerous emotions, interests, values, impressions of harmony, etc. intervene--for example, in the solving of a mathematical problem. Likewise, there is never a purely affective act, e.g. love presupposes comprehension. Always and everywhere, in object-related behavior as well as in interpersonal behavior, both elements are involved because the one presupposes the other.

Maier (27, p.88) interprets Piaget thusly:

Piaget assumes that affect (emotion) evolves from the same primary processes as its intellectual counterpart. He vacillates in his assumptions as to whether affect assumes an equal rank or a subordinate position to intellectual organization. At one time, affect regulates the energies of actions and intellectual structure determines the techniques, while in other instances intellectual processes determine the capacity of emotional receptivity. Altogether, however, it can be stated that the two functions, intellect and affect, are like two sides of a coin.

Piaget (35, p.275) continues to state, "Both are always together as one. Both serve the adaption to the environment." Piaget (1, p.3) goes on to say, "Reason and feelings are not independent faculties, they are always united in the facts." Another source from Piaget (34, p.207) explains, "We do not love without seeking to understand and we do not even hate without a subtle use of judgement."

In summation, Maier (27, p.89) states that Piaget's theory, "Rests upon the assumption that human personality evolves from a composite of intellectual and affective functions, and also from the interrelation of these two functions. The intellectual processes provide direction by organizing and integrating these functions of personality (reason and feeling)."

PERIODS OF THE CHILD'S

COGNITIVE GROWTH AND DEVELOPMENT

Piaget's stages of cognitive growth and development are divided into four main periods and these periods are further divided into a

chronological series of stages. The first period is Sensori-motor Period. This period lasts for about the child's first two years of life and is subsequently divided into six smaller stages. Pulaski (41, p.207) describes these six stages as follows:

- Stage I (0-1 month)--Characterized by neonatal reflexes and gross, uncoordinated body movements. Stage of complete ego-centrism with no distinction between self and outer reality; no awareness of self as such.
- Stage II (1-4 months)--New response patterns are formed by chance from combinations of primitive reflexes. The baby's fist accidentally finds its way into his mouth through co-ordination of arm moving and sucking.
- Stage III (4-6 months)--New response patterns are co-ordinated and repeated intentionally in order to maintain interesting changes in the environment.
- Stage IV (8-12 months)--More complex co-ordinations of previous behavior patterns, both motor and perceptual. Baby pushes aside obstacles or uses parent's hand as a means to a desired end. Emergence of anticipatory and intentional behavior; beginning of search for vanished objects.
- Stage V (12-18 months)--Familiar behavior patterns varied in different ways as if to observe different results. Emergence of directed groping toward a goal, and of new means-end manipulations for reaching desired objects.
- Stage VI (1½-2 years)--Internalization of sensori-motor behavior patterns and beginnings of symbolic representation. Invention of new means through internal experimentation rather than external trial and error.

The second period is described as the Pre-operational Period which covers the span from two to about seven years of age. Pulaski (41, p.208) describes this period as being, "Characterized by ego-centric thinking expressed in animism, artificialism, realism, and magic

omnipotence." This period is also divided into two stages as described by Pulaski (41, p.208):

Pre conceptual Stage (2-4 years)--Development of perceptual constancy and of representation through drawings, language, dreams, and symbolic play. Beginnings of first overgeneralized attempts at conceptualization, in which representatives of a class are not distinguished from the class itself (e g., all dogs are called by the name of the child's own dog).

Perceptual or Intuitive Stage (4-7 years)--Pre-logical reasoning appears, based on perceptual appearances intempered by reversibility (e.g., Grandma in a new hat is no longer recognized as Grandma). Trial and error may lead to an intuitive discovery of correct relationships, but the child is unable to take more than one attribute into account at one time. (e.g., brown beads cannot at the same time be wooden beads).

The third period of cognitive growth and development in children is the Concrete Operational Period which covers approximately seven to eleven years of age. It is, according to Pulaski (41, p.208), "Characterized by thought that is logical and reversible. The child understands the logic of classes and relations and can co-ordinate series and part-whole relationships dealing with concrete things."

The fourth period, also described by Pulaski (41, p.208) is the Formal Operational Period which covers the ages from about eleven years to adulthood. This phase is, "Characterized by the logic of propositions, the ability to reason from a hypothesis to all its conclusions, however theoretical. This involves second-order questions, or think-about thoughts or theories rather than concrete realities." All four

of these stages are also explained within the chart on the following page (Fig. 1).

Piaget states that before one can examine the details of development at any level or phase, one must determine what is, "Common to the needs and interests present at all ages." He defines this commonality at all ages as the process of "adaption." In the biological sense, the dictionary defines adaption as "a change in structure, function, or form that produces better adjustment of an animal or plant to its environment." This is the essence of biological functioning and likewise the essence of intellectual functioning which remains constant throughout life. (41). Adaption, according to Maier (27, p.86) is the, "cognitive striving of the organism to find an equilibrium between his environment and himself." Pulaski sees it (41, p.6) as, "The ability to organize the myriad of sensations and experiences we encounter into some kind of order, and to adapt ourselves to our surroundings." And for Piaget, psychological adaption also includes the means of modifying the environment to one's own ends. Pulaski (41, p.6) continues, "Such functioning is characteristic of living organisms at all levels; it is part of our biological inheritance."

In turn, Piaget uses two terms to explain the processing of adaption. They are assimilation and accomodation. These are twin processes which go on continuously in all living organisms. In the biological sense, the dictionary defines assimilation as such, "To take up and make

TABLE 5-1 INTELLECTUAL DEVELOPMENT STAGES*

	Sensorimotor	Birth to approximately 18 months	<p>Stage is preverbal.</p> <p>An object "exists" only when in the perceptual field of the child.</p> <p>Hidden objects are located through random physical searching.</p> <p>Practical basic knowledge is developed which forms the substructure of later representational knowledge.</p>
I	Preoperational or "representational"	18 months to 7-8 years	<p>Stage marks the beginning of organized language and symbolic function, and, as a result, thought and representation develop.</p> <p>The child is perceptually oriented, does not use logical thinking, and therefore cannot reason by implication.</p> <p>The child is simple-goal directed; activity includes crude trial-and-error corrections.</p> <p>The child lacks the ability to coordinate variables, has difficulty in realizing that an object has several properties, and is commonly satisfied with multiple and contradictory formulations.</p> <p>Since the concepts of conservation are not yet developed, the child lacks operational reversibility in thought and action.</p>
II	Concrete operations	7-8 years to 11-12 years	<p>Thinking is concrete rather than abstract, but the child can now perform elementary logical operations and make elementary groupings of classes and relations (e.g., serial ordering).</p> <p>The concepts of conservation develop (first of number, then of substance, of length, of area, of weight, and finally of volume in the next developmental stage).</p> <p>The concept of reversibility develops.</p> <p>The child is unable to isolate variables, and proceeds from step to step in thinking without relating each link to all others.</p>
III	Propositional or "formal operations"	11-12 years to 14-15 years	<p>This stage of formal (abstract) thought is marked by the appearance of hypothetical-deductive reasoning based upon the logic of all possible combinations; the development of a combinatorial system and unification of operations into a structured whole.</p> <p>The development of the ability to perform controlled experimentation, setting all factors "equal" but one variable (in substage IIIA the child's formal logic is superior to his experimental capacity). Individuals discover that a particular factor can be eliminated to analyze its role, or the roles of associated factors.</p> <p>Reversal of direction between reality and possibility (variables are hypothesized before experimentation). Individuals discover that factors can be separated by neutralization as well as by exclusion.</p> <p>The individual can use interpropositional operations, combining propositions by conjunction, disjunction, negation, and implication (all arise in the course of experimental manipulations).</p>
		14-15 years and onward	

*Oswald E. Dyerli, "An Investigation into the Development of Combinatorial Mechanisms Characteristic of Formal Reasoning, Through Experimental Problem Situations with Sixth Grade Students" (Doctoral Dissertation, Indiana University, 1967), pp. 97-98.

Fig. 1

part of itself or oneself; absorb and incorporate; digest; as, the body assimilates food." Psychologically it is described by Pulaski (41, p.7) as, "The taking-in process, whether of sensation, nourishment, or experience. It is the process by which one incorporates things, people, ideas, customs, and tastes into ones own activity." Piaget (37, p.8) himself describes it as the incorporating of, "things and people into the subject's own activity, i.e. to 'assimilate' the external world into the child's psychological structures that have already been constructed."

The dictionary defines accommodation as such, "to make fit; adjust; adapt; adaptation to a purpose." Pulaski (41, p.7) describes it as, "the outgoing, adjusting process of reaching out to the environment." Piaget says it is the readjustment of the psychological "structures as a function of subtle transformations, i.e. to 'accommodate' them to external objects."

Pulaski (41, p.8) expresses the balancing of these two elements of adaption in this way:

In Piaget's developmental psychology the baby is never a passive, helpless infant as some psychologists picture him, reacting only to loud noises and loss of support. He is an active and curious organism, reaching out, experimenting, seeking always to maintain a stable balance between assimilation and accommodation, between his inner reality and that of the world around him. Just as the body seeks to find a physiological state of equilibrium between exercise and rest, or hunger and over-eating, so the child's equilibrium is sought between what he understands and what he experiences in his environment. This process of seeking mental equilibrium

Piaget calls equilibration. Its function is to bring about a balanced co-ordination between assimilation and accommodation, just as a thermostat maintains a constant balance between hot and cold. He conceives of this process as the mechanism for growth and transition in cognitive development.

And Piaget (37, p.8) describes these processes in the following manner:

In assimilating objects, action and thought must accommodate to these objects; they must adjust to external variation. The balancing of the processes of assimilation and accommodation may be called 'adaption'. Such is the general form of psychological equilibrium, and the progressive organization of mental development appears to be simply an ever more precise adaptation to reality.

A closer examination of Jean Piaget's periods of intellectual growth and development will be presented in the following section. The first period of Piaget's child development theory is called the Sensori-motor Period and is further divided into six shorter stages.

Sensori-motor Period. Stage I--Even at this neonate stage of life the organisms reflex behaviors, such as crying, sucking, gasping, and variations in the rhythm of breathing, are beginnings of the development of his intelligence and nascent affective life. (27) This early mental development determines the entire course of psychological evaluation. (37) Piaget (37, p.9) says that, "at birth, mental life is limited to the exercises of reflex apparatus, i.e., of hereditarily determined sensori and motor co-ordinations that correspond to instinctual needs." He (32, p.6) continues by saying:

The point of departure of development should not be sought in the reflexes conceived as simple isolated

responses, but in the spontaneous and total activities of the organism. There are relatively fixed and predictable reflexes embedded in this total activity, but they can be viewed as a differentiation of this global activity. Some of these reflexes are developed by exercise instead of remaining uncharged or atrophying and are the points of departure for the development of schemes of assimilation.

On the one hand, it has been shown by the study of animal behavior as well as by the study of the electrical activity of the nervous system that the organism is never passive, but presents spontaneous and global activities whose form is rhythmic. On the other hand, embryological analysis of the reflexes has enabled us to establish the fact that reflexes are formed by differentiation upon a groundwork of more global activities. . . . It is an overall rhythm which culminates in a succession of differentiated and co-ordinated reflexes, and not the reflexes which lead to that rhythm.

In this first stage, Piaget uses the term egocentrism to describe the infant's awareness of himself and lack of awareness of the external world around him. Pulaski (41, p.16) explains this concept in these terms:

(Piaget does not mean) that the baby is self-centered but that he is unaware of anything beyond himself. He knows nothing of the world apart from his immediate consciousness and therefore cannot at first distinguish himself from it or make any sense out of the variety of stimuli he receives from it.

Piaget (37, p.12) describes how the neonate begins to include the external world into his own reality:

At the outset of mental evolution there is no definite differentiation between the self and the external world. . . . The self is at the center of reality to begin with for the very reason that it is not aware of itself, while

the external world will become objectified to the degree that the self builds itself as a function of subjective or internal activity. In other words, consciousness starts with an unconscious and integral egocentricity, whereas the progress of sensori-motor intelligence leads to the construction of an objective universe in which the subject's own body is an element among others and with which the internal life, localized in the subject's own body, is contrasted.

To this broadening sense of awareness Maier (27, p.45) adds:

He initiated general organizational patterns of behavior (schema) basic to his unfolding life. . . . Change, or development comes about by 'living'. The organism is never something; he is always becoming something by the very fact that his is also confronted by an environment which also makes its demands upon the individual by the fact of his mere existence in the environment.

Stage II--(1-4 months) Primary circular reactions mark the beginning of the second stage when reflexive behavior is slowly replaced by voluntary movements. Primary circular reactions, according to Maier (27, p.96) refers to "the assimilation of a previous experience and the recognition of the stimulus which triggers the reaction." Piaget describes the latter as the emergence of the accomodative process. The child incorporates and adapts his reactions to an environment reality. A synthesis of assimilation and accommodation occurs, which, in essence is 'adaption.'

Maier (27, p.96) purports:

Primary circular reactions, however simple, provides an organizational pattern, or schema, by which two of three factors are organized into a relationship pattern superimposed upon the previous

action patterns of reproducing, repetition, and sequentiality. Schema, for Piaget, is an established pattern of a meaningful, repeatable psychological unit of intellectual behavior. It is a behavioral event which can be repeated and co-ordinated with others.

Maier (27, p.98) continues that the major theme of this period is the:

Child's capacity to incorporate the new results of his behavior as part of his continuing behavior. New or past experiences have no meaning unless they become part of a primary circular reaction pattern. The infant has to experience any new object through his accustomed repertoire of sensory activities--sucking, touching, etc.

Stage III (4-8 months)--Maier calls this stage on of secondary circular reactions and Piaget calls this stage of, "practical and sensori-motor intelligence itself." (37) Piaget (37, p.11 continues:

It is an entirely practical intelligence based on the manipulation of objects; in place of words and concepts it uses percepts and movements organized into 'action schemata'. The baby simply grasps and manipulates everything he sees in his immediate environment as he begins a co-ordination between vision and prehension. He begins to respond to something in the external environment with practical and sensori-motor intelligence.

Maier (27, p.98) elaborates this way:

Activity remains the primary motive of experience. Increasingly, however, the infant also widens the scope of his activity by relating two or more sensori-motor activities into one experimental sequence, or schema. The infant will combine visible, tactile, or other differentiated experiences into a single experience. This ever unfolding intellectual process of combining occurs predominantly by using vision as the prime co-ordinator. Visible fractions of an object can

serve to trigger an action sequence. An action sequence, however, contains the potential for many intellectual accomplishments. Most roots for future cognitive understandings are acquired during this early sensori-motor phase which can be summarized as follows:

1. The child reacts to distant objects and although he still considers ends and means as one, the beginning of the differentiation between cause and effect takes place.
2. Qualitative and quantitative evaluation find their roots in these simple experiences (i.e. "more" or "less" shaking).
3. The various and distinct reactions and response patterns are ultimately unified into a single, unified action sequence.
4. This co-ordination of separate experiences into one schema leads to an awakening awareness in the infant that he, too, is a part of the sphere of action.
5. The notion of time finds a cursory introduction into the infant's mind, as he gains a dim awareness of a "before" and "after" in each action sequence.
6. The recognition of particular stimulus as a part of an entire action sequence introduces the use of symbols as a kind of shorthand to comprehension and leads eventually to communication. This early awareness of stimuli as symbols also serves as an introduction to a sense of future.
7. Variety in available patterns of action, the dawning recognition of symbols, rudimentary projecting of time, as well as increased accommodation stress the intentional aspects of the child's prospective behavior.

Each of these seven beginnings has significance for the developing infant; only the synthesis of all, however, indicates actual intellectual development.

Stage IV (8-12 months)--This stage, the secondary schemata stage, is characterized by intentional behavior. (27) The infant actually sets out to obtain a certain result. (35) In this fourth phase Piaget

(37, p.11) says, "The baby is not content merely to reproduce movements and gestures that have led to an interesting effect. He varies them intentionally in order to study the results of these variations and thus gives himself over to true explorations or to 'experiments in order to see.'

Maier (27, p.101) puts this stage into focus in this manner:

Familiar modes and sensori-motor activities are applied to new situations. Increased experimentation, facilitated by the child's greater mobility, directs his interests to an environment beyond his heretofore limited functioning. He now experiments with new ways of dealing with them. During this period the child is involved in continued and repeated experimentation. . . . Trial and error behavior is extant during this phase of development, employing previous behavioral patterns in new ways and selecting those results most useful to the achievement of desired goals.

Also in this stage, the child's complete egocentrism begins to give way to a higher form of awareness as Pulaski (41, p.19) explains, "The child's notion of object constancy or permanence (is) one of the major achievements of the sensori-motor period. An essential for later learning, this realization of the permanence of objects reduces the child's egocentrism by enabling him to differentiate between himself and external reality which exists independently of him."

Maier also explains how the child's egocentrism is lessened as he "experiments in order to see" his world of objects and things. He (27, p.102) states:

The infant's new level of intellectual organization affords him the ability to recognize signs and, the

capacity to anticipate appropriate responses to them, create in the child a sense of independence from the action in progress. The center of activity becomes removed from the child's own actions. . . . The child can experience action by observation. He lets things happen and observes the results. This is an important advancement. He observes in order to understand that which is beyond his immediate active involvement.

Stage V (12-18 months)--The discovery of new means through active experimentation refers to tertiary circular reactions and introduces the fifth stage (27). This fifth stage, according to Pulaski (41, p.20) is what Piaget refers to as "directed groping". "The child begins to experiment in order to see what will happen. No longer does he simply repeat movements in order to produce a desired result. Now he begins to vary his movements as if to observe how the results will differ."

As Maier (27, p.102) interprets this:

It almost seems as if the child were saying to himself, "Let's try it this time in a new way." This experimentation entails the application of old means of secondary circular reaction to new situations. The child incorporates into his knowledge the actions of this new experimentation and its results. Piaget locates in this cyclic repetition the roots of rational judgement and, ultimately; intellectual reasoning.

Also at this stage the child becomes more aware of the relationships between objects. Piaget sees this as the early traces of memory and retention. The child can only retain previous behavior patterns so long as they become part of a behavior sequence. Maier, (27, p.104) mentions, "The awareness of an object's relationship to other objects is essential to remembrance of the object. The failure to remember, therefore, is due to a failure to understand relationships."

The child also recognizes the existence of causes which are completely independent of his activity. He sees that other people are autonomous centers of action but that he also has the power to cause action. Maier (27, p.104) explains that this recognition to himself and others as centers of action and power, "Is essential for the (child's) evolving capacity to relate to different people. These developments are necessary to the affective behavior of competition and rivalry. . . . The capacity to imitate, to act like another person, depends upon (this) ability to discern differences between objects."

Stage VI (18-24 months)--The stage of invention of new means through mental combinations; the final stage of the Sensori-motor Period. In this stage Piaget (32, p.11) says the, "Child becomes capable of finding new means not only by external or physical groping, but also by internalizes combinations that culminate in sudden comprehension or insight. An "act of intelligence" is involved only where there is "sudden comprehension." (35)

The "invention of new means" in stage six is explained by Pulaski (41, p.22) as, "The child's physical or motor action is 'interiorized'; the child thinks about how he would do something without actually doing it, until he reaches a satisfactory solution. The child is making the transition from physical to mental operations or thought and can represent actions in a symbolic way without actually performing them."

Maier (27, p.107) adds that the child:

Not only experiences himself as one among many, he also understands himself as a single entity. . . . He can also conceive of objects without having a detailed personal experience of them. His previously acquired capacity to perceive cause is extended to a point where he can envisage himself as the potential cause or initiator of action.

This sixth stage of the Sensori-motor Phase of development marks the completion of the previous five stages. As Piaget (32, p.12) states, "It is by means of uninterrupted succession of assimilations or various levels (stage I through V) that the sensori-motor schemes lead to those new combinations and internalizations that finally make immediate comprehension possible in certain situations.

Pre-operational Period. The second period of Piaget's child development theory is called the Pre-operational Phases and consists of two stages: the Pre-conceptual Stage and the Perceptual or Intuitive Stage.

Pre-conceptual Stage (2-4 years)--At this stage the child is seen as building his conception of the world and its laws and in so doing he seems to repeat at the conceptual level many of the types of errors that he made during infancy at the sensori-motor level. Baldwin (3, p. 21) says that:

This suggests that all of us probably operate on both levels. The sensori-motor adaptations of infancy are not replaced by the later, more conceptual, and cognitive types of adaptations; in fact the sensori-motor adaptations continue to develop throughout childhood and become more adapted and skillful. But alongside of them develops a new way of dealing with problems, an intellectual-conceptual way.

A general characteristic of pre-conceptual thought is egocentrism.

The child knows his world only as he sees it. Pulaski (41, p.42) describes the pre-conceptual child as one who:

Cannot reconstruct his own reasoning, or justify his argument because he cannot think about them objectively or from another persons point of view. In fact, he assumes that all the world shares his thoughts and feelings and that therefore he need not explain them. It takes a good many years of interaction with others for him to outgrow this egocentric attitude.

Chittenden (10, p.11) recounts that when observing two children of this period they give, "The impression of talking to (oneself), without bothering about the other child. Very rarely did he succeed in placing himself at the latter's point of view." He continues to explain that the child, "believes from the start that the listener will grasp everything, will almost know beforehand all that should be known, and will interpret every subtlety."

During the life of the child in the 2-4 year old period, he appears to be in a state of investigation. Play, which serves to consolidate and to enlarge the child's previous experiences, occupies most of his time. Maier (27, p.109) describes this activity of the child as one where:

He is actually pretending that he is performing real-life tasks. . . . For the child play has all the elements of reality. . . . Symbolic play and the playful repetition of actual events bring the child in contact with the questions and objects of everyday life. In a spiral-like fashion his contacts evolve more and more into realistic experience with his social world.

Pulaski (41, p.25) adds that, "Piaget feels that the 'make-believe' play of this period is very important because through it the child is assimilating symbolically the activities, roles, and ideas, of the world around him." Pulaski (41, p.97) continues to explain the steps through which words develop through the process of play; "The development of language is also dependent upon the symbolic function of play. First comes the actual sensori-motor experience with an object or action. Then comes the make-believe reliving of that experience; and finally comes a word which represents the whole schema verbally."

The developing language actually stems from the pre-verbal, sensori-motor period of the child. Schwebel (46, p.23) views language in this way:

Piaget holds that the sources of thought are to be found not in language but in the preverbal, sensori-motor actions performed and experienced by the very young child during the first two years of life. The infant, for example, directs his activity first to manipulations and then toward his own satisfactions. Later he will search for explanations and will want to tell others. Language shows his knowledge of objects, events, and relationships rather than his reaction to these.

Language, as play, also serves as a vehicle of development as the child repeats words and connects these words with visible objects or perceived actions. Maier (27, p.110) says that, "The more a child verbally expresses desire, experience, or thought without having to act them out, the more it is indicated that he accepts speech as a conveyor. . . . Communication by verbal or nonverbal language establishes a bond

between thought and word."

Imitation of others is mostly a spontaneous process in children of these ages. Pulaski (41, p.225) defines imitation as that which, "Represents the child's attempt to adjust to the environment. It is based primarily upon accommodation of the child to that he observes around him whether he understands it or not." Pulaski (41, p.26) further explains, "The primary function of imitation (is accommodation): By imitating the speech, the behavior, the activities of adults, children learn to adjust to new situations in their world."

Maier (27, p.111) points out that:

Imitation furnishes (the child) with a wealth of new symbols for objects and also enriches his repertoire of available behavior. The process of shifting his attention from himself to others and then back to himself further helps him to refine his imitation to more closely approximate the action sequence of the model. His interests and awareness place a greater emphasis upon objects and actions in his environmental world.

The absence or severe retardation of play, language or imitative behavior leaves a child in his autistic world and less subject to the impact of his environment.

The child's view of causality--certain actions of his produce certain results--is likewise egocentric. As a result of his sensori-motor development and his experience with sequential relationships during this period, the child has developed an internal experimental schema that underlies his understanding of cause and effect relationships. Maier (27, p.112) says, "The child reasons that one event followed by

another event must have a causal relationship. The child begins to think in terms of relationships and establishes his own view of cause and effect."

Pulaski (41, p.39) explains that:

The child with his needs and purposes is still the 'raison d'etre' of the universe; everything is made for man and children according to an established and wise plan with the human being at its center.
. . . The child's assumption (is) that the world was created for him (and) he can control it.
. . . The child (exemplified) by his behavior or incantations can control the forces of nature.

The child exhibits a high egocentricity with respect to causality.

Also, in the pre-conceptual stage of life, investing a model with unusual desirability and/or power leads to identification. Piaget

(1, p.308) explains it as follows:

The child feels close to those who satisfy his needs and immediate interests. He selects them as his model. These spontaneously selected models become frequently for years the measuring stick for value judgement. In spite of unavoidable conflicts, particularly during the period of negativism around age three, the spontaneously selected model, usually the caring adult, remains the object of identification and obedience. Under ordinary conditions the young child maintains a sense of respect and awe for the superior powers of his caretakers. He places him in an omnipotent position. The child's sense of obedience and awe . . . is derived out of a combination of love and fear and provides the foundation for his conscience. Obedience to the demand becomes only then a moral obligation when the person requesting obedience is held in awe. Respect for the caretaker requires obedience to the values established by him.

Identification on the present level emerges from a combination of imitation and a sense of awe for the model. Maier (27, p.114) explains

identification as it relates to judgement:

The individual's original focus of interest in his own body has been expanded to interests in his immediately experienced environment. Episodes related to family feelings now provide him with most of his affective-laden experiences. This spontaneously developed identification becomes a guidepost for all judgement.

The child in this way builds up his affective system of values--his conscience.

This concludes the pre-conceptual stage of development. We will not look into the intuitive stage.

Intuitive Stage (4-7 years)--Piaget indicates that this phase, as well as the previous one, forms a bridge between the child's passive acceptance of the environment as it is experienced and his ability to react to it realistically. (41)

In this phase the child begins to use words in his thoughts. This phase is called Intuitive because, according to Pulaski (41, p.121), "It lacks the logical, reversible character of true conceptual thinking. Reasoning is still symbolic, based on personal egocentric feelings rather than socialized logic." And Maier (27, p.115) suggests, "Just as the child had to coordinate sensori-motor experience on an earlier level, so on this level of intuitive thought the child has to coordinate perspectives of different individuals, including himself. He must co-ordinate his own subjective and egocentric versions of the world with the real world around him."

The child's thinking at this stage is largely the verbalization

of his mental processes. Maier (27, p.115) suggests, "As the child once employed his motor apparatus to act out his thinking, he now employs speech to express his thinking, yet his thinking remains largely egocentric." At this early age of verbal thought the child also shows that he can think only of one idea at a time. He is still incapable of thinking in terms of the whole. He is preoccupied with the parts and if he attempts to think in terms of the whole, he would lose sight of the parts and their relationships which he is just beginning to grasp. (27) It is during the stage of intuitive thought that the child becomes rudimentarily aware of relationships which eventually can be made into a conceptual hierarchy. But such early understandings are still usually related to concrete events. Pulaski (41, p.122) says that, "Thought at this stage continues to be imaged and intuitive and the equilibrium between assimilation and accommodation is not yet permanent. It is this intuitive thought, semi-reversible but without rigorous compositions, that constitutes the transition from pre-concepts to concepts."

Baldwin (3, p.245) speaks of intuitive thought in this manner: "The child acquires a mode of dealing with many of the problems of integrating different view points and information from different sources. He can frequently feel his way through a problem to a correct answer but he still does not have a clear conceptual representation." Baldwin (3, p.246) continues to explain the process of intuitive thought. The child:

Takes a mental picture in all its concreteness,

then mentally manipulates it to get new information. It is as if his mental picture followed laws that governed the real object, but he could not formulate those laws conceptually and thus see the problem through in a strictly logical fashion to an answer.

According to Maier (27, p.120), Language in this stage serves a threefold purpose:

First, as an important tool of intuitive thought, it is employed to reflect upon an event and project it into the future. Self-conversation (or thinking aloud) is a common occurrence at this age. . . . Second, speech remains primarily a vehicle of egocentric communications with assimilation as its most potent adaptive process. . . . Finally, speech is a means of social communication in the accommodative sense. It serves as a means to understand the external environment and to adapt to it. Conversation is an extension of thinking aloud and projects individual thoughts into the social plane and encourages collective thinking.

Pulaski (41, p.121) adds, language, "Makes possible shared meanings and social intercourse which helps to correct the private distortions of childhood. In fact, true concepts are not possible without language and the socialization of meaning that goes with it."

"Play," says Maier (27, p.121), "Reflects much of the evolutionary intellectual development of these early childhood years." Play becomes noticeably social, while its underlying thinking processes still maintain their egocentric tone.

Maier (27, p.121) also relates:

Genuine make-believe play appears which indicates that the child has achieved a new organizational thinking; he can now think in terms of others. Most important, however, is the fact that the

child's play becomes more social. . . . Intellectual and social development from preschool age on occur in an inverse ratio to symbolic distortion and lucid play. The more accommodation to reality there is, the more opportunity there will be to adapt without recourse to play.

Pulaski (41, p.96) describes play as, "An indispensable step in the child's cognitive development. Play bridges the gap between sensori-motor experience and the emergence of representative or symbolic thought." But Pulaski (41, p. 109) continues to elaborate on play as it relates to the intuitive stage:

During the second half of the preoperational period, symbolic games begin to lose their importance. It is not that they decline so much as that they come closer and closer to reality as the child accommodates to a greater and greater extent to the world around him. Still another characteristic of play at this age is that it reproduces an increasingly precise imitation of reality. . . . Their play becomes increasingly a replica of reality, not only on the level of the setting and properties, but also on the level of what happens in their games. . . . And yet a third characteristic is that after the age of four or five symbolic play becomes increasingly social. Collective symbolism is (Piaget's) term for play in which children take different parts and act them out with an awareness of each other, (contrasting the) symbolic play of younger children which tends to be carried on alone, even when the child is in the company of others.

According to Maier (27, p.122) the young child:

. . . Tends to view moral laws as absolute values in real things. Rules, and moral obligations are seen as one. . . . Increased social contacts, gradually result in new understandings. Adult rules are observed to be elastic and no longer absolute. This puts the child in a situation of conflict, because he has no new ways of dealing with this new problem, nor can he find

a solution until he combines a higher level of thinking with an understanding of the relativity of social obligations.

The child in this stage may, in his play and speech, behave as if he had adopted the social conventions of his parents, but it does not exist on his pattern of thinking. He is still socially egocentric and he does not understand the concept of mutual responsibility and group solidarity. Also, disobedience is merely interruption of adult authority to the child rather than a violation of moral obligation. Maier (27, p.123) states, "The sense of propriety involved in avoiding unpleasant terms cannot occur until the child sees himself on a similar social plane with others and until he understands a need for mutual co-operation which will replace restrictive, unilateral adult respect."

Pulaski (41, p.84) sees morality in these terms. For the child; "Morality is in the external rules, just as the lie is in being caught. Thus the parents are the source of moral realism; and the stricter the parents, the greater the objective responsibility the child feels." Piaget calls the morality due to the external rules as a morality of constraint predominant in this period.

The Period of Concrete Operations. In this period the child becomes aware of the reversability. Pulaski (41, p.228) describes reversability as a, "Characteristic of logical operations which permit the mind to reverse its activity and go backwards in thought in order to co-ordinate previously observed phenomena with present circumstances." And Maier (27, p.125) explains the process this way, "Reversability is the capacity

of relating an event or thought to a total system of interrelated parts in order to conceive the event or thought from its beginning to its end or from its end to its beginning." This is a new level of thought for the child called operational thought which itself can be divided into two phases; concrete, and formal operational thought. The concrete forms of thought presupposes that mental experimentation still depends upon perception, i.e. he cannot perform mental operations unless he can concretely perceive their inner logicity. (27) It is at this stage that the child can explore several possible points of view simultaneously and each time return to the original state. This ability indicates major organizational gains by the child.

The child studies the parts of a whole, classifying them in relation to each other in order to understand their whole. This understanding grows from his experiences with his physical and social environments plus the abstractions he learns to make from concrete experiences with objects. Maier (27, p.126) says, "He is pondering relationships as if he were to set up equations. His thinking focuses upon both ends of the equation. He is now attempting to solve both sides of the equation; that is, he wants to know which means can accomplish which ends?"

At this time the child becomes preoccupied with establishing for himself systems of classifications. Maier (27, p.126) explains, "The child will tend to see to it that he can conceptualize and classify each object as part of a total larger system. He will organize his parts into a larger whole by the hierarchical systems either of nesting

or lattices."

Nesting refers to a classifying of an internal relationship between smaller parts and their all-inclusive whole. Nesting specifics that all classes are additive. Each larger whole sums up all previous parts. Children add together their world into a fitting whole through nesting (27).

Lattices refers to a special form of classification in which the focus is upon the connective link and the parts which are linked together. Classifying by lattices places stress upon creating subclasses of related objects. Maier (27, p.127) suggests that the, "Lattices establish the "whole"--the interconnected orderly world.

Having two systems in which to organize his world the child can now envisage any object in relation to one or several wholes which become part of a still larger unity or system. His life now proceeds in an ordered world.

Maier (27, p.129) states, "Mental capacities for concrete operations evolve one by one, and proceed from the very simple to the ordinary and eventually to the more removed experience." The child evaluates size first in terms of length, a year or more later in terms of weight and still later in terms of volume. Similarly, concepts related to objects precede the learning of concepts related to space, causality, and time. Piaget (33, p.15) explains that, "Mental operations develop separately field by field, without complete generality being attained." But, as Maier (27, p.129) says, "As the child becomes more accustomed to opera-

tional thinking, he can conceive two hypothesis and understand their relationships without being able to communicate this understanding by words or actions. Again, knowing precede a capacity to verbalize and to apply this knowledge."

This is also found in language. Maier (27, p.130) says:

On the current level of mental organization, language continues to be a tool of communication while it also serves as a vehicle for the thinking process. Curiously, verbal impressions which are communicated correlate with the individual's conscious conceptual judgement of his action. Both conscious communication and conscious conceptual judgements lag a year or more behind the time when the individual actually manifested such behavior without full awareness of its significance and the necessary symbols for explaining this new understanding. Again, thoughts and words follow the potential action and action phase.

The child can now anchor his experience in a rational and communicable system. He can use an actual measuring stick rather than the egocentric self-reference. The child still uses animism in most objective interpretations. He still conceives natural phenomena to be made by man for man. In other words, explains Maier (27, p.131), "A child's immediate explanation for his environment does not coincide with his own reasoning and ultimate conviction. Only later in this phase do physical and natural explanations contribute to more realistic understanding."

The widening awareness of physical factors by the child always precedes an awareness of social factors. Maier (27, p.132) suggests:

The child has first to experience his new perspective of physical phenomena before he can

extend this pattern, or schema, to his social sphere. To illustrate, awareness of the left and right sides as objective reference points in space must precede a recognition of two points of view as different reference points in social relationships.

Here the child becomes emancipated from parental dominance and he participates as an equal in his social world. He attempts to understand various patterns of social behavior, and play, and conversation becomes the vehicle for understanding the physical and social worlds of others which in turn brings about a new level of social behavior. The child is beginning to understand others in terms of their social position. Piaget (1, p.162) stresses it is, "Indispensable that there should be established between them (the children) and oneself (the adult) those simultaneous relationships of differentiation and reciprocity which characterize the coordination of view points."

The Period of Formal Operations. Piaget (35, p.149) describes the child of this period (11 years to adulthood) as, "An individual who thinks beyond the present and forms theories about everything, delighting especially in considerations of that which is not." He enters into the world of ideas and into essences apart from the real world. Cognition begins to rely on pure symbolism and the use of propositions. Maier (27, p.135) explains the child and his propositions in this way, "Propositions become important for him as a form of reasoning in which relationships are hypothesized as causal and are analyzed for the effects they bring."

The child takes a systematic approach to problems and it is here

that he begins to comprehend geometric relationships and questions dealing with proportions. Maier (27, p.136) expands these mathematical understandings:

They deal with relativity, balance, and equality between concepts, actions and reactions. The objective cognition of proportions opens the way to understanding relativity in ordinary situations. Just as increased objectivity and socialization previously changed the focus from egocentricity to mutual social reciprocity, so do acute objectivity and the awareness of relative relationships bring about a new level of organization and a new approach to the physical and social environment.

With respect to systematic ordering in this phase Piaget (33, p.19) expands as follows:

. . . To formulate all possible hypotheses concerning the operative factors (of the phenomenon under consideration), and then arrange these experiments as a function of these factors.

The consequences of this new attitude are as follows. In the first place thought no longer proceeds from the actual to the theoretical, but starts from theory so as to establish or verify actual relationships between things. Instead of just coordinating facts about the actual world, hypothetical-deductive reasoning draws out the implications of possible statements and thus gives rise to unique synthesis of the possible and necessary.

The youth is now concerned with establishing hypotheses which gives the youth a new tool to understand his physical world and his social relationships within it. He can reason by implication which permits the youth to introduce simple, logical assumptions by taking a third position without resorting to verification by means other than logic

Piaget (31, p.103) even goes as far as to state that, "Reality becomes secondary to possibility."

In adolescence the youth, according to Maier (27, p.138) thinks beyond the present. "He forms notions, ideas, and eventually concepts about everything from the past, through the present, and into the future. . . . The youth reflects maturity in cognitive thought when he can depend solely upon symbolism for operational thought."

Language continues to develop more fully, and encourages cognitive thought and behavior, according to Piaget (35, p.159) as follows; "Language conveys to each an already prepared system of ideas, classification, relationships, an inexhaustible stock of concepts which are reconstructed in each individual after the age-old patterns which previously molded earlier generations."

The youth now finds his place along with other living organisms in an ever evolving world. He finds that life is restricted to man, animals, and plants and senses an inadequacy and awe in the presence of an all-powerful nature (27).

The youth has a major interest in weighing, classifying and re-evaluating different social points of view. He manipulates these ideas but does not seriously commit himself to anyone. The youth, according to Maier (27, p.139):

Can dream, in popular language, about all potential implications without establishing what is practical and socially real, at least for the present. First, he visualized the permanency of relationships between ideas, and, finally, each group of ideas was organized

in relation to others for classification, comparison and final integration into one meaningful system.

Adolescence, with its acquisition of new values, comes into eventual balance--equilibrium--near the end of this period. This equilibrium according to Piaget (29, p.284) can be explained by four developmental accomplishments:

1. The social world becomes an organic unit which has its laws and regulations and its divisions of roles and social functions.
2. Egocentricity has been "dissolved" by a sense of "moral solidarity" which is consciously cultivated.
3. Personality development from now on depends upon an exchange of ideas by social inter-communication in place of simple mutual imitation.
4. A sense of equality superceded submission to adult authority.

Maier (27, p.141) closes this phase and Piaget's theory of child development with the following summation:

It must be repeated that (this) chartered course describes potential development. The actual rate and degree of completion of each phase varies with each individual. Very likely an individual will achieve completion (maturity) in one area while reflecting incomplete development in others. Therefore, it is not surprising that egocentric thought and mature intelligence concerning physical perspectives can exist side by side. Such divergence is apt to appear in many areas. Also, developmental phenomena may continue beyond their usual approximate age levels.

Thus, in theory, the individual has reached intellectual maturity.

OPEN EDUCATION--WHAT IS IT?

In surveying the literature it was found that no definition of Open Education was explicitly stated. In fact many other terms were found to be used, at least in part, to mean the same as Open Education. In an article by Ellison (19, p.9-10) on Open Education she finds:

. . . the term "open education" brings to mind many kinds of concurrent and related developments on the educational front. Free schools, new schools, alternative schools, open space schools, open campus schools, integrated day, informal education, and open classroom. None of these terms tell us much about the changing goals which have mandated the changes in method (of teaching). For example, open education is a description of strategies for goal attainment, rather than the goals themselves.

Rathbone (42, p.99-100) refers to a lack of an Open Education definition when he says, ". . . for these teachers pledge no allegiance to any codified statements of principle. Indeed, individual differences abound, and--thank goodness--there is no open education "club" . . . open education does not operate from theory in any formal sense."

In an analytical study by Crittenden and Bussis (12, p.10) they say, "For one thing, no single set of Administrative rules can be considered to define the British Infant School approach (open education). They continue by stating, "That there is no single expert or authority on it (open education). . . There is no single document to which one can turn to discover what open education "really is."

Because of the effort by these sources presented in this paper to not create a definition of Open Education as it "really is," this writer will present many view points on Open Education and draw his conclusions from them.

Ellison describes the changes in method and the descriptions of strategies for goal attainment in Open Education in terms of "education as art." Ellison (19, p.9) says:

"(The Open Education) movement is the upsurge of interest in and programs addressed to humanistic or affective education, or to education as art.

Art by its very nature, resides primarily in the affective domain. Thus, we have color, line, form, thymh, movement, and tone as speaking components of all the arts. The most recent trend-toward education as art-is in the direction of arranging all the components in the child's schooling so that he is not only intellectually involved, but has very personal, positive feelings about that involvement. If we view education as art, we use the intellectual language of the various disciplines to bring about a productive and harmonious interaction of human beings in the learning and living endeavor we call school. One significant aspect of this movement is called Open Education.

Equating humanistic or affective education with "education as art"

Ellison (19, p.10-11) presents her goals for an open education:

1. The child (will) think of himself as a worthwhile individual who can contribute meaningfully to his fellows.
2. Help each child become as self-directed, willing, and ultimately an independent learner.
3. Be alert to each child's readiness for structured learning in the various subject areas, and to help him move--at his movement of readiness--from exploratory behavior into a willing encounter with learning skills, concepts, and information integral to the subject.
4. Replace extrinsic motivations for learning with intrinsic motivation.

Rogers (44, p.105) sees, "The facilitation of learning as the aim of education." To Rogers (44, p.105) the process of facilitation means:

To free curiosity; to permit individuals to go charging off in new directions dictated by their own interests; to unleash the sense of inquiry; to open everything to questioning and exploration; to recognize that everything is in process of change. . . . Out of such a context arise true students, real learners, creative scientists and scholars and practitioners, the kind of individuals who can live in a delicate but everchanging balance between what is presently known and the flowing, moving, altering, problems and facts of the future.

Process, as defined in Webster's Dictionary, is described as, "The course of being done; course; a continuing development involving many changes."

Using the process and the facilitation, Rogers (44, p.104) presents his goal of education:

The goal of education is the facilitation of change and learning. The only man who is educated is the man who has learned how to learn; the man who has learned how to adapt and change; the man who has realized that no knowledge is secure: that only the process of seeking knowledge gives a basis for security. Changingness, a reliance on process rather than upon static knowledge, is the only thing that makes any sense as a goal for education in the modern world.

In this definition Rogers uses both the terms "free" and "open," both terms having an impact on the conceptualization of Open Education. In a study by Sherman (48, p.31 and 125) she describes what open education means to her by expounding on words like openness, uniqueness, freedom, and wholeness.

. . . Openness stands for ongoingness and opportune moments for growth. This is the alive and dynamic world of movement and flow, a world turned into the internal, subjective, immediate, and felt. Meaning is personal and comes out of the present experiencing and conceptualizing. The future is constantly in the process of becoming; changingness is ever present. Continuity lies in awareness of consistency in direction, manner of unfolding, or in growing appreciation, deepening understandings, and strengthening of self.

. . . Uniqueness, expansion of human limits from within, and coping power are basic concerns. Adults are models of individuality, creative adaptability, and self-transcendence who relate to and grow along with the young. Together they test and push onward the boundaries of sensing, feeling, thinking, doing, and expressing. Joint endeavors broaden the power and internal control that is felt within each person.

. . . Freedom is foremost--to move and explore, to be as one is, to think, fancy, feel, respond, or select from the environment whatever is of personal import at any given moment.

. . . Wholeness--the total person--is given priority. Emotive, artistic, or bodily responses supplement or supplant verbal interaction. Translation from one mode of communicating to another is the usual approach to extending insights and appreciations. Solitude and time for reflection and internal integration is common, as is opportunity to create. Comprehension and retention emerge naturally from each individual's conceptualizations, constructions, or artistic products. Concern is evidenced for the tacit and not fully defined, the vague unrest that precedes problems definition, and the hunches and curiosities that move individuals to seek, search, and complete. There is not an absence of structure in this system; individuals continuously structure for themselves. Assuming responsibility for self is given; to act or not to act is a right. Voluntary and timely growth, not compulsory treatment, is the basis of action.

With the operants of "openness," "uniqueness," "freedom," and "wholeness" being experienced and used by all individuals involved,

Sherman (48, p.40) lists the personal relevance this education would open to them:

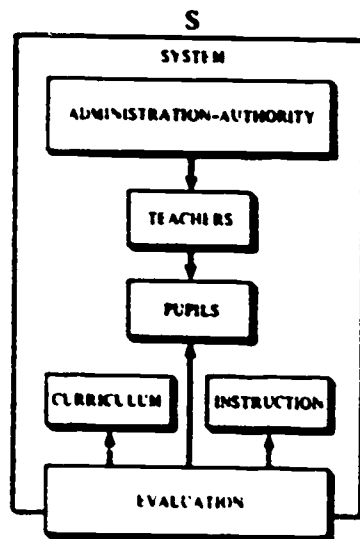
1. Evoked personal felt meanings and awareness.
2. Stimulated unique personal perceptions and expressions.
3. Were intrinsically satisfying or joyful.
4. Stimulated curiosity or creativity.
5. Challenged or created cognitive-affective-attitudinal dissonance.
6. Inspired or expanded horizons.
7. Created new images and intentions.
8. Provided natural, spontaneous action or responsibility.
9. Unified, integrated, or strengthened self.
10. Freed, involved or activated total response.
11. Contributed synergically to both individuals and immediate group.
12. Blended subjective and objective realities.
13. Reflected larger societal conflicts in immediate group problems.

Here there is concern for personal relevance--with a process of meaningful provocative transacting with the environment and the linking of objective and subjective worlds. Growth is idiosyncatic, occurs within the individual, and is influenced by a social reality. Since there is no guarantee of cultural fit, socialization risks exist.

Sherman (48, p.45) using Figure 2, shows the interplay of various process variables she has defined within the context of an Open Education setting. She also delineated these process variables in the following statements:

Classroom is a dynamic social system and a microlab of larger milieu.

Focus is upon transactions that occur within the environment and in relation to these events which impinge from outside of it.



Classroom is place where planned instructional events occur.

Focus is primarily upon what is done to and for prospective learners, i.e., method, materials, grouping arrangements, teacher-pupil ratio, physical resources and facilities.

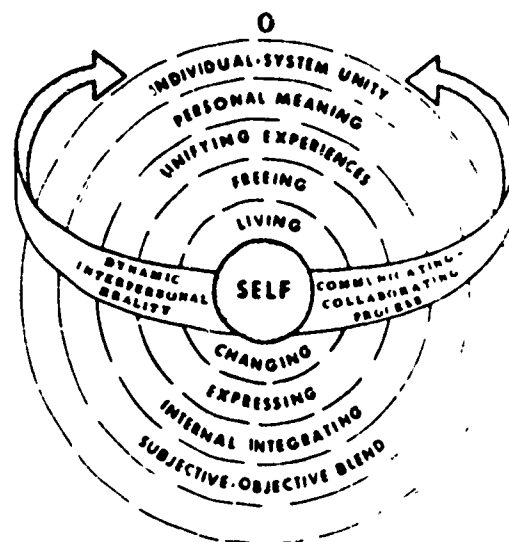
Attention is primarily given to verbal interactions associated with instructional approach, e.g., direct vs indirect, climate in which instruction takes place.

Individual differences receive attention primarily in relation to response of different groups to different methods or approaches.

Educator effectiveness is in terms of success achieved in raising IQ points, teaching basic skills and knowledge, etc., carrying out the role.

Assessment is primarily of pupil growth in academic achievement domain, separate to teacher culture.

Little direct focus upon VST as a whole or alternative models.



Classroom is a dynamic social system and a microcosm of larger milieu.

Focus is upon transactions that occur within the environment and in relation to those events which impinge from outside of it.

Feedback is continuous and comes from and impacts upon all participants.

Qualities and characteristics of participants are vital ingredients.

Main focus is upon interpersonal communication especially nonverbal cues related to expectations and self-fulfilling prophecies. Search is directed to subtle variables traditionally not considered part of the field.

Human and physical resources are seen as stimulants for transacting and are examined for potential influence upon learner selectivity and their reinforcing and regulating effects.

Critical questions involve pupil self-fulfilling growth without distorting or degrading teacher's detailing.

Connections between internal and external processes are important concerns.

FIGURE 1 ALTERNATIVE CONCEPTIONS OF PROCESS VARIABLES

Fig. 2

Feedback is continuous and exists from and impinges upon all participants.

Qualities and characteristics of participants are vital ingredients.

Main focus is upon interpersonal communication, especially nonverbal clues related to expectancies and self-fulfilling prophecies; search is directed to subtle variables traditionally not considered part of the field.

Human and physical resources are seen as stimulants for transacting and are examined for potential influence upon learner selectivity and their release and regulating effects.

Critical questions involve optimal stimulation for growth without disrupting security to point of debilitation.

Connections between internal and external realities are important concerns.

Appendix "A" is a representation of the process of growth within an individual and how the individual processes these internal and external variables with his unique process of growth. In partial explanation of this representation, Sherman (48, p.25-29) relates the following concerning an open form of education:

Its form is spherical, overlapping and unified--expanding and returning--and permeable. Since it represents a process and social system which continuously expand and feeds back on itself, there are nor rigid organizational structures, as in the traditional conception.

It offers the potential of strengthening inner resources and motivation, expanding human functioning into dimensions currently ignored, increasing the meaning and richness people find in their lives, meeting their interpersonal needs, and developing coping power and adaptability. All of these

will be vitally important in the future.

Chittenden and Bussis in a study on Open Education have attempted to show the relatedness of both the teacher and the student in the open classroom. In this study (11, p.3) they present a graph (Appendix B) in an effort to show how open education differs from other approaches as well as to clarify the Open Education position. Along with this graph, Chittenden and Bussis (11, p.1,2) state:

(Open Education) was simultaneously child-centered and adult-centered. A major assumption of an open philosophy is that the organization of experience and growth of knowledge can best take place when the child himself is located very much at the center of the learning process and acquires responsibility for learning. On the other hand this does not imply that the teacher assumes a role that is merely understanding and supportive. While teachers certainly should strive to understand and support children, they are also perceived as active thinking adults whose job it is to extend and integrate children's learning in all spheres. . . . to illustrate this scheme a bit more, in the upper-right-hand quadrant (with high contribution by both teacher and child) would be classrooms that have developed considerably along the lines advocated by an open philosophy.

Nyquist (29, p.9) explains his conceptions of Open Education as follows:

School must be a place to prepare young people to take their place in society--not a place where they are isolated from the main currents of life. This can be done by making education at every age level person-centered, idea-centered, experience-centered, problem-oriented and interdisciplinary, with the community and its other institutions a part of the process. . . . Respect

Name _____

WOODWORKING LABORATORY
LEARNERS-SELF-EVALUATION

Date _____
Lab Section _____

STATEMENT - "A"

STATEMENT - "B"

CHECK HOW WELL YOU FEEL YOU SATISFY THE FOLLOWING STATEMENTS ABOUT YOURSELF:

	* Excellent	† Below Average			
	@ Above Average	& Needs Improvement	*	@	#
# Average			†		&
1. I design and create my own projects.					
2. I make a clear sketch or drawing of all my projects.					
3. I use the library to get ideas for making woodworking projects.					
4. I accomplish each day a satisfactory amount of progress in my work.					
5. I use the Resource Center to complete my Independent Study Investigations.					
6. I solve my project problems with the tools & materials in the wood lab on my own.					
7. I exhibit an interest in working in the wood lab.					
8. I care for my materials, tools & machines.					
9. I assist my classmates when I can be of help to them.					
10. I use my time efficiently and effectively in the Woodworking lab.					
11. I have improved my skills in using the tools and machines in the lab.					
12. I accomplish the task I set out to complete each day.					
13. I exhibit a behavior conducive to general safety in the lab.					
14. I am using the many machines and materials in the wood lab.					
15. I ask the facilitator for assistance only after I have attempted to solve the problem myself.					
16. I am attending woodworking class regularly.					

LIST YOUR PROJECTS.

INSERT THE LETTERS "B" OR "G" IF YOU FEEL THE NEED TO IMPROVE IN ANY OF THE FOLLOWING:

- B I Need to Improve
 - G I Need to Improve Considerably
 - A. I need to be more creative in designing my projects.
 - B. I need to improve my class behavior.
 - C. I need to accomplish more on my own.
 - D. I need to exhibit more effort.
 - E. I need to solve project problems in the lab more on my own.
 - F. I need to work with others more easily.
 - G. I need to accept help from others more easily
 - H. I need to use my time more constructively.
 - I. I need to organize myself so I can work efficiently and effectively.
 - J. I need to accomplish more during class and lab time.
 - K. I need to use the Resource Center & Library facilities to a greater extent.
 - L. I need to ask the facilitator for assistance in solving my project problems.
 - M. I need to improve my attendance in the wood-working laboratory
- STUDENTS PLEASE COMMENT HERE.
- (Facilitator-Lab Facilities-Course Work).

Donald, James J. Student-Self-Evaluation: An Open Approach, 1974

FIG 4

L. C. OBOURN HIGH SCHOOL
200 WOODBINE AVE.
EAST ROCHESTER, NEW YORK 14445

Dear Parents,

The form on the previous page is used first, by the student, and second, by the teacher to evaluate his/her particular progress in our Industrial Arts Laboratory.

At various times during the year - about twice a semester - each student is asked to evaluate himself and his work by checking the appropriate box next to his statement about himself. After the student evaluates himself, the teacher takes the same form and checks where he may simply disagree with the student's evaluation. A copy is then sent to his parents and a second copy is placed in his laboratory folder.

The general purpose of this evaluation form is to give the student a real chance to evaluate himself: first, as an individual: second, as an active person in a social context: third, as a person who has the many abilities to design a product from an idea--his own--and to produce that product: and fourth, as a person who demonstrates an active ability to think.

Also, it is hoped that parents will have a much clearer idea of how their son or daughter is doing in the woodworking laboratory.

Your comments on this evaluation technique, or your son's or daughter's evaluation, are most welcome.

Thank you,

James J. Donald
Industrial Arts Facilitator

for and trust in the child are perhaps the most basic principles. It is assumed that all children are motivated to learn and will learn if the emphasis is on learning--on thinking--and on freedom and responsibility.

Open Education is based on the concept of childhood as something to be cherished--a vital part of life itself to be lived richly each day. In an open classroom children learn more effectively because the environment is free, supportive, and non-threatening.

Open Education recognized that children are different, that they learn in different ways, at different times, and from each other.

Beardsley (6, p.7) explains her conceptions of the Open Education environment by concerning herself with the materials, the structure, the teacher, the student, and the characteristics of such an environment, all of which evolve within the context of the active child and the active teacher relationship (Appendix C).

Hawkins (42, p.83) in an article entitled, "I-Thou-It" shows the connection between the teacher, the student, and the environment and how these three elements are needed, in turn, to effect a personal relationship between one another. He used the symbol in Fig. 3 to show their relationship to one another.

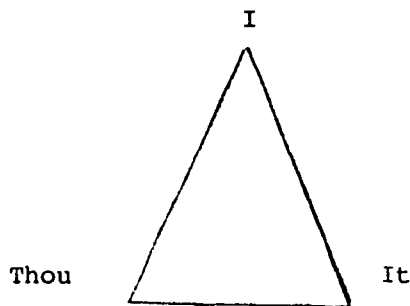


Fig. 3

The following are excerpts from Hawkins (42, p.83-98) writing:

A human being is a localized physical body, but he cannot be seen as person unless he is seen in his working relationships with the world around him.

A person can't be dissociated from the world in which he lives and functions and he can somehow be measured by the degree of his involvement in that world. The soul is not contained within the body but outside, in the theatre of its commitments.

No child, I wish to say, can gain competence and knowledge, or know himself as competent and as a knower save through communication with others involved with him in his enterprises. Without a "Thou," no "I" can evolve. Without an "it" there is no content for the context, no figure and no heat, but only an array of mirrors confronting each other.

From this point the writer will further describe Open Education using Hawkins I-Thou-It conception.

THE TEACHER--THE I

Continuing with Hawkins (42, p.87-88) description of the teacher he relates:

The adult's function in a child's learning is to provide a kind of external loop, to provide a selective feedback from the child's own choice and action. The child's involvement elicits some response from an adult, and this in turn is made available to the child. The child's learning about himself through his joint effects on the non-human and the human world around him. . . . the child should learn how to internalize the function the adult has been providing. So, in a sense, one becomes educated when one becomes his

own teacher. If being educated means no longer needing a teacher--a definition I would recommend--it would mean that an individual had been presented with models of teaching, or people playing this external role, and that he learned how the role was played and how to play it for himself. At that point he would be his own teacher.

Hawkins says that when the child leaves the formal, institutional part of education, the product would be the child's continuing ability to educate himself. But, as Hawkins (42, p.90) continues, he relates that this is not the single element with which the child enters the world.

The importance of the "I-Thou" relationship between the teacher and the child is that the child learns something about the adult, which can be described with words like "confidence," "trust," and "respect." The teacher has done something for the child he could not do for himself, and the child knows it. . . . (The teacher) has provided that external loop, that external feedback, that the child could not provide for himself. He then values the one who provides the thing provided.

Wlodarczyk (50, p.1) in a paper on Open Education teacher beliefs, states what he sees the teacher must learn to value to be effective in an Open Education setting:

- a. The life of a child in school is not a preparation for the future; to live like a child is the best preparation.
- b. Knowledge is a personal synthesis of one's own experiences and learning proceeds along many intersecting paths.
- c. There is no set body of knowledge that must be transmitted to all.

Wlodarczyk (50, p.2) also encourages, "teachers in open classrooms . . . to develop a style of teaching which is idiosyncratic, a style which is particular to their classrooms and their inhabitants. With this

idiosyncratic framework, the task of open teachers is to match their behavior with their beliefs about children and learning."

The specific components of an Open Education belief system for teachers, as seen by Wlodarczyk (50, p.3) is given in chart form (Appendix D). This chart also suggests how Open Education beliefs differ from other forms of education.

Resnick (43, p.1) in a paper on teacher behavior in Informal British Infant Schools, found the following as typical patterns of teacher behavior:

1. Extended substantive discussions with one or a group of children are interdispersed with very brief exchanges, usually child-initiated and often concerned with organization or management questions with individual children.
2. Extended interactions which are dominated by questioning of the child with respect to substantive (academic) personal, and self-management aspects of the task on which he is working.
3. Brief interactions which are heavily child-initiated and play a classroom management as well as an instructional function.

Sherman (48, p.44) describes an effective teacher in the Open Education environment as one who, "Would be a desirable model for identification, who communicates authentically with others and maximizes student involvement, expressiveness, complex open-ended thought processes, and self motivated change. These cannot be assessed by student performance on academic or achievement tests."

Sherman (48, p.50) adds that, "Since self evaluation is a basic ingredient in the model he would likely include youngsters' self-reporting."

One such form of student self-reporting has been designed and created by the writer and is included here as part of this paper (Figure 4). The accompanying letter is also an integral part of this self-reporting form (Figure 5).

Rogers (9, p.103) defines teaching in these terms, "To instruct --to impart knowledge or skill--to make to know--to show, guide, direct." He then states that teaching is a "relatively unimportant and vastly overvalued activity." He expresses his desire to not be a teacher but be a learner. Rogers (44, p.152-154) makes this transition from teacher to learner in the following dialogue to himself:

- a. My experience has been that I cannot teach another person how to teach.
- b. It seems to me that anything that can be taught to another is relatively inconsequential and has little or no significant influence on behavior.
- c. I realize increasingly that I am only interested in learnings which significantly influence behavior.
- d. I have come to feel that the only learning which significantly influences behavior is self-discovered, self-appropriated learning.
- e. Such self-discovered learning, truth that has been personally appropriated and assimilated in experience, cannot be directly communicated to another.
- f. I realize that I have lost interest in being a teacher.
- g. Hence I have come to feel that the outcomes of teaching are either unimportant or hurtful.
- h. I realize that I am only interested in being a learner, preferably learning things that matter, that have some significant influence on my own behavior.

- j. I find it very rewarding to learn.
- k. I find that one of the best, but most difficult ways for me to learn, is to drop my own defensiveness, at least temporarily, and to try to understand the way in which his experience seems and feels to the other person.
- l. I find that another way of learning for me is to state my own uncertainties, to try to clarify my puzzlements, and thus get closer to the meaning that my experience actually seems to have.
- m. It seems to mean letting my experiences carry me on, in a direction which appears to be forward, toward goals that I can but dimly define, as I try to understand at least the current meaning of that experience.

Rogers (44, p.154-155) at the conclusion of this dialogue with himself, expresses the following consequences:

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

In another writing, Rogers (44, p.195) refers to his teacher-turned-learner by calling him a facilitator of learning. He expresses what basic qualities this facilitator of learning has:

(The facilitation of) learning rests not upon the teaching skills of the leader, not upon his scholarly knowledge of the field, not upon his curricular planning, not upon his use of audiovisual aids, not upon the programmed learning he utilizes, not upon his lectures

and presentations, not upon his abundance of books (but) learning rests upon certain attitudinal qualities which exist in the personal relationships between the facilitator and the learner.

Rogers (44, p.106-111) elaborates on the relationship of the facilitator and the learner by more fully explaining the qualities of the facilitator:

- A. Realness in the facilitator of learning--
Perhaps the most basic of these essential attitudes is realness or genuineness. When the facilitator is a real person, being what he is, entering into a relationship with the learner without presenting a front or a facade, he is much more likely to be effective. This means that the feelings which he is experiencing are available to him, available to his awareness, that he is able to communicate them if appropriate. It means that he comes into direct personal encounter with the learner, meeting him on a person to person basis. It means he is being himself, not denying himself.

- B. Prizing, Acceptance, Trust--
I think of (facilitating learning) as prizing the learner, prizing his feelings, his options, his person. It is a caring for the learner, but a nonpossessive caring. It is an acceptance of this other individual as a separate person, having worth in his own right. It is a basic trust--a belief that this other person is somehow fundamentally trustworthy. . . .

What we are describing is a prizing of the learner as an imperfect human being with many feelings, many potentialities. The facilitator's prizing or acceptance of the learner is an operational expression of his essential confidence and trust in the capacity of the human organism.

- C. Empathic Understanding--
When the teacher has the ability to understand the student's reaction from the inside, has a sensitive awareness of the way the process of education and learning seems to the student, then again the

likelihood of significant learning is increased.
. . . This attitude of standing in the others'
shoes, of viewing the world through the student's
eyes, is almost unheard of in the classroom. . . .
But it has a tremendously releasing effect when it
comes.

According to Rogers (44, p.165-166), to be an effective facilitator of learning one would not only have to have the qualities of a facilitator but would have to do and respond in various ways with the learner. He presents these guidelines for the facilitator thusly:

1. The facilitator has much to do with setting the initial mood or climate of the group or class experience.
2. The facilitator helps to elicit and clarify the purposes of the individuals in the class as well as the more general purposes of the group.
3. He relies upon the desire of each student to implement those purposes which have meaning for him, as the motivational force behind significant learning.
4. He endeavors to organize and make easily available the widest possible range of resources for learning.
5. He regards himself as a flexible resource to be utilized by the group.
6. In responding to expressions in the classroom group, he accepts both the intellectual content and the emotionalized attitudes, endeavoring to give each aspect the approximate degree of emphasis which it has for the individual or group.
7. As the acceptant classroom climate becomes established, the facilitator is able increasingly to become a participant learner, a member of the group, expressing his views as those of one individual only.
8. He takes the initiative in sharing himself with the group--his feelings as well as his thoughts--in ways which do not demand nor impose but represent simply a personal sharing which students may take or leave.
9. Throughout the classroom experience, he remains alert to the expressions indicative of deep or strong feelings.
10. In his functioning as a facilitator of learning, the leader endeavors to recognize and accept his own limitations.

Sherman (48, p.33-34) offers the representation below (Figure 6) to demonstrate the differences between an open and a structured teacher.

	<u>Cognitive Style</u>		
A	Closed--structured -----	Open-flexible	A
L			L
T			T
E			E
R	<u>Emotional Awareness</u>		R
N	<u>and Sensitivity</u>		N
A	Unaware--out of touch	Aware--in touch with	A
T	with self and others ----	self and others	T
I			I
V			V
E			E
	<u>Trust in self</u>		
S	Limited self-trust -----	Self-trust with O	
	and insecure	sense of com-	
		petence	

Fig. 6

In explanation of Figure 6 Sherman (48, p.33-35) comments as follows:

Alternative "O" calls for an open, flexible and highly sensitive person--permeable to changing situational contexts and human motivation--who has maximum faith in the potential of others to be self-directive, someone who can allow and trust the young to choose and cope, both individually and as a group, within a fluid, dynamic world.

They are open to unfamiliar data and novel stimuli and possess cognitive flexibility--are able to adjust attitudinal sets in the face of changing problems. They are tolerant of uncertainty and ambiguity and are able to withhold judgment, which tends to be little influenced by emotionality. They would be less susceptible to influence by what is obtrusive and more sensitive to subtle cues. Such characteristics facilitate problem penetration and definition. . . . They likely could share frames of reference with others and would tend to confront (not turn away from) the unknown, unpredictable, and previously unencountered.

Confidence and belief in another's potential is necessary to the giving of responsibility. The ability to trust others--to give them freedom to initiate and act--rests upon trust in self. An educator who really knows and appreciates in his own life what it means to be self-directive--to choose his own way--realizes what it can mean to others. Belief in human potential--and ability to communicate this confidence--may be one of the most critical variables in the educative process. In the offering and accepting of responsibility there is a transmission of trust, which surely enhances an individual's feeling of self-worth. Belief in human potential and self-esteem, then, become partners in sparking the hope and anticipation so basic to human motivation.

Emotional awareness and sensitivity is essential for open teachers. When individuals are in touch with and accept their own internal states they tend to feel more secure, so this, too, likely interacts with trust and becomes a precursor to opportunities youngsters have to assume responsibility for themselves. (Open) educators are low on a punitiveness cluster.

Also, Sherman (44, p.119-125) lists the "Guiding Principles and Practices" which would be found in the open setting and divides this presentation into nine areas; Self, living, Freeing-expressing, Unifying-integrating experiences, Personal meaning, Changing, Individuals, Inter-personal reality, and Collaborating communication (Appendix E).

Kosower (26, p.4-5) in a study on Open Education produced the "Observation Guide for the Open Classroom," (Appendix F). In this guide she lists "teacher behaviors" to be observed when evaluating the teacher in the open setting.

Walberg (49, p.100-109) describes the characteristics of Open Education in a study using eight themes and delineating ninety character-

istics of Open Education within these themes (Appendix G). The themes of "Instruction," "Guidance and Extension of Learning," "Diagnosis of Learning Events," "Seeking Opportunity to Promote Growth," and "Self-Perception of the Teacher" are descriptive characteristics of the teacher within open education.

Viewpoints on the child within Open Education will not be presented.

THE LEARNER--THE THOU

Again referring to Hawkins (42, p.95) I--Thou--It relationship, he makes the following observations about children learning:

It seems to me that for some children and not for others, this capacity for fitting things together into a coherent whole or pattern comes first mostly in terms of their relations with the human world, while for other children it comes first mostly in their relations with the inanimate world.

The capacity for synthesis, for building a stable framework within which many episodes of experience can be put together coherently, comes with the transition from autistic behavior to exploratory behavior.

(Autistic behavior) is guided by a schedule that is surely inborn and is connected with satisfaction of definite infant needs. (Exploratory behavior) is not purposive in the same way, not aimed at a predetermined end-state (innate satisfaction). Exploratory behavior satisfaction, its reinforcement as a way of functioning comes along the way and not at the end, in competence acquired, not in satisfaction. . . . exploratory behavior is not bound and limited by a schedule of needs--needs that must, to begin with, have the highest priority.

A child's development will be limited and distorted if it does not, by turns, explore both the personal and the nonpersonal aspects of his environment--explore them, not exploit them, for a known end.

. . . There's been a systematic tendency to devalue children's thing-oriented interests as against their person-oriented interests. . . . I think the interest in things is a perfectly real, perfectly independent and autonomous interest that exists in young children just as genuinely as the interest in persons is there. . . . Some children are only able to develop humanly by first coming to grips in an exploratory and involved way with the inanimate world.

Featherstone is credited with bringing to the attention of educators in the United States the open or informal education practices in Britain. In the first of numerous articles in the New Republic (20, p.21) starting in August 19, 1967, he makes the statement, "Children can learn a great deal by themselves and that most often their own choices reflect their needs."

In a succeeding article, Featherstone, (21, p.18-21) makes the following observations on children's learning:

According to Piaget, each of us needs to forge, through direct experience a mental scheme of the world, with a hierarchy of meanings; a learner has to organize material and his own behavior, adapting and being adapted in the process.

He learns by his own activity.

. . . children learn to think in stages, and that in the early stages they learn mainly from the testimony of their senses, and not so much through words. At first, small children think intuitively and even magically; at another stage, they can deal practically with concrete experiences, and still later they proceed to a point where they can think abstractly and make use of mathematical abstractions.

Children learn best from their own activity, and they

need time to grow.

Children will proceed, each at a different pace, doing different things. The idea of readiness is seldom used as a justification for holding a child back--a sure sign that Piaget's influence has been creative, rather than restrictive since his theories could be used that way.

By giving children an opportunity to explore and experiment--play if you will--and by putting teachers in a position where they can watch children and talk to them about what puzzles or intrigues them, good British schools are producing classes where mathematics is a pleasure, and where each year, there are fewer and fewer mathematical illiterates.

In the fall of 1966 the Central Advisory Council for Education (England) submitted to the government a comprehensive study of children and their primary schools. This report is popularly known as the Plowden (9, p.193-197) report. Part of this report concerns itself with how children learn while in the school setting. The following are excerpts from that section of the report:

We know now that play--in the sense of "messing about" either with material objects or with other children, and of creating fantasies--is vital to children's learning and therefore vital in school.

In play children gradually develop concepts of casual relationships, the power to discriminate, to make judgements, to analyze and synthesize, to imagine, and to formulate.

Early explorations of the actions, motives and feelings of themselves and of others is likely to be an important factor in the ability to form right relationships, which in its turn seems to be a crucial element in mental health.

Wide ranging and satisfying play is a means of learning, a powerful stimulus to learning, and a way to

free learning from distortion by the emotions. Adults as well as children approach new learning in this way.

The child is the agent of his own learning. It is that activity and experience, both physical and mental are often the best means of gaining knowledge and acquiring facts.

We certainly would not wish to under value knowledge and facts, but facts are best retained when they are used and understood, when right attitudes to learning are created, when children learn to learn.

Skills of reading and writing or the techniques used in art and craft can best be taught when the need for them is evident to the children.

Piaget's observations support the belief that children have a natural urge to explore and discover, that they find pleasure in satisfying it, and that it's therefore self-perpetuating.

Children can think and form concepts so long as they work at their own level and are not made to feel that they are failures.

At every stage of learning children need rich and varied materials and situations though the pace at which they should be introduced may vary according to the children.

Children need to accumulate much experience of human behavior before they can develop moral concepts.

Verbal explanation, in advance of understanding based on experience, may be an obstacle to learning.

Discussion with other children and with adults is one of the principle ways in which children check their concepts against those of others and build up an objective view of reality.

Kallet (42, p.71-73) in an article on integrity, expresses three characteristics of gifted children as they pursued their own learning:

1. They share a remarkable intellectual honesty. They seem to sense the integrity of the process discovery.
2. They have a capacity to accept or reject other people's attempts to help them in their learning, in accordance with their own personal sense of direction.
3. They have an apparent realization (conscious or not) of the futility and danger of drawing artificial boundaries in the realm of their experience of the world. There is no clear demarcation between the child's exploration of his surroundings and the gradual process of uncovering his inner world and discovering how it is related to, and how it is independent of, the world outside.

Rathbone (42, p.102-103) in an article on the rationale of the open classroom states his view of knowledge and its personal nature:

- a. Knowledge is idiosyncratically formed, individually conceived, fundamentally individualistic. Theoretically, no two people's knowledge can be the same, unless their experience is identical.
- b. Because knowledge is basically idiosyncratic, it is most difficult to judge whether one person's knowledge is "better" than another's.
- c. Knowledge does not exist outside of individual knowers; it is not a thing apart. The data that goes into books and into the Library of Congress is not the same as the knowledge people know. Though it can be mouthed and memorized, abstract knowledge needs a more personal referent before it becomes "real."
- d. Verbalization is not the only proof of the existence of knowledge. One can be said to "know" something, even though his knowledge has not yet been communicated to someone else.
- e. Knowledge is not inherently ordered or structured, nor does it automatically subdivide into academic "disciplines." These categories are man-made, not natural.
- f. The way people know things cannot be easily categorized. Thinking "like a chemist," "like an athlete," or "like and historian" are not distinct modes of cognition. Even if they are separable, open education would

undoubtedly claim that a child could employ more than one at a time.

6. Man does not make his cognitive way up any universal ladder; ladders are linear, restricting, and conforming. On the contrary, the child envisioned by open education faces a world of potential but unpredetermined knowledge that will admit to a plurality of interpretations.

Barth (5, p.68-73) in an article entitled "Starting Open Classrooms: Some Assumptions," describes some twenty assumptions about children's learning and knowledge. He divides these assumptions into five areas: Motivation, Conditions for Learning, Social Learning, Intellectual Development, and Evaluation. These assumptions are noted below:

Motivation

1. Children are innately curious and will explore their environment without adult intervention.
2. Exploratory behavior is self-perpetuating.

Conditions for Learning

3. The child will display natural exploratory behavior if he is not threatened.
4. Confidence in self is highly related to capacity for learning and for making important choices affecting one's learning.
5. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.
6. Play is not distinguished from work as the predominant mode of learning in early childhood.
7. Children have both the competence and the right to make significant decisions concerning their own learning.
8. Children will be likely to learn if they are given considerable choice in the selection of the materials they wish to work with and in the choice of questions they wish to pursue with respect to those materials.
9. Given the opportunity, children will choose to engage in activities that will be of high interest to them.

10. If a child is fully involved in, and is having fun with an activity, learning is taking place.

Social Learning

11. When two or more children are interested in exploring the same problem or the same materials, they will often choose to collaborate in some way.
12. When a child learns something that is important to him, he will wish to share it with others.

Intellectual Development

13. Concept formation proceeds very slowly.
14. Children learn and develop intellectually not only at their own rate but in their own style.
15. Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.
16. Intellectual growth and development take place through a sequence of concrete experiences followed by abstractions.
17. Verbal abstractions should follow direct experience with objects and ideas, not precede them or substitute for them.

Evaluation

18. The preferred source of verification for a child's solution to a problem comes through the materials he is working with.
19. Errors are necessarily a part of the learning process; they are to be expected and even desired, for they contain information essential for further learning.
20. Those qualities of a person's learning that can be carefully measured are not necessarily the most important.
21. Learning is best assessed intuitively by direct observation.
22. Objective measures of performance may have a negative effect on learning.
23. The best way of evaluating the effect of the school experience on the child is to observe him over a long period of time.
24. The best measure of a child's work is his work.

Assumptions About Knowledge

25. The quality of being is more important than the quality of knowing; knowledge is a means of education, not its end. The final test of an education is what a man is, not what he knows.

26. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separate categories or "disciplines."
27. The structure of knowledge is personal and idiosyncratic; it is a function of the synthesis of each individual's experience with the world.
28. Little or no knowledge exists that is essential for everyone to acquire.
29. It is possible, even likely, that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly. Knowledge resides with the knower, not in its public expression.

Rogers, in his book entitled, Freedom to Learn, looks at the learner from two points of view. His (44, p.157-166) first view concerns how a person learns, and he lists ten principles which relate to the open approach:

1. Human beings have a natural potentiality for learning.
 - . Significant learning takes place when the subject matter is perceived by the student as having relevance for his own purposes.
3. Learning which involves a change in self-organization--in the perception of oneself--is threatening and tends to be resisted.
4. Those learnings which are threatening to the self are more easily perceived and assimilated when external threats are at a minimum.
5. When threat to the self is low, experience can be perceived in differentiated fashion and learning can proceed.
6. Much significant learning is acquired through doing.
7. Learning is facilitated when the student participates responsibly in the learning process.
8. Self-initiated learning which involves the whole person of the learner--feelings as well as intellect--is the most lasting and pervasive.
9. Independence, creativity, and self-reliance are all facilitated when self-criticism and self-evaluation are basic and evaluation by others is of secondary importance.
10. The most socially useful learning in the modern world is the learning of the process of learning, a continuing

openness to experience and incorporation into oneself of the process of change.

Rogers' (42, p.282) second description of learning deals with therapy.

He (42, p.279) states, "To my mind the 'best of education' would produce a person very similar to the one produced by the 'best of therapy'".

He then relates three characteristics of this best educated person:

1. This person would be open to his experience.
2. This person would live in an existential fashion.
3. This person would find his organism a trustworthy means of arriving at the most satisfying behavior in each existential situation.

Sherman (48, p.30) explains education as:

essentially living, growing, and expanding personal horizons. It rests solidly upon assumption that (1) there is a growth force within humans. (2) man is by nature a dynamic, stimulus-seeking organism functioning simultaneously in multiple dimensions, and (3) he is capable of self-direction--of defining and solving his own problems. A core belief is that each individual is a unique self.

Noting that Sherman (48, p.90) sees each individual as a unique self, she then states that attention should be given to the total human being:

An assumption of organismic unity requires equality among developmental objectives--equal opportunity for healthy functioning of all dimensions within each individual. In a process model, primacy of objectives will shift. At times affective functioning will predominate, or sensory acuity and physical response will be the major aim, while at other times independent action or abstract conceptualizing will be the major ends sought. These multiple dimensions of functioning will not be considered separable, however, but more like the movement of individual dancers into momentary spotlight positions while remaining part of a fluid totality.

Sherman (48, p.56-57) calls for a much broader and encompassing

definition of intelligence. She suggests than an "open" view point of intelligence, a situational frame of reference and a process definition to supplant the notion of capacity (rather than the verbal symbolic world, ability to reason abstractly, manipulate written symbols, and acquire knowledge)." She finds the "age old controversy over the source of intelligence of little consequence, since man has not even approached utilization of the powers he possesses."

Sherman (48, p.57) expands on this conception of intelligence as follows:

. . . There would be far less concern with labeling people or defining intelligence as a capacity or ability within the person and much greater interest in actions and impact of intelligence upon persons or environment, in developing acuity and sensitivity, and in increasing the potential for functioning wisely and creatively in the process of relating to situational demands and opportunities. "Intelligencing" would involve appropriate, meaningful, or productive transacting with the environment. This process moves into dimensions such as curiosity, self-assertion, intentionality, persistence, self-reliance, and responsibility. To function intelligently requires much more than a limited set of cognitive abilities; it involves the whole organism. To confront and solve problems, for example, requires investment and valuing (of whatever is involved) sufficient to cause pursuit of a felt problem, sufficient tolerance of ambiguity and penetration for accurate sensing and defining of problems, enough cognitive fluidity to engage in analysis and synthesis or deal simultaneously with part and whole, and ample freedom to allow flexibility and originality in producing personal redefinitions and complex, unitary, multirelational conceptual frameworks.

Kosower (26, p.4-5) in a study on Open Education produced an "Observation Guide for the Open Classroom." (Appendix F). In the guide she lists "pupil behavior," and "cognitive" areas which are expository to how

children learn in an "open" environment

Walberg (49, p.100-109) describes the characteristics of Open Education in a study using eight themes and delineating ninety characteristics of Open Education within these themes (Appendix G). The theme of "Assumptions--Ideas About Children and the Process of Learning" suggests how learning takes place in an open environment.

Viewpoints concerning the environment will now be presented.

THE ENVIRONMENT--THE IT

Hawking (42, p.91-94) in discussing his I-Thou-It concept, refers to the teacher-learner relationship with respect to a mutual "It"--the inanimate with which they are both involved. He speaks of this triangular relationship as follows:

When you give a child a range from which to make choices, he then gives you the basis for deciding what should be done next, what further opportunities you should give him--materials and suggestions that are responsive to his earlier choices and that may amplify their meaning and deepen his involvement. That is your decision.

The investment in a child's life that is made in this way by an adult, its teacher in this case, is something that adds to and in a way transforms the interests the child develops spontaneously. . . . It is a basis for communication with the teacher on a new level and with a new dignity.

Until a child is on his own, the teacher can't treat him as a person who is going on his own, cannot let him be mirrored where he may see himself as investigator or craftsman. Until a child is an autonomous human being who is thinking his own thoughts and making his own unique, individual kinds of self-expression out of them, there isn't anything for the teacher to respect, except a potentiality. . . . Then the child comes

alive for the teacher as well as the teacher for the child. They have a common theme for discussion, they are involved together in the world.

. . . if there is common interest, it may last and may evolve. A teacher needs to be capable of interpreting the words and acts by which he tries to communicate with you . . .

The child is in some sense functioning to incorporate the world; he's trying to assimilate his environment. This includes his social environment of course, and it includes the inanimate environment; it also includes the resources of the daily world around him, which he's capable of seeing for the most part with far fresher eyes than adults. The richer this adult-provided contact, therefore, the more firm is the bond that is established between the human beings who are involved.

Kallet seems to add credence to Hawkins thinking with the following statement:

We must create classrooms in which a child can question freely in a setting varied enough so that many materials and ideas can be investigated. In these classrooms the child must be easily able to approach others, adults and children, who can help him, and to approach them with confidence that he, the learner, can ask and listen without being forced to abdicate his responsibility for, and his joy in, the results that emerge.

Chittenden and Bussis (12, p.20-21) in their study, *Analysis of an Approach to Open Education*, view the process and balance in the classroom as follows:

It is argued that only the individual child can best determine what is meaningful to learn at a given time and what is the best pace and direction for learning. A breadth as well as a height component to learning is stressed. Children mess around with ideas, they elaborate, they do things over again, they do them in different ways. In the more traditional sense, learning is also seen as taking the form of vertical progression,

of upward development. The basic image of the child is one of a constructor of reality. . . . in a Piagetian sense, an inventor. The child puts together ideas and things in his own way and comes up with new combinations. From a pedagogical standpoint, it is believed that the growth of personal knowledge and the organization of experience can best take place when the child himself is located at the command center of the process.

We anticipate, for example, that the teacher's role in an EDC child-centered classroom will be the role of an understanding supportive adult. . . . But any essentially passive conception of the EDC teacher is quite incorrect in several important ways.

EDC appears to represent not only a child-centered position, but also an adult-centered position. . . . A major purpose of the advisory is to stimulate a greater degree of activism among teachers; in selecting materials and equipment; making suggestions; diagnosing; questioning; actively expressing their interests; being honest and adult in their appraisal. The classroom should reflect the teacher and other concerned adults just as it should reflect children.

. . . an experimental attitude on the part of teachers, encouraging them to "come alive" in ways that go beyond the passive roles of valet or of conveyor of a curriculum. . . . Good EDC classrooms bring active adults together with active children.

In a study by Katz (25, p.6-9) in which she makes recommendations for research and development in Open Education, she defines Open Education by listing six tentative dimensions of classroom practices. The following is her definition:

Space-In varying degrees, the use of space and the movement of persons, materials and equipment within it, is less routinized, fixed or invariable in the open-informal than in formal-traditional classrooms. In open-informal classrooms movement may be outside the school itself.

Activities of Children-In varying degrees, the range of encouraged and permitted activities is wider, less bounded or fixed, more open-ended in open-informal than in formal-traditional classrooms. Activities in open-informal classes transcend the classroom itself.

Source of Activity-(Locus of activity selection--teacher/student)

The more open or informal the classroom, the more likely the children's activities to be pursuits, extensions or elaborations of their own spontaneous interests, rather than activities selected by teachers.

Content or Topics-In varying degrees, the range of topics or content toward which children's attention and energy are encouraged and guided is wider, and more open-ended than in formal-traditional classrooms. Content goes beyond classroom, and includes field studies.

Time-In varying degrees, the assignment of time for specified categories of classroom activities is more flexible in open than in formal-traditional classrooms.

Teacher-child relationships-

- a) In the open-informal classroom, teacher-child interactions are likely to be initiated as often by the children as they are by the teacher.
- b) In the open-informal classroom, the teacher is more likely to work with individual children than with large or the whole group of children in his class. The more open the classroom, the less often the teacher addresses the whole group as an instructional unit.
- c) In the open-informal classroom, the teacher is likely to be seen giving suggestions, guidance, encouragement, information, directions, instructions, feedback, clarification, posing questions, probing children's thinking and listening to children, primarily during individual teacher-child encounters.
- d) In the open classroom, the response of the teacher to undesirable behavior is more likely to be to interpret its meaning in terms of the classroom group's life and its moral implications, then either to exact punishment, or to ignore it.

Katz suggests the traditional and the open forms of education are at opposite ends of a spectrum--except for the "Emphasis on Academic Skills" area (Appendix H).

Marshall (28, p.15-17) in an article entitled "Criteria for Open Classrooms," classifies her criteria according to "Categories of Essentiality" (Appendix I).

Sherman (48, p.41-42) lists five items which she calls priorities, attitudinal sets, and the breadth and quality of growth opportunities which would be present in the open environment of a classroom. They are as follows:

1. Awareness and acceptance of self; awareness and acceptance of others; flexible balance of dominance--submission.
2. Expressiveness: creative, imaginative, intuitive, integrative or synthesizing functioning.
3. Problem-identification and definition by students, goal setting; carrying through to problem completion.
4. Self-assertion; independence, and responsibility; establishing own standards and procedures.
5. Conceptual organization open to new experience; seeking; flexibility, cognitive complexity.

Sherman (48, p.42-43) states, "To attain the preceding objectives, proponents of the two models would advocate diverse environmental characteristics." They would be:

1. Freedom for self-expression and self-disclosures; an atmosphere of psychological safety.
2. Opportunity to test self in experience and gain a sense of competence and control over one's life and environment.
3. Stimulation or support for reaching into the unknown, integrating data in unique ways, and diverging from commonly accepted views and values.

Also, Sherman (48, p.55) classifies these priorities and characteristics when she lists the bas.s for individualized instruction and shows what items are cared for and how they are cared for in a structured educational setting and in an open educational setting (Appendix J).

And finally, Sherman (48, p.37-38) comments on, "A workshop environment--a self-education lab."

A workshop environment--perhaps a self-education lab-- in which there is ample freedom to transact at will and minimal external control and evaluation would be an appropriate ecological setting for this approach and would be likely to enhance its implementation. There would be no physical bounds to the learning environment; they could extend as far as the minds, imaginations and motivations for growth as those who participate in the process would allow. Ends and means--and criteria for judging them--would emerge and remain under internal control. Freedom and responsibility would, of necessity, co-habit this world.

Change is a constant reality of living faced by both individuals and institutions, and its acceleration is one of the most critical problems facing technological man. In the long run, Alternative O might prove more practical than idyllic. Survival may require greater openness than man has known throughout his history.

Kosowler (26, p.4-5) in a study on Open Education, produced an "Observation Guide for the Open Classroom" (Appendix F). In this guide she lists "Room Environment and Atmosphere" which is descriptive of open classroom environments.

Walberg (49, p.108-109) describes the characteristics of Open Education in a study using eight themes and delineating ninety characteristics of Open Education within these themes (Appendix G). The theme

of "Provisioning for Learning;" is descriptive of the characteristics of the Open Education Environment.

SUMMARY

The purpose of this chapter was to survey the literature and secure the appropriate information and materials for the study of Open Education. This style of education was originated in England and subsequently described in the Plowden Report, a report which evaluated the system of education in England in 1967. This report cited the child development theories of Jean Piaget as being the most descriptive of this style of education than any others.

Piaget describes how children grow and develop in a natural way. He states that all human beings pass through the same stages of development but at their own pace and in their own style, and these stages are chronological in order. The central theme of his theory is the individual is constantly striving for a balance, or equilibrium, between his internal self and his external environment. To accomplish this balance the human being assimilates, takes in, his experiences with the environment. He then physically, mentally, or emotionally accommodates, adjusts internally, to these new experiences and acts. This process which all human beings use to reach equilibrium is called adaptation.

The process of adaptation, used to reach equilibrium, is the central process employed by the individual as he passed through the four growth and development period of Piaget's theory. The first period is the

Sensori-motor period which extends from birth to approximately the age of two years. In this early period, the foundation for the psychological structure of the individual is begun through direct, concrete experiences with his external world as well as with himself. The second period of development is called the Pre-conceptual Period which lasts from two to about age seven years. It is here that the child begins to organize his language and symbolic function and he begins a crude method of trial and error in purposely discovering his environment. The third period is the Concrete Operational Period, which lasts from age seven to approximately age twelve years. Here the child shows significant ability to think in concrete terms but as yet has not developed the ability to think in abstract terms. The last period is called the period of Formal Operations, which lasts from age twelve and onward. It is at this time that the adolescent can truly think in abstract terms and perform controlled experiments.

From here the writer turned his attention to the literature on Open Education. It was found that no definition of this style of education was to be secured, but it was described as being humanistic and affective in nature. Hawkins suggests an in depth description of the intermingling of the I-Thou-It would serve to explain the process of Open Education. The I represents the facilitator, the Thou represents the learner, and the It represents the environment.

The facilitator is a person who views the learner as a human

being who is actively seeking to discover himself and his environment. The facilitator is an individual who is physically, conceptually, and emotionally strong and flexible, and has the ability to support these same qualities within the learner. The facilitator himself becomes a member of the group of learners while he communicates and responds with them, always treating them as separate and unique individuals.

The learner is a person who is constantly discovering and creating his own unique body of knowledge. He is striving to understand himself and his external environment through direct, active, concrete experiences with the materials and individuals of his environment. The learner makes significant decisions about his learning and acts as a result of his decisions. He is most often communicating with the facilitator and other learners for the purpose of obtaining more information concerning and understanding of his unique activities.

The environment in the open setting is flexible. It extends outside of the classroom and even outside of the school itself. It even extends into other disciplines. Learning time is not uniform or fixed and the physical environment can be rearranged to better suit the needs of the learner. The environment has space for the individual students' belongings as well as space for the materials and machines shared by the learning group.

CHAPTER III

ANALYSIS OF THE PROBLEM

The purpose of this chapter is to analyze the material presented in Chapter II. Piaget's child development theory will be analyzed along with the Rationale of Open Education. This latter analysis will be divided into three specific areas: the facilitator, the learner, and the environment.

HISTORICAL BACKGROUND

A review of the literature revealed that in August 1963, the Central Advisory Council for Education (England) began a study of the whole subject of primary education and the transition to secondary education. In effect, they were asked to explore the question of how children learn and what conditions and environments were supportive of the process of learning. In 1967, the Plowden Report was released in two volumes.

In late 1967 and in 1968 The New Republic magazine carried numerous articles describing new classroom practices which were becoming rather wide spread in England, on the elementary level in particular. These new reforms in education were progressing into the junior schools, but, to date, at a rather slow pace. Featherstone believes these new practices are establishing certain good conditions for children's learning on a national scale, and he calls attention to the Plowden Report which gives a tentative outline of these new foundations and practices of

learning. Thus, through his articles and the support he can take in the Plowden Report, educators in America took note of these events and began to implement many of these practices in their classrooms.

What gives added significance to the findings of the Central Advisory Council for Education (England) is the support the Council can take from the work of the Swiss Genetic Epistemologist, Jean Piaget. The Plowden Report specifically states that his theory of the sequence in the development of children's concepts has had a significant influence on their report. Many aspects of his theory are in accord with previous and present research by genetic psychologists, and most educationalists in England feel it is Piaget's theory of learning which most closely fits the observed facts of children's learning.

THE CHILD DEVELOPMENT THEORY OF JEAN PAIGET

Jean Piaget is a Genetic Epistemologist who is searching for the psychological structures which underlie the formation of concepts within the growing and developing child. He is concerned with the process of development--the type of thinking a child may use when he is attempting to solve a problem. He is not interested in the normal responses of children as they grow and develop, but rather the underlying structure which gives rise to children's responses--both his errors and groupings or responses. He is not interested in the child's final result or his final arrangement, but rather the processes by which the child arrives at

his response--verbally or in a practical way.

Being a genetic epistemologist, Piaget is concerned with those developmental structures which hold true for the individual and in turn hold true for the entire species. He assumes that a thorough investigation of a small segment of a species will produce findings which are true for the entire species. He assumes a universal order of all living and non-living things--biological, social, psychological, and ideational. He insists upon cosmic unity, and assumes the regular process of development is not changed irregardless of cultural or hereditary deviation.

So, it is the regular process of growth which is being searched by Piaget. Isaacs finds Piaget investigating and describing the order of stages in this regular process of mental growth. Woodward sees these stages as being distinct stages and not a continuous development process. These stages are characterized by different types of behavior and thinking, and the order of these stages are fixed for most children.

Maier differs here in that the succession of the stages is always the same. Even though there are distinct stages involved in Piaget's theory, development is continuous with respect to each level or stage finding its roots in a previous stage and thus proceeding into the following stage. In fact, behavior from a previous stage is often repeated until the individual senses it to be inferior and incorporates it into a new superior level of development. Also, the particular organization of these behaviors by the individual creates a personal hierarchy of experience and actions for that individual.

The sequential order of developmental stages is fundamental to understanding Piaget's theory and must not be confused with the sequential age of the child. Elkind says that the order of stages hold true but they do not follow any strict age boundaries. The age at which various stages will be reached depends on the physical and social environment of the child as well as his own native endowments. Isaacs concurs and even suggests the question of the child reaching the latter stages of development is a wide open question.

As shown in Chapter Two, the process of equilibrium is a central concept in understanding Piaget's theory of intellectual growth. Elkind sees equilibrium as a process of activity in which the individual attempts to balance the social and physical forces of his environment upon his internal cognitive structural system. Piaget explains that the process of equilibrium allows the individual to progress toward an ever more complex stable level of internal organization. He says this process starts at birth and ends in adulthood and consists of all activity of movement, thought or emotions.

It is through this process of equilibration that the child, according to Woodward, begins to make sense and create his own world of meaningful objects. Elkind agrees when he says the child does not copy the world as it is but does in fact, through the child's spontaneous response to the world, construct his own world. Maier also concurs but adds that through action taken by the individual, he experiences and discovers himself in relation to other objects and he uses these discoveries to acquire new behavior. It is the organism which organizes its

own intellectual structure through experiencing the many elements in his environment and discovering and using the interrelationships of these environmental realities. It is the totality of the individual's experiences which shapes his interests and specific experiences he tends to pursue.

Isaacs says learning occurs through experiencing one's own active doing and all these experiences are cumulative, forming a structure in the child's mind which he himself continues to build upon. Each new level of experiences are made possible by those preceding experiences and all together constitute a greater and richer understanding of his environment.

As seen in the second chapter, Piaget states there is never a purely intellectual or a purely affective act. One always presupposes the other. Maier agrees when he says that at times affect may take priority, and at others intellect may take priority, but they never are separate. They are more like two sides of the same coin. Maier concurs by stating that two aspects of our personality--the intellectual and affective--and the interrelationship of these two functions is in fact the individual's personality.

PERIODS OF THE CHILD'S COGNITIVE GROWTH AND DEVELOPMENT

Chapter two shows us the various periods of cognitive growth and development of the child according to Piaget. Some of these periods are

further divided into stages. The first of these periods is the Sensori-Motor Period which is divided into six smaller stages and spans the time of birth through about the age of two years.

The second period is the Pre-Operational Period and it too is divided into two smaller stages which spans from age two to about the age of seven years. The third period is the Concrete Operational Period which extends from seven years of age to about eleven years. And finally the fourth and last period, the Formal Operational Period, which extends from age eleven until adulthood. Each of these periods or stages has its own characteristics of human thinking and responding.

As seen in the previous chapter, Piaget himself suggests that to understand the details of the child's development at any period or stage, one must determine what is common to the needs and interests of the individuals at all levels of development. He suggests the process of "adaption" is what all phases have in common. The dictionary defines adaption as a change which produces a better adjustment of an organism to its environment. Maier says the cognitive striving of the organism to find an equilibrium—a balance—between his environment and himself is adaption. To this Piaget adds that part of adaption includes the organism's ability to modify the environment to meet its own needs. And again Pulaski declares this functioning, adaptation, is characteristic of all living organisms at all periods.

The Process of Adaption, according to Piaget, can best be explained through its two elements of assimilation and accommodation. The

dictionary defines assimilation as a process of taking up, absorbing, incorporating as a part of one's self. Pulaski describes it as a process of taking-in of sensation, nourishment, or experience as well as things, people, ideas, customs or states and making it a part of one's own activity. And Piaget concurs by saying it is the process of adding parts of the organism's environment to his already present and expanding psychological structures.

The second element in adaption is accommodation, defined in the dictionary as: to make fit, adjust, or adapt to purpose. Pulaski adds that it is the outgoing part of adaption, the adjusting process of reaching out to the environment. As Piaget says, it is the re-adjustment of the organism's psychological structures to accommodate the environment.

In explaining these two processes and their striving for adaption, Pulaski describes the baby as never being a passive helpless infant, but one who instead is quite active and curious, constantly reaching out and experimenting with his environment--experiencing it. In this way he is constantly attempting to adapt to his environment with what he knows--assimilation--and with what he experiences--accommodation. It is a constant search for balance--equilibrium--between his inner reality and the reality of his external environment. It is this search for adaption through the process of assimilation and accommodation that brings the organism into equilibrium. But it is likewise the mechanism for growth and cognitive development within the individual. Piaget agrees when he says the balancing of the processes of assimilation and accommodation is

called adaption, and this process of balancing is the general form of psychological equilibrium.

Sensori-Motor Period. Stage I--As seen in Chapter Two, the sensori-motor period is the first period of development and is divided into six stages. The First Stage extends from birth to about one month. Maier cites the behaviors of crying, sucking, grasping, and rhythmic breathing as, in fact, the very beginning of the organism's intellectual and affective life. Activity, at this stage, according to Piaget, is derived from the organism's hereditarily determined instinctual needs. Piaget continues to explain that development has its beginning in the totality of the organism's activities at this stage. In time, some of these autistic activities are used by the child more than others and serve as a starting point for the development of schema of assimilation.

Piaget also speaks of these very early activities as spontaneous, global and rhythmic in nature. And yet, these activities or reflexes of this stage, are also seen as being differentiated from yet a larger possible global activity of the infant. These reflexes of the infant are rhythmic and differentiated from a larger sphere of global activity.

In this stage, as well as throughout Piaget's theory, Chapter Two shows a constant use of the term egocentricity. This term is used solely to show the infant's, child's, or adolescent's awareness of himself and his lack of awareness of his external environment. Pulaski says the baby is not self-centered, but just unaware of anything outside of himself. He simply is not aware that he exists within, but separate from

his environment.

Piaget concurs when he reveals that there is no distinction between the self and the external world of the infant. To the infant, the self is the center of reality. The process of intellectual growth and development is the process of differentiating the self from its external environment and becoming more fully aware of both, and how they relate to each other.

Maier adds to this that the infant, through his own activities of living, becomes more aware of his self and his environment through the impact each has on the other. It is the infant who initiates the process of becoming, thus it is the child who also is initiating his general organizational patterns of behavior or schema.

Stage II--the second stage--as seen in the previous chapter covers the age of one to about four months of age, and is the beginning of primary circular reactions and the first visible signs of the processes of assimilation, accommodation, and adaptation by the infant. Maier says it is here that the child begins to develop intellectual organizational patterns or schema. The child organizes two or three factors into a relationship which can be repeated at will and also be repeated with other circular reactions. These are seen as being elementary units of intellectual behavior and are seen to be built on the previous stages reflex patterns. Maier also states that new or past experiences of the child have no meaning if they do not become part of a primary circular reaction pattern. All objects must be experienced in this way--actively sucking, touching, or grasping--for them to have meaning to him.

Stage III--the third stage--spans from four to eight months and is the time when the child initiates his secondary circular reactions. According to Piaget, this is where practical sensori-motor intelligence begins. It is where the child manipulates objects in place of words and concepts. Here the baby begins to co-ordinate his vision and prehension as he develops and expands his intellectual schema. He responds in a practical way to his external environment.

Maier agrees but expands the thoughts by stating that the infant begins to relate two or more sensori-motor activities into one schema--combining visible and tactile experiences into one--establishing the roots of future cognitive understanding.

Stage IV--the secondary stages, extends from eight to twelve months, and is characterized by intentional behavior, according to Maier. Piaget says the child actually sets out to obtain a certain result. He actually intentionally varies his movements and gestures to see what happens. He explores or "experiments in order to see." Maier explains that, because of the child's greater mobility he directs his exploration of, and experimenting with, his environment further into his environment. Trial and error experimentation is expanding to achieve the child's desired goals.

Pulaski sees the child losing some of his egocentricity, or gaining an awareness of himself within his external environment, in this fourth stage. Maier adds, the child becomes aware of being independent from action in progress. He alters somewhat the notion that all activity is

centered in him and he can begin to experience action through observation. He is observing action beyond his involvement in order to understand. He is therefore becoming less egocentric.

Stage V--the fifth stage--extending from twelve months to eighteen months of age, is thought of as the tertiary circular reaction stage where the child discovers new ways of accomplishing through active experimentation. Pulaski says the child's behavior at this time is characterized by directed grasping, purposely varying his active behavior to observe the resulting effect. Maier agrees and continues that within this form of cyclic repetition lie the roots of rational judgement and intellectual reasoning. The child also becomes more aware of the relationships between objects--which is interpreted as the basis of memory and retention. Unless the child becomes aware of relationships between objects, and unless awareness is based within the child's internal schema, remembrance of objects and their relationship will not occur.

At this fifth stage, the child recognizes that other people, besides himself, are autonomous centers of action. This awareness is basic to the child's capacity to imitate and relate to different people.

Stage VI--the sixth stage--as seen in Chapter Two, is the final stage of the Sensori-motor Period and is marked by the child's characteristic of invention of new means through mental combinations. Piaget explains that the child can find new means, not only by physical grasping with his environment, but also by new internal combinations which lead to sudden comprehension. In fact, an act of intelligence is present

only when the child does exhibit a sudden comprehension. Pulaski explains the child's physical or motor action as internalized, thus he is not compelled to actually engage in activity to come to a satisfactory answer to a problem. He is thinking internally, symbolically, about the solution to problems. Maier agrees and adds that the child can envision himself as a single entity among many animate or inanimate objects and he can see himself as the potential initiator of action.

Piaget concludes the Sensori-Motor Period by explaining it as the culmination of each preceding stage built one upon the other that makes possible sudden comprehension through new internalized combinations

Pre-Operational Period. The second period of Piaget's theory of child development is the Pre-Operational Period which is divided into two stages--the Pre-Conceptual Stage and the Intuitive Stage--this complete period spans from about two to about eight years of age.

The child in the Pre-Conceptual Stage (2 to 4 years), as noted in chapter two, seems to repeat the many errors of his sensori-motor period, but, at the conceptual level as he pursues a conceptual understanding of his environment and its laws. Baldwin suggests that one actually operates on both of these levels, developing both so as to be more skillful and adaptive in understanding and dealing with the problems and investigations of our environment. One operates both on a sensori-motor level and a conceptual level throughout life.

The child, according to Pulaski, is wrapped in egocentrism in this stage because he cannot see his world through anyone's eyes except his

own. He simply believes the world shares his thoughts and feelings without him having to explain them. Chittenden explains that when two children of this stage are conversing, it appears they are talking to themselves, assuming the other knows beforehand his very thoughts and feelings. Neither has the capacity to put himself in the place of the other.

Maier says that play takes up a large part of the child's time in this period. Play for the child has all the real life tasks of the adult in it. Play brings the child close to the questions and objects of real life and evolves more and more into a realistic experience with his social world. Pulaski agrees when he says that play allows the child to assimilate symbolically the activities, roles, and ideas of his environment.

Pulaski, as seen in the previous chapter, cites play as a significant aspect in the process of developing language. Language has its conception in the pre-verbal sensori-motor period, but it is further developed and actually appears in the pre-conceptual period largely through play. Schwebel agrees with this point of view.

Language, itself, in the form of play, serves as a vehicle of development for the child, according to Maier, as he identifies words and connects them with external objects and actions. The connection between thought and word is established through verbal or nonverbal communications in the child's play.

Imitation is another valuable activity which promotes the child's

cognitive growth and development. According to Pulaski, the child's attempts to adjust to his environment through the spontaneous process of imitation. In this way the child is trying to accommodate to his environment, learn how through adult speech, behavior, and activities to adjust to new situations in his world. Maier agrees and adds that the child's interests and awareness of imitating focuses his cognitive structures or schema on the objects and actions of his environment. In fact, the absence or severe lack of play, language, and imitation sustains the child in his autistic world and shields him from the impact of the reality of his environment.

Egocentricity, as seen in Chapter Two, is also evident in the child's view of causality--his actions causing certain effects. Understanding cause and effect relationships--sequential relationships--has its beginning in the developing internal experiential schema of the child in the Sensori-Motor Period. In the present period, the child begins to build on the original schema his view of cause and effect on a conceptual level. According to Pulaski, conceptually, he still very much sees himself at the center of all cause and effect--the notion the world was created for him and he can control it.

Identification with a model having, as seen by the child, unusual desirability or power is also seen in this stage. Piaget explains, the child identifies quite spontaneously with those who satisfy his immediate needs and interests and they become the measuring stick for value judgment. The child has a sense of obedience and awe for his model(s) which

is derived from both a fear and love for this model. It is here that the foundation for the child's conscience is established. Maier agrees when he relates most all of the child's affective-laden experiences are transacted within the feelings of his family and they become the guideposts for all future judgments. Thus the child builds his affective system of values otherwise known as his conscience.

Pre-Operational Period. The succeeding stage of development within the Pre-Operational Period is the Intuitive Stage (4 to 7 years). This phase is called intuitive because, according to Pulaski, the child begins to use words in his thoughts but it still is characterized by considerable egocentric behavior. His thought lacks the logic and the reversability of a true conceptual thinking. As Maier puts it, he can not yet co-ordinate his own egocentric view of his environment with those of others in his real environment in which they all take an active part. The child is paralleling his efforts to co-ordinate the elements of his new world of conception with his previous efforts to co-ordinate and make sense out of his sensori-motor environment.

Just as the child earlier relied on his motor activity to act out his thinking, Maier suggests the child now relies on his verbalization to express his thinking which is still largely egocentric. He can also only see or concentrate on one ideas at a time thus not being aware of the connections between these parts or ideas which make up the whole of a larger do become part of a conceptual hierarchy. These beginning conceptual relationships are on a very concrete level.

It is in this stage, according to Pulaski, that the child's thinking becomes semi-reversible but still only on a concrete level. Baldwin says he can deal with the problems of combining different view points from different sources but not by the process of conceptual representation. He says the child takes a mental picture of the concrete aspects of the problem at hand and mentally manipulates his picture to get more information. But he still cannot see the problem through to an answer on a conceptual level.

As seen in the previous chapter, language serves a three fold purpose for the child, as seen by Maier, in the intuitive stage. His self-conversation, or thinking out loud, represents the child's attempt to think about events and similarly explain them. His speech also remains egocentric as he communicates with others. Here the process of assimilation predominates. Thirdly, Maier states that language as social communication in the accommodative sense helps the child to project his thoughts into a social plan encouraging collective thinking, understanding, and adapting to his external environment. Pulaski adds that true concepts are not possible without language and the socialization of the meaning that goes with it.

Again, play occupies a very important part in the intellectual development of the child. Maier even suggests that play reflects the evolution of the child's early years of intellectual development. In this stage play becomes more social and the child begins to think somewhat in terms of others, but play still remains highly egocentric.

Pulaski, reflecting the view points of Maier, states that play is an indispensable step in the child's cognitive development. He continues to explain that play, in this stage, continues to become closer and closer to reality as the child continues to accommodate to a larger part of his external environment. Their play becomes a more precise replica of reality and in their collective play they are more aware of the individuals taking part.

Chapter Two also tells us that moral laws for the child are seen by him as tending to be elastic and not absolute as in the previous stage. This puts the child in a state of conflict over the absoluteness of rules and moral obligations and their evolving relativity within the social context. He does not yet understand the concept of mutual responsibility and group solidarity. He sees disobedience only as an interruption of adult authority rather than a violation of moral obligation. Morality at this level is one of constraint, for the child does not see himself on a similar social plane as his parents.

This concludes the Intuitive Stage of the Pre-Operational Phase of the child's cognitive development and growth and the beginning of the Concrete Operations Phase.

Concrete Operations. In this phase, as noted in the previous chapter, true reversability appears in the child's method of thinking. Pulaski sees reversability as the ability of the mind to reverse itself and go back in thought to re-evaluate earlier observations in light of new circumstances. Or, as put by Maier, the ability of the mind to see

an event in all its parts from its beginning to its end and from its end back to its beginning. This is, in itself, a new level of thought for the child but his thinking is still on a perceptual level. That is, he can demonstrate the process of reversability in his thinking only if he can base his mental experimentation with events in a concrete perception of their inner logicity. The child, therefore, can demonstrate a major organizational change in his cognition by being able to explore numerous points of view and each time return to the original state.

It is in this phase of concrete operations that the child begins to study the parts of the whole and begins to connect these parts together to understand the whole. This understanding stems from the child's physical and social experiences as well as his experiences with concrete abstractions with objects. Maier suggests the child is thinking about both the problem at hand and its conclusion, trying to determine the best means to accomplish the desired conclusion. In this way the child builds up his own system of classification, his own system of organizing his parts into a larger whole by using the hierarchical system of either nesting or lattices.

The thought process of classifying through nesting specifies that all the parts of a whole, as their relationships are identified and understood, are added together to form the larger whole. Each larger whole sums up all previous parts in nesting. But lattices refers to a special form of classifying. This classification system puts stress on the connective link and parts which are linked together which creates subclasses of

related objects. The whole--the inter-connected world--is established through lattices. Having two systems in which the child can organize his many parts of his world into a cohesive whole, his life proceeds to expand in an ordered world.

As seen in Chapter Two, Maier states the mental capacities for concrete operations proceed from the very simple, to the ordinary and eventually to the more removed experience. Piaget adds that these mental operations develop separately, field by field, but eventually can conceive of two hypotheses and understand their relationships without being able to communicate this understanding in words or actions. Knowing precedes a capacity to verbalize and to apply this knowledge.

The use of language, as seen in the second chapter, also demonstrates the idea of knowing coming before communication. The child will manifest certain behaviors as much as a year before he can consciously communicate or judge his behavior, according to Maier. But the child in this phase can anchor his experiences in a rational and communicable system. He moves further and further from his previous egocentric self-reference.

This phase also shows that the child must first experience his perspective or physical phenomena before he can extend this phenomena into his social context. Left and right must be understood before two points of view in a social context can be comprehended as emanating from different reference points.

It is here the child sees himself more as an equal in his social world and through conversation he learns of the physical and social

worlds of others which bring about his new level of social behavior.

Piaget states that it is indispensable that children and adults experience spontaneous relationships of being individual and distinct from each other in an atmosphere of giving and taking by each while exchanging and co-ordinating points of view.

Formal Operations. This stage begins around age eleven and continues through adulthood. It is here the child takes great delight in thinking beyond the present and forming theories about most everything, according to Piaget. He enters into the world of ideas where cognition begins to rely on symbolism and propositions. Propositions are used in understanding relationships and the effects they bring, says Maier. He continues saying, the child begins to take a systematic approach to problems. He also begins to understand geometric relationships and questions dealing with proportions and relativity. These concepts being comprehended, especially that of objectivity and awareness of relative relationships, brings the child to a new level of cognitive organization and approach to his physical and social environment.

According to Piaget, as seen in Chapter Two, the child no longer reasons from the actual to the theoretical, but starts from theory to establish relationships between things. He also demonstrates the ability to deduce the implications of events and possible conclusions from them. In this phase, Piaget says, it is the realm of possibilities which is primary for the child and reality is secondary. It is in this last phase that the youth finds his place beside other living organisms

in an ever evolving world. Adolescence comes into eventual equilibrium near the end of this period.

Maier closes this phase and Piaget's theory of child development saying that what has been said here describes only potential development. The rate and degree of completion is an individual matter. Both egocentric thought and mature intelligence may exist simultaneously in the individual because all areas of development do not necessarily develop at the same rate. Developmental growth may continue beyond their usual approximate age levels.

OPEN EDUCATION--WHAT IS IT?

The term Open Education, according to Ellison, is often correlated with many terms such as free schools, open space, open campus schools, integrated day, and open classroom, but none of these descriptors tells much about the changing goals and methods of Open Education. In fact, there is no stated definition of Open Education in the literature. Rathbone says that Open Education does not operate from a formal theory. Chittenden and Bussis agree by stating no single set of principles or rules actually define Open Education, and there is likewise no single expert, authority, or document which explains what Open Education "really is."

Lacking a definition of the Open Education approach to education, the writer refers to numerous sources who each, in part, describe various aspects of the process involved in this method of teaching.

Ellison describes education in an open setting as being humanistic or affective in nature, and refers to it as education as art. The nature of art resides in the affective area of the individual and education as art attempts to involve the student intellectually as well as personally and emotionally with his learning activities. Basic to this involvement, continues Ellison, is the child's positive attitude towards himself and his fellow students, as well as a positive attitude toward his own personal contributions to his peers. The child would be continually encouraged and assisted to become a self-directed, independent learner. He also would have teachers who would be alert to the child's "readiness" to move from a basic exploratory behavior to an open encounter with learning skills, concepts and relevant subject information. Individual intrinsic motivation would be the rule; extrinsic motivation the exception.

As Rogers describes it in Chapter Two, real learners, true students, creative scientists, scholars and practitioners can only evolve within a context which encourages curiosity, self-direction, inquiry, questioning, and exploration. A person in this content would see that everything is in process of change--in a continuing development involving many changes. Thus, Rogers continues, it is the process of seeking knowledge that is basic to human security, basic to the continuation of personal growth and development of the individual. It is through this process that one learns how to learn--that one learns how to adapt and change.

As seen in the previous chapter, Sherman, in describing Open Education, expounds on the terms openness, uniqueness, freedom, and wholeness. Openness, to him, means to be open to the present dynamic environment

and how it is seen, felt and interpreted by each individual. It means to be open to the ever present process of change, the consistent evaluation of the future, and the continuity this process gives to the individual's life. It means to be open to meanings which individuals discover in experiencing this environment and their developing understanding of objects, concepts, and self.

Uniqueness in Open Education stems from the joint endeavors of the adult and the learner to test and strengthen the individual's powers of sensing, feeling, thinking, doing, and expressing. Uniqueness is the feeling within each individual of being self-controlled and self-directed.

Freedom in this setting refers to the individual's exploration of his environment as a response to his inner feelings, thinking, or inclinations. Wholeness concerns the totality of the person's presence--his physical, emotional, and conceptual modes of experiencing and communicating. It is being aware of the transition from one mode of communication to another as appreciations and insights are uncovered. It is having time, and quiet time, for reflection and creative integration of self and environment. Comprehension emerges naturally from the learner's personal conceptualizations, constructions, and artistic products. Concern is for the learner's unclear, vague uneasiness which appears before he can define a problem, as well as his hunches and curiosities which cause him to seek, search, and complete. Structure in this environment is found in the developing internal structure of the learner. Self-responsibility, choice of action or inaction, and voluntary and timely growth is the basis

for the learner's actions.

Thus, Sherman has described the teacher, the learner, and the environment and how the presence of each, and the mingling of each, supports the evolving and expanding growth and development of the learner. Centering on the individual learner within the open content of education, he sees an individual possessing many characteristics which are very real to him and which are very personal. He would be a person with unique perceptions and expressions which were intrinsically satisfying and joyful. Challenge would stem from the learner's own curiosity and creativity while developing and strengthening his cognitive, affective, and attitudinal integration. The learner's spontaneous activity, natural and responsible, would demonstrate his growth in unifying, integrating, and strengthening his inner self. He would be an involved individual, adding to both other individuals' experiences and the experiences of groups. He would be able to blend subjective and objective realities.

Sherman also offers a conceptual model which assists in explaining how the self is developed and integrated in an open setting. He explains this process as spherical, overlapping, unified and permeable--not closed. It is a process of expanding within and towards one's environment and returning to himself to evaluate and adapt to his experiences with his environment. Because there is continuity within the individual's self in his relationship with his social and objective environment, the environment itself lacks a rigid organizational structure. Inner resources and motivation are strengthened, the richness and meaning of the individual's

life is enhanced, interpersonal needs are met, and his coping power and adaptability are strengthened.

In a study by Chittenden and Bussis, as seen in Chapter Two, they present a chart (Appendix B) to help explain Open Education as it differs from other forms of education. This education is seen as both child centered and adult centered. It assumes that education can best take place when the child is located very much in the center of the learning process. But at the same time, the teacher must be actively involved with the student in order to help extend and integrate the individual's learning in all spheres. They are together actively involved in the process of learning.

In support of the previous viewpoints held by Sherman, Chittenden and Bussis, Nyquist states that education at every level must be person-centered, idea-centered, experience-centered, problem-oriented, and interdisciplinary. Basic to this process is trust in the student and respect for his worth. Emphasis should be on individual freedom, thinking and responsibility in order for natural, personal learning to take place. The classroom environment is free, supportive, and non-threatening to the learner and there is an awareness and respect for the different ways, the different times, in which children learn and that they learn from each other.

Beardsley concurs with the preceding sources as she describes the participating active teacher and active child and their involvement with their environment. Characteristics of Open Education would involve flex-

ability, responsibility, trust, fluidity of space and time, respect, honesty, and co-operation and sharing by both participants. The teacher is seen as an actively involved person who provides alternatives for students from which they can choose. The teacher observes, diagnoses, and guides, sometimes within a structured situation and sometimes without a structured situation.

Beardsley sees the student as an involved person who plans his own activity through which he experiences his own personal environment while working either alone or in groups. The student learns his skills as he needs them. There is no one right way to accomplish, no fixed curriculum and no fixed schedule, and there is responsible movement and talking allowed. Materials are well stored, well kept, and well organized, and they are widely different and varying materials which relate to the numerous subject areas.

Hawkins introduces an "I-Thou-It" relationship, triangular in nature (see p. 52) to represent the teacher, the learner, and the environment and how each comes together to form a context within the total person may interact, experience and grow. He says a human being cannot be seen as a person unless he is viewed within the active context of his own world. He cannot be dissociated from his environmental context and is in fact measured by his degree of involvement with it. No learner can be seen by himself or by others as being competent and knowledgeable person unless through communication with others simultaneously involved with him in his enterprises. Without these three elements there can be no context

for the self and other selves to develop and grow. Following this triangular conception the writer will focus first on the teacher (the I), the learner (the Thou), and then the environment (the It).

The Teacher--The I. AS seen in Chapter Two, Hawkins sees the adult in the open environment as the person who supplies external feedback to the learner as the learner involves himself in activities of his own choice. He is learning about the non-human and human worlds through his effects on both worlds, and learns to internalize the function of the adult in his own learning. The better the learner becomes at internalizing the function of the teacher in his pursuits for knowledge, the better educated the learner would be. At this point he would not need a teacher but would be his own teacher. But the learner also learns values such as trust, confidence, and respect from such a relationship with the adult. The adult has provided for the learner something he could not have done for himself and the learner values the one who has provided the needed external feedback.

Wlodarczyk states that teacher's beliefs about education are a significant element in fostering an open environment for learners. He says the interests of both the teacher and the learner is engaged in activities he finds valuable and interesting. The teacher relates to the learner through the context of his activity by serving as a resource person to his activity. The teacher sees the total life of the child as being relevant to his learning and sees the teacher's own dynamic activity in the classroom as being important to the learning process. The teacher respects and

trusts learners and is honest in his relationships with them. The teacher also recognizes the emotions of children, as well as the different emotions exhibited by different children and acts to support and stabilize them. Wlodarczyk continues by saying that each teacher should develop his own individual unique style of teaching so as to match their behavior with their beliefs about children and learning.

Resnick supports Wlodarczyk and elaborates on the origins and types of interactions in which the teacher and student are engaged. Extended academic discussions with one or more learners are mixed with very brief learner initiated exchanges concerning organizational and management questions. There are also extended interactions with teacher and learner through questioning concerning academic, personal and self-management aspects of his involvement with the environment. There are brief learner initiated interactions which serve a management as well as an instructional function.

To Sherman, as seen in Chapter Two, the effective open teacher would be one who communicated honestly and openly with learners to maximize the learners involvement, their expressiveness, their open-ended thought processes, and their self-motivated change. This type of student could not be evaluated through the learners own self-evaluation. The writer agrees with Sherman and presents a learner's self evaluation sheet and a letter to the parents explaining the purpose and use of the self-evaluation. The learner's self-evaluation instrument requests the student to evaluate him or herself in four areas: evaluation of himself as a person,

as a person within a social context, as a person who can produce a product from an idea of his own, and as a person who actively demonstrates an ability to think.

Rogers is in accordance with the material presented previously in this section on the teacher, but elaborates in much more detail than anyone mentioned to this point. He begins by saying that for him to teach, or be a teacher, is not what he would prefer to be. Instead he would prefer to be a learner.

He feels that to teach is to have little or no significant influence of a learner's behavior. True learning, which to him is truth which has been discovered by the self in experience, cannot be directly communicated to another. He therefore prefers to be learning things that matter, things that would have some significant influence on his own behavior, things that would be very self-rewarding to learn.

One of the best ways to learn, but most difficult according to Rogers, is to drop one's defenses and try to understand how another person's experiences seems and feels to the other person. Learning also takes place by stating his concerns and puzzlements, always trying to get closer to the meaning his experience presents to him. Learning means letting his experiences carry him on in a seemingly forward direction toward dimly defined goals as he attempts to understand at least the current meaning of that experience.

Consequences of this thread of thinking, Rogers states, would be to do away with teachers and people would gather together if they wished to

learn. Examinations would be eliminated as well as grades and credits, and the degree would be eliminated for it marks the conclusion of something and no significant learning comes from conclusions.

Thus, with no teacher, no exams, no grades, and no degrees present in the learning situation, the teacher-turned-learner would be replaced by a facilitator of learning. The strength and competence of the facilitator of learning, according to Rogers, would not rest on his teaching skills, his scholarly knowledge, his curricular planning, his use of AV equipment, his programmed learning, his lectures, or his abundance of books. It would instead rest on the facilitator's attitudinal qualities which exist in the personal relationship between both the facilitator and the learner.

The facilitator would possess the quality of being able to enter into a real and genuine relationship with the learner; be able to be himself, be aware of his feelings, and to communicate his feelings when appropriate, and be able to come into direct personal encounter with the learner on a person to person basis.

According to Rogers, the facilitator would also possess the quality of prizing the learner as the imperfect person he is, having his own feelings, his own options, and his own potentialities. He would accept the learner as a separate unique person in his own right, having an essential confidence and trust in his human organism. The facilitator would possess the quality of being able to demonstrate an empathy for the learner--be able to place himself in the learner's shoes and view his

world of education and learning from his point of view.

Rogers even suggests what a facilitator of learning would have to do and how he would have to respond with the learner to be effective in this capacity. The facilitator would have much to do in setting the mood and climate of the group's experience. He would help to clarify the purposes of the group as well as that of each individual, key on each individual's own motivation and desire in implementing the learner's purposes, and be prepared in a practical sense to accomplish this by making available the widest possible range of resources for learning. The facilitator also regards himself as a flexible resource for the group.

The facilitator of learning accepts and responds to both the intellectual context and the emotionalized attitudes of the learner and the group and in so doing becomes himself "one" member of the group, a participating learner. He shares his own feelings and thoughts with the group, implying no demand but merely a personal sharing which one can take or leave. The facilitator is constantly alert to and accepting of the deep feelings of learners, and he endeavors to be aware and accept his own limitations as facilitator.

As seen in Chapter Two, Sherman presents similar views concerning the teacher. Her teacher would be a highly sensitive person with a strong belief in the learner's potential for self-direction and a person who can allow and trust the learner to choose and cope within a fluid, dynamic world.

The teacher would be cognitively flexible by being open to new data

and new ideas. He would be tolerant of uncertainty and ambiguity and be little influenced by emotionality. He could share frames of reference with others and would accept the unknown, unpredictable, and unencountered and work with these uncertainties.

This teacher would have confidence and belief in the learner's potential for being self responsible. He would have considerable trust in the learner, giving him freedom to initiate and act, and choose his own way. The teacher likewise would have considerable belief and trust in his own self. The teacher would be very aware and accepting of his own internal states, affording him the strength to feel more secure about himself and more able to trust himself and his learners to a much deeper degree.

As seen in the preceding chapter, Kasower, in his "Observation Guide fo the Open Education Classroom," suggests the Open teachers's activities in the classroom. The teacher's presence in the classroom would not be a compelling one nor would the teacher be the center of attraction. Instead, the teacher would give encouragement, approval, and support to individuals and groups, small and large. He would be a responsible person in the capacity of being a resource for the learner. He encourages the learner to set his own goals and evaluate them, to develop child-to-child relationships, to assume responsibility and make decisions, and within this context he accepts the learner's language and feelings. The teacher monitors and observes but spends little time with discipline, and his is consistent in his verbal and non-verbal communication with the learner.

Walberg, in the second chapter, presents his "Pedagogical Characteristics of Open Education." He essentially agrees with the points of view of the authors presented previously and adds to their descriptions. Concerning the teacher's self-perception he relates the following thoughts. The teacher sees himself as an active experimenter in the process of creating and adapting ideas and materials. He sees himself as a constant learner exploring new ideas both inside and outside the classroom and sees his teaching as an opportunity for his own personal and professional growth and change. The teacher intervenes in the learner's learning based on the needs of the learner and not on the needs of the teacher. The teacher also feels comfortable working without predetermined lesson plans and fixed time periods.

Also, before suggesting any change or redirection of learner activity, the teacher evaluates the specifics of the learner's activity in which he is involved. The teacher is concerned with the learner's understanding and reasoning processes and not only with correct responses. In fact, errors are a valuable part of the process of learning for they provide information for both the learner and the teacher which can be used to further learning. Learners are encouraged to evaluate their own progress with the materials they are working with.

This concludes an analysis of the literature concerning the teacher and attention will now be focused on the learner.

The Learner--The Thou. Again beginning with Hawkins and his "I-Thou-It" relationship, he relates that the relationship learners have with

their human world, or their inanimate world, has a significant effect on the learner's capacity to see how things come together to form a coherent whole. This capacity for synthesis, for putting things together coherently, comes with the transition from autistic behavior to exploratory behavior. Autistic behavior is inborn and is activated by definite infant needs. Exploratory behavior is not an inborn schedule of needs that must be met and satisfied, but its satisfaction comes about through and acquired competence secured by the learner through functioning within his environment. Both personal and non-personal aspects of his environment must be explored if the learner's development is not to be distorted. Thing-oriented interests as well as person-oriented interests must be explored. Being involved in one's inanimate world often precedes the learner's ability to develop humanly.

According to Featherstone, as seen in the preceeding chapter, a learner needs to organize material and his own behavior through direct experience. It is this direct experience, his own activity, that he develops into a mental scheme of the world. Learners learn at different rates and at different times while doing different things. Children must be given an opportunity to explore and experiment--play if you will.

The Plowden Report, referred to in Chapter Two, states that play, be it with objects or with other children, is vital to children's learning. Through play children develop concepts of casual relationships, the power to discriminate and make judgments, to analyze and synthesize. Early explorations of the actions, motives, and feelings of themselves and of

others is an important factor in being able to develop healthy personal relationships. Satisfying play is a means of learning, a stimulus to learning, and a way to free learning from the distortions of the emotions.

The Plowden Report continues by relating that the learner is the agent of his own learning, and that activity and experience, both physical and mental, are needed to gain knowledge and acquire facts. Facts are retained best when they are used and understood as learners learn to learn. Learning occurs best when the learner sees the need to learn facts or skills. Children have a natural urge to explore and discover, and urge which is self-perpetuating.

Learning takes place when learners are working on their own level and are being treated positively. At all stages of learning rich and varied materials and situations are needed. Verbal explanations can be an obstacle to learning if it comes before understanding based on experience. It is vital that learners check their concepts with those of others through conversations with other learners and adults. Through this process a more objective view of reality is built.

Kallet relates three characteristics of gifted children as he saw them pursuing their own learning. He states they were quite cognitively honest and had considerable belief in the process of discovery. They had a personal sense of direction and could accept or reject other peoples' attempts at helping them. They also rejected the designation of artificial boundaries within the realm of their world of experience. Rather, they sense the relationship between their exploration of their external

world and the process of their uncovering of their world, and at the same time, discovering how these two worlds are both related yet independent of each other.

As if responding to the process of discovery mentioned above, Rathbone speaks of knowledge and its very personal nature. He relates that knowledge is idiosyncratic. No two persons' knowledge can be the same. Knowledge exists within the individual knower. Knowledge in books can be mouthed or memorized, but it needs a personal referent to become real. One can actually know something even though he can not yet verbalize it, and knowledge is not inherently ordered, structured or divided into various disciplines. Any such structure is man made.

Also, as seen in Chapter Two, Barth relates his assumptions about learning and knowledge which are quite similar to the views of the preceding authors. Concerning "motivation" Barth states that children are innately curious having exploratory behavior that is self-perpetuating. Under "Conditions for Learning" he states that a non-threatening atmosphere supports the learners exploratory behavior and his confidence in his ability to make important choices with effect his own learning. Exploration will also be enhanced if the learner has a rich environment with a wide variety of manipulative materials to explore. Learners are seen as having the right and competence to make significant decisions concerning their own learning in choosing the materials with which they wish to work and choosing the questions they which to pursue. Learners will choose to pursue activities in which they have a high interest, can become fully

involved and have considerable fun. If the latter three elements are present learning is taking place.

Concerning "social learning" Barth states that when exploring the same problems or the same materials learners will choose to collaborate in some way, and when a learner discovers something important to him he will endeavor to share it with others. The "intellectual development" of children progresses very slowly as they pass through similar stages of development, learning in their own individually distinct way, at their own rate, and in their own time. Intellectual growth and development occurs through concrete experiences followed by abstractions, and verbal abstractions should follow, not precede, direct experience.

In "evaluation," according to Barth, errors are necessary and are part of the learning process, but at the same time, the most important qualities of a person's learning cannot actually be measured. Learning is best assessed intuitively by direct observation, and the best evaluation of a child's work is his work.

Finally, Barth makes some "assumptions about knowledge." Little knowledge exists that everyone should know. The quality of being is far more important than knowing, and knowledge is just a means of education, not an end in itself. The structure of knowledge is personal, a synthesis of the individual's experience in his world. Knowledge is not neatly categorized into disciplines. The individual is quite likely to possess knowledge of a phenomenon and yet be unable to express it publicly.

Rogers, as was described in Chapter Two, goes into some detail in describing learning. In describing learning in the open approach to education, he reveals that human beings have a natural potentiality for learning and significant learning takes place when the subject matter is perceived by the student as having relevance for his own purposes. Learning which involves a change in the perception of one's self takes place best when external threats to the individual are minimal. Learning is acquired through doing and is even further facilitated when the student takes part in being responsible for his learning. The most lasting learning is learner-initiated-learning, involving both his intellect and his feeling. Self-criticism and self-evaluation of the learner is essential for the development of creativity, self-reliance, and independence. Above all, the learner learning the process of learning, being open to new experiences and incorporation into oneself of the processes of change, is essential.

Rogers also describes learning by describing his view of what the "best educated man" would be like. He is one who would be open to his own experience, live in an existential fashion, and be trusting of his own organism in choosing the most satisfying behavior in each existential situation.

Sherman, in the previous chapter, describes education as living, growing, and expanding personal horizons. She states there is a growth force within humans which is dynamic and stimulus-seeking simultaneously in multiple directions. The individual is unique and self capable of his

own problems and initiating responsible self-direction.

In educating the total individual, organismic unity of the learner is assumed, and equality for the healthy functioning of all the learner's dimensions is given. Various dimensions of the learner will at various times dominate; affective functioning, sensory acuity, physical response, independent action, abstract conceptualizing, etc. These many dimensions of the learner can never be separated but are seen as a smoothly moving fluid totality. In fact, Sherman relates, to function intelligently with one's environment the learner must involve his whole organism.

In Kasower's "Observation Guide for Open Education" as seen in Chapter Two, she describes the learner's behavior as one which is characterized by confidence and self-reliance. The learner initiates activities of his own choice and becomes involved with his activity, either alone or with others, and maintains involvement without the presence of the adult. He also interacts with the teacher and other adults, and moves freely from one activity to another.

Kasower continues to show that subject matter is related to the learner's interests and there is a range of quality in his work. The learner's language development occurs through activities and verbal communication as he works alone, in groups, or with adults. He is also seen seeking and using resources on his own.

One of Walberg's nine themes mentioned in Chapter Two, relates to the learner and the process of learning. He says that the exploratory behavior of the learner should form the basis of his learning in school

and time for substantial learner involvement should be provided for. The learner is capable of making intelligent decisions in his own process of learning, and adequate direct experience must be afforded to him in order that he form real conceptual understanding of his subject matter. The learner sees no distinction between work and play, for play is a child's way of learning.

Walberg continues to say that knowledge is a personal synthesis of one's own experience with a myriad of subjects and their skills, and traditional techniques of evaluation do not measure many important qualities of learning. Evaluation of the learner's development over a long period of time is much more important. Courtesy, kindness, and respect must be afforded the learner as he makes his own decisions concerning his educational goals. The learner's learning experiences are justifiable in themselves and not viewed as preparation for the future. With few, but reasonable and consistent rules and limits the learner is more free and productive, especially in an accepting and warm atmosphere. Openness, trust, and mutual respect facilitate the learner's progress in learning. Throughout the learner's period of formal education the acquisition of an ability and willingness to combine and use the elements of learning how to learn is prominent.

The Environment--The It: Again, continuing with the I--Thou--It concept, Hawkins sees the "It" as the inanimate through which the teacher-student relationship is developed as both the teacher and the learner learn together. Because the learner has the freedom to make his own

choices from a range of alternatives, it is the learner himself who gives the teacher the basis from which to respond with suggestions and materials in order to deepen the learner's involvement in his own work. In this way the teacher facilitates the transformation of the interests the child is developing spontaneously, and herein makes an investment in the learner's life and learning.

Also, in this way, the child is developing a sense of being separate from others, competent and wholesome in his own right, as well as receiving a knowledge of belonging because of the common theme the teacher and learner have for discussion. They both become alive and real with each other. The learner, as a separate and unique individual, is trying to accommodate his environment--his social environment and his inanimate environment. The learner's accommodation of his environment greatly depends on the resources available to him in the daily world around him. The richer the adult-provided resources the firmer the bond between the human beings involved and the more accommodation by both the teacher and the learner within this relationship.

Kallet supports Hawkins thinking when he says that a learner must be granted the freedom to question in an environment rich with materials and ideas which can be investigated. He must be allowed to approach adults and other learners alike for assistance, confident that he will not be forced to abdicate his own responsibility and joy in discovering the results that emerge.

In Chittenden and Bussis' "Analysis of an Approach to Open Education,"

they graphically and verbally describe the balance the teacher, learner, and animate should exhibit in the classroom environment, the I--Thou--It relationship. They relate that the learner is in the command center of the process of learning. It is he who is messing around with ideas, elaborating, doing things over and over again, and doing them in different ways. It is the learner who is the constructor of reality--the inventor. Likewise, it is the learner who comes up with new combinations of ideas and things in the continual process of organizing his own experience into his unique body of personal knowledge.

The teacher, Chittenden and Bussis continue, accepts the role of an understanding, supportive adult, but by no means does he assume an essentially passive role. For the teacher must have considerable involvement in selecting materials and equipment, making suggestions, diagnosing, questioning, actively expressing their interests, and being adult and honest in their appraisal. The classroom environment should reflect the teacher and other adults as well as the learner. Good teachers, in their view, have an experimental attitude and are active adults together with active learners in the classroom environment.

Katz, as seen in Chapter Two, lists the tentative dimensions of classroom practices in the open education setting. She relates that the use of space, the movement of persons, materials, and equipment is flexible and not fixed and invariable. In fact, movement may extend outside the school itself. Activities in the classroom transcend the classroom itself and the range of these activities are more open-ended and not fixed.

The activities of the learners are described as being pursuits of their own choice, extensions and elaborations of their own spontaneous interests and not the teacher's. Content and topics are viewed in the same manner, being much wider and more open-ended. The time involved with these activities, topics and contents, is more flexible and open.

Concerning the Teacher-Learner relationship, Katz has the following observations to add. Activities are just as likely to be initiated by the learner as the teacher, and the more likely the teacher to work with individual learners as with a group. The teacher is giving suggestions, guidance, encouragement, information, directions, instructions, feedback, clarification, posing questions, probing children's thinking, and listening to them.

Marshall, in the preceding chapter, relates the characteristics of an open environment. She says the topics of learning are interdisciplinary and integrated. The environment is rich and varied with materials and experiences being added or changed as needed. Scheduling of time blocks is at a minimum while the flexibility of the day is maximized. Large and small blocks of time are available to the learner. Also, the spatial arrangement of the learning environment is one of openness where movement within the classroom, as well as beyond, is accepted and used.

Sherman advocated an environment which is psychologically safe for the learner to express himself as well as disclose himself. It should be one where the learner can test himself in his own experience, gaining a sense of competence and control over his life and environment. Character-

istically, the learner would be pursuing the unknown, integrating information in his unique ways and diverging from commonly accepted views and values.

Sherman also comments on a workshop environment--a self-education lab. This self-education environment would provide the learner ample freedom to transact as will with minimal external control and evaluation. Physical bounds to the learning environment would not exist, allowing the learner's minds and imaginations to extend as far as their motivations would carry them. Sherman confirms that these characteristics may be more practical than idyllic for survival may require greater openness than history has yet known.

Kasower, in her "Observation Guide for the Open Education Classroom," describes the room environment and atmosphere in the open setting. The classroom would be bright and colorful with much of the learner's work on display. A wide range of materials and equipment is available and easily accessible to the learner as he needs it. The tone of the room implies self-discipline even as the learner is free to move to areas outside the immediate classroom. There are many signs of enjoyment within this environment--laughter, excitement, discovery, sharing--while many different activities go on simultaneously.

Finally, in Walberg's pedagogical characteristics of the open environment, he states the need for the learner to have direct experience with manipulative materials which are supplied in great diversity and range. The learner is permitted and encouraged to use the materials in

ways not foreseen to the teacher. Storage space for the learners own materials is done individually with other materials available to all for sharing. Activity is quite varied both in range and scope as well as in location--in or out of the classroom. Children help each other through communication of ideas and information.

Only occassionally, states Walberg, will the teacher assemble large groups for the purpose of instruction for the learners typcially work together or individually as determined by themselves. On occasion the teacher does bring the large group together for discussion, to share feelings, ideas and activities for the purpose of promoting a sense of belonging to the larger group. The teacher also establishes an atmosphere which both expects and enables the learner to use his time productively, valuing his work and learning.

SUMMARY

The purpose of Chapter III was to make an analysis of the material found in Chapter II. It was found that Piaget's theory of child development is significantly descriptive of the Open Education style both in England and in the United States. His theories deal with the developmental structures of the mind which hold true for individuals and for the human species. These structures are formed as the individual passes through four main periods of development. Maier, Elkind, and Isaacs state that these stages are continuous and repetitive and should not be fixed to any sequential age of the individual. Isaacs further says that

this growth and development--learning--occurs through one's own active doing, and all of the experiences are cumulative and form a structure in the child's mind upon which he can build. Elkind, Maier, and Pulaski further explain this process of growth and development through the use of concepts of assimilation, accommodation, adaption, equilibrium, egocentricity, imitation, causality, and others. The child is constantly building and putting the parts of his world together as he builds a bigger and broader personal world of knowledge and understanding.

No definitive definition of Open Education exists, but numerous authors have attempted to explain the process as they interpret it. Elkind, Sherman, and Rogers concentrate on the learner's self-direction and the conditions which enhance the development of this quality. The center of the entire process is the child himself--his interests, his decisions, his actions, and his results. Nyquist, Beardsley, and Hawkins, concur on the learner being at the center of his own activity. Chittenden and Hawkins point up the significance of the active participation of the facilitator with the learner. All in all, the main ability for the student to acquire in this open approach is for him to learn to learn.

CHAPTER IV
SYNTHESIS OF THE PROBLEM

In this chapter, the writer will reflect on the background of the study, the need for the study, and the material presented and analyzed in Chapters II and III. The salient features of Open Education will then be derived from the material in Chapter III, and characteristics for Industrial Arts Programs will be deduced from these features.

REFLECTIONS

In originating this study, the writer had serious questions concerning the programs and techniques he was implementing in the Industrial Arts Laboratory. Questions regarding his own university and college backgrounds in Industrial Arts were also quite prevalent. Many kinds of activities and programs seemed to be present in higher education for subsequent use in the secondary schools, but the foundation for these activities seemed to be, for the writer, somewhat lacking.

Why teach Line Production? Because it was a part of industry, and Industrial Arts teachers have a responsibility to teach this activity? Why should Research and Experimentation be taught? Because it is a program suited for the more capable students and also a program which teachers industry? Why should welding, foundry, woodturning, woodstaining, ohms law, soldering, printing, photography, and all the other topics and processes of the Industrial Arts Laboratory be taught? Because industry needs people to pursue these skills and become proficient in them?

In fact, why should all or any part of the Maryland Plan, the IACP Plan, the Maine Plan, the Stout Plan, the North Carolina Plant, or the Alberta Plan, or any of the many programs supported by university and college Industrial Arts departments in the United States and Canada be taught in our schools?*

The larger question to all of this is where does the individual teacher find the basis from which to implement any program or practice in the Industrial Arts Laboratory? The question then in turn becomes how do you, in daily fact, implement Industrial Arts activity?

Found through experience and through the efforts involved in this paper, the writer increasingly sees the significance of the learner's own interests and subsequent activities as being the basis from which to initiate any action or program in Industrial Arts. Support for this reasoning, and any activity which would thus follow, is found in the writings and experiments of the Genetic Epistemologist, Jean Piaget.

Ironically, it was not he who started educators teaching this way, but it is his theory of child growth and development that most closely explains how children learn through self-initiated activity--activity which supports the intermingling of the learner's physical, emotional, and conceptual capacities and potentials. This type or style of education has been described under many different descriptive names, but the name which seems to encompass nearly all of these practices is Open Education.

*"The Monitor;" Volume 2, Number 1; p. 14-15; Fall 1970.

The practices included within Open Education have expanded significantly in England, mostly on the primary level, and are now beginning to have some impact on the educational assumptions and practices here in the United States. To be sure, if one does take the practices and principles of Open Education seriously, change in the present style and type of education in our country would experience significant changes.

To clearly define Open Education in a definition or series of principles is practically impossible. No authority in this field has done so to date. In fact, they specifically refrain from trying to put it into a capsule of explanation.

Nevertheless, in the next section of this paper, the writer will synthesize the material in Chapter Three as a means of presenting the more salient aspects of this style of educating human beings.

SYNTHESIS OF THE LITERATURE

OPEN EDUCATION

Knowing full well that there is no conclusive definition of Open Education in the literature the writer will present, not a definition, but a statement as to what he has found to be the central theme of Open Education.

The central theme of Open Education is process-- and art of releasing the learner's conceptual, emotional, and physical potentials which, when all are co-ordinating together, supply him with a personal and holistic direction of interest, inquiry, and active investigation into his own unique, internal, and external environment.

Again, this is not a definition of what Open Education is, but a statement describing the central theme of this ever changing, ever expanding process of educating human beings. The theme is one of process--having no beginning, having no end, but only a continuing development of the total learner as he involved himself in identifying and utilizing his environment and himself. In turn, he repeats this same cyclical process in order to grow again--conceptually, emotionally, and physically. It is also an art, for this process of human growth and development in education is sensitive and constructively responsible to the evolving conceptual, emotional, and physical parameters of each human being involved.

The key to this process is found in the answer to these three questions: How does the human being grow and develop? How does one, who is trying to facilitate his growth and development respond to the learner in an open-ended and supportive manner? What educational environment is necessary to support the activities of both the learner and the facilitator?

Three distinct major elements are necessary for a fluid and continuous evolution of this process to occur. The first element in this process is the learner himself. The second element is the teacher or, as this writer prefers, the facilitator. Thirdly, the environment, in and from which both the learner and the facilitator each discover facts and understandings while reconstructing them into a personal body of knowledge. This body of knowledge includes understandings concerning material objects as well as social and conceptual understandings.

From here the writer will concentrate his efforts on presenting some basic characteristics of the learner, the facilitator, and the environment as reflected in the literature. He will also explain these characteristics in terms of their meaning for Industrial Arts.

The Learner. The following is a series of fifteen characteristics of the learner as he or she is viewed within the context of an "Open" education setting.

The first of these is:

1. The learner exhibits a natural self-perpetuating urge to explore and discover his environment.

The writer feels that the learner has, as a natural ingredient of his personality, an innate self-perpetuating urge to explore and discover knowledge and understanding within his environment. In order to support or facilitate this innate quality of the learner, he should be allowed and encouraged to pursue the materials and topics that truly interest him. These materials or topics may be of a social, conceptual, or mechanical nature, but above all they should truly be of interest to the learner himself.

A second characteristic of the learner is:

2. The learner exhibits a self-reliant and independent behavior as he pursues his own interests.

Along with the learner's natural urge to learn, he demonstrates an independent and self-reliant behavior. He has an innate direction of pursuit which is quite personal to the learner, and distinctly different

from the other learners he is with. He has a natural interest of his own and proceeds to pursue this interest in a self-reliant manner. Therefore, the Industrial Arts learner should be allowed and encouraged to exercise a personal self-reliant and independent behavior when he is pursuing his interests in the Industrial Arts Laboratory.

A third characteristic of the learner is:

3. The learner makes significant decisions concerning his own learning in choosing the materials and the investigations he wishes to pursue through direct active experience.

Together with the learner's natural urge to learn and his self-reliant and independent behavior, he also makes significant decisions about what he learns, the materials he uses in learning and the activity in which he involves himself. He is pursuing his learning from his own interests and direct experience with his environment, and from this background or personal knowledge and experience he is drawing conclusions, making decisions, and acting from these independent decisions.

Therefore, the Industrial Arts Learner should be allowed and encouraged to make significant decisions concerning what he learns, the materials with which he learns, and the specific activity with which he becomes involved. The topic, materials, and activity may be in the area of welding, gluing, photengraving, carbonation, or even something as broad as the Maryland Plan, the I.A.C.P., The Ohio Plan, etc. The important part of all of this is that the Industrial Arts Learner has been allowed to make significant decisions concerning his voluntary active participation in any one or more of these activities, and he also has

been allowed and encouraged to decide what and how he wants to learn in any one of these activities.

At this point it becomes important that:

4. The learner learns from his own environment through active concrete experiences before he can first understand and then, in turn verbalize his learning.

All learners, and certainly all Industrial Arts learners, learn first through direct, concrete, dynamic experience within their environment. In fact, direct experience is needed before the learner can truly understand a concept, a process, or a skill. Only after he has had active concrete experience with knowledge can he himself understand and in turn verbalize his own understanding of that knowledge. This source of verbalization does not stem from the memorizing of facts, but does originate from within the learner's own internal structure of understanding.

It is essential that the Industrial Arts Learner has active concrete experience with knowledge before he can be expected to understand a concept, a process, or a skill. In fact, it is the learner's direct experience, and not verbalization from the instructor, which must occur first if the learner's knowledge and understanding is to truly originate from his own internal structure of understanding.

A fifth characteristic of the learner in an "open" educational environment is:

5. The learner, through exploration of his internal self and his external environment, establishes a distinct and independent identify between his internal self and his external environment.

When education is keyed to the interests and pursuits of the learner, and he is also allowed to make significant decisions about his learning, the learner's natural talents are freed and developed as the learner himself sees them, feels them, and understands them. But to understand his talents and further develop them he must first experience them through active, concrete experience.

In so doing he is discovering two environments--his own internal self and his own external environment. He is discovering that both he and his environment exist independently and distinct from each other. It is in this context that the Industrial Arts Learner becomes more aware that he exists as a separate and distinct entity from his external environment and there is not prearranged relationship between the two.

While the learner is realizing the separateness of these two environments he is concurrently establishing the following:

6. The learner, through exploration of his internal self and his external environment, establishes a unique co-ordinated relationship with his internal self and his external environment.

He is establishing a unique co-ordinated relationship of his own making and design between his internal self and his external environment. He is actually creating, piecing together, the myriad of physical, emotional and conceptual aspects discovered within himself at the same time he is creating, piecing together, the myriad of concepts, processes and skills discovered in his external world.

The important points here are: the learner is identifying himself and his external environment as two separate entities and he is constantly

in the process of creating and combining both of these entities into a co-ordinated whole. Therefore, the Industrial Arts Learner should be allowed and encouraged to be actively creative in his use of the materials, tools, machines, processes, and concepts which he personally discovers through learning.

One characteristic of the learner which contributes to his ability to create is found in the following:

7. The learner exhibits an ability to change by being open to new information and experience which may alter his conception concerning his material or human environment.

In this respect, the learner is open to new information which is either additional information or conflicting information concerning aspects of himself or the activity in which he is engaged. Not only is he open to this new information, but he will more often use this information as it applies to his own purposes and direction of activity. Therefore, the Industrial Arts student should be allowed and encouraged to use any and all information concerning his unique self and his unique activities in order that he may expand and deepen his knowledge and understanding of himself and his environment.

The learner, by being open to new information and making decisions about the new information, is participating in the following:

8. The learner is learning how to learn -how to discover and in turn willfully use these discoveries to discover still more of his social and material environment.

He is participating in the process of learning how to learn. Learning how to discover knowledge and understanding and purposely use this

new understanding to produce, again, more knowledge and understanding of both his social and material environment.

Therefore, the Industrial Arts Learner should be allowed and encouraged to discover his own knowledge and understanding of his social and material environments and in turn, use this new understanding to produce even more knowledge and understanding in order that he may learn the process involved in learning how to learn.

A primary aspect of the process of learning how to learn is seen in the following:

9. The learner's knowledge is personal and idiosyncratic and becomes real within the individual knower as a result of his own direct personal experience.

It is the direct personal experience of the learner which produces real knowledge. Real knowledge and understanding which is unique to the particular learner because it was he that decided to pursue it, it was he that discovered it, and it was he that used it to accomplish what he was actively pursuing. Therefore, the Industrial Arts Learner should be allowed and encouraged to become involved in active, concrete experiences so his knowledge and understandings of these unique experiences will be of real, practical and productive value to him.

All of this can occur best as stated as follows:

10. The learner learns best in an atmosphere which is non-threatening to his exploratory activities.

The learner needs a psychologically supportive, open, and free atmosphere in which to actively experiment with new information and new combinations of information. The learner's activities with these concrete

experiences are based on his interests and purposeful direction. It takes little to threaten his overt activity with materials, especially when he is being inquisitive about his own unique knowledge and understandings. Therefore, the Industrial Arts Learner should be given little if any personal criticism or discouragement concerning his purposeful learning activities and behavior.

But still the learner needs more than a psychologically safe atmosphere in which to learn. Another need is expressed as follows:

11. The learner has time, and quiet time, to reflect of his purpose and direction of activity in order to differentiate and integrate his self and his environment.

The learner needs time. He needs quiet time and open time so he may reflect on his purpose for being involved in a particular learning activity. He needs time to reflect on all the personal and material elements involved in his dynamic learning so he may know and understand his purpose and in turn renew or alter his direction of activity. He also needs time to integrate the many personal and material elements of his learning into a complete and co-ordinated whole in order to be sure that he, the learner, is truly pursuing his own purpose and his own direction. Therefore, the Industrial Arts Learner should be allowed and encouraged to take time to determine if his learning activity is based on his own purpose and his own initiated direction.

The learner certainly needs the element of time throughout his learning activities but he need time in a flexible way as suggested in the following:

13. The learner learns as he exhibits joy, satisfaction, inquisitiveness, curiosity, and spontaneity with his active involvement in his learning.

Within the "open" setting the outward behaviors of the learner are ones of job, satisfaction, inquisitiveness, curiosity and spontaneity. It is quite clear that the learner is enjoying his learning activity and is not inhibited as he inquires and becomes curious about his social and material environments. Over all, he tends to be spontaneous in his activity and pursuit of knowledge and understanding. Therefore, the Industrial Arts Learner is learning if he exhibits the qualities of joy, satisfaction, inquisitiveness, curiosity, and spontaneity within the context of his unique learning activity.

It is extremely difficult if not impossible to evaluate the learner in the traditional style of testing. Instead he is evaluated as follows:

14. The learner is evaluated intuitively by both the facilitator and the learner himself, his own personally initiated activity, and the results stemming from his activity.

This is to say that standardized testing cannot be applied to the "open" setting of education. Each learner is typically overtly involved in an activity selected and initiated by himself and therefore cannot be measured on the basis of what the group should know. The learners are simply not learning the same things. Even if they happen to be learning identical information they are not learning them in the same way or for the same purpose.

Knowledge and understanding are personal and unique. No two learners will learn the same thing, in the same way, or at the same time. There-

fore, the standard that must be used to evaluate their learning activity is necessarily the unique results of their own learning activity. The learners results are not compared to any so called standards. They are taken for what they are evaluated by both the learner and the facilitator through direct observation. Therefore, the Industrial Arts Learner is evaluated by both the facilitator and the learner himself, through direct observation of the learner's personally initiated activity and the results stemming from his activity.

Finally, one aspect of the "open" education setting which plays a significant part in facilitating the learner's learning is the following:

15. The learner learns from other learners when there is discovery on their part as they actively explore similar or complementary materials and problems.

For certain, learners learn from other learners. But this learning from others is most significant when learners wish to actively share with others the knowledge and understandings they have discovered through their own involvement with materials and problems.

In this respect, it is a sharing of something which is very personal to the learner. He is in effect, giving something that is uniquely his to another so that the latter can more clearly define or solve a problem. The learner is, in effect, more fully giving of himself to another human being. Therefore, the Industrial Arts Learner should be allowed and encouraged to share his knowledge and understandings of their social and material environment with other learners.

This concludes the characteristics of the learner in the "open"

educational setting. The writer will now turn his attention toward the Facilitator.

The Facilitator. The second major element necessary for the fluid and continuous evolution of the "open" process of education to occur is the facilitator. The writer will present some eighteen characteristics of the facilitator as seen in the "open" education setting.

The first of these characteristics is as follows:

1. The facilitator see the learner as an organism coordinating his own inseparable and mutually dependent physical, conceptual, and emotional qualities as he investigates and discovers his environment.

In the "open" setting the faciliator is concerned with the whole learner--his physical, conceptual, and emotional qualities. He is concerned with how the learner uses and coordinates his human qualities with his dynamic activity of investigating and discovering both his social and material environment. No one human quality is stressed or repressed, but are instead accepted for what they are as the learner uses and expresses these qualities in his learning activity. Therefore, the growth and development of the learner's physical, conceptual, and emotional qualities and his coordination of these qualities within his dynamic learning activities.

The facilitator is likewise aware and responsive to each learner as follows:

2. The facilitator sees each individual learner to be a unique, but imperfect human being having his own separate and distinct physical, emotional, and conceptual qualities.

The facilitator is aware and responsive to the unique but imperfect qualities of each learner. Some learners are quite strong in some qualities and are likewise less strong in others. In fact, each learner's qualities are innately different from any other learner, and must therefore be seen as having physical, emotional, and conceptual qualities which are distinctly unique and separate from any other learner. Therefore, the Industrial Arts Facilitator is aware and responsive to the unique and separate physical, emotional, and conceptual qualities of each distinct individual learner.

The facilitator also responds to the learner in the following manner:

3. The facilitator has considerable respect and trust in the learner's ability and potential to responsibly choose, initiate, and actively pursue his own initiated learning activity.

The facilitator has a respect and trust in the learner's ability and his potential to choose a particular direction of activity. He likewise respects the learner's ability and potential to initiate action in the direction of his own choice, and, in turn, trusts the student to actively pursue this self-initiated learning activity. It is here that the facilitator is giving the learner the freedom and support to choose, initiate, and pursue with positive action his own initiated learning activity. Therefore, the Industrial Arts Facilitator trusts and respects the individual learner's ability and potential to choose, initiate and actively pursue his own initiated learning activity.

This respect and trust is not given to the learner blindly. He is not merely set out on his own to conquer the environment entirely on

his own cognizance. Instead the facilitator acts in the following way:

4. The facilitator communicates honestly and in an open-ended manner with the learner for the expressed purpose of assisting the learner in clarifying his own purpose and direction of activity.

Communication is of prime importance in an "open" setting. The learner needs to communicate with the facilitator to more clearly define his feelings and thoughts concerning his direction of learning activity. The facilitator needs to communicate with the learner in order to become more aware of the learner's direction of activity, his feelings and thoughts concerning his activity, and certainly to assist in supplying to the learner the information and materials needed to productively pursue his learning activity. This communication is in no way dictatorial, but is open, honest, questioning, challenging, real. The communication is also open-ended. That is to say, the learner is not simply doing as the facilitator has stated, but is still free and open to decide for himself, from the information and materials made available to him, what course of action he wishes to pursue. It is both simple communication as well as good open discussion that plays a significant part in the open education of the learner. Therefore, the Industrial Arts Facilitator communicates honestly and in an open-ended manner with the learner for the expressed purpose of assisting the learner in clarifying his feelings and thoughts concerning his own purpose and direction of activity.

Communication is not only a verbal process in the "open" setting. Communication also consists of the following:

5. The facilitator communicates with the learner both verbally and through action for the expressed purpose of maximizing the learner's independent dynamic involvement with his learning activity.

Communication verbally is not to be slighted in the least, but it is the non-verbal, the action, and sometimes even the non-action, that is most helpful in assisting the learner in his activity. This in no way means the facilitator performs the activity for the learner, but instead he actively helps or assists the learner in accomplishing tasks which are proving difficult for him. In essence, they become actively involved with the activity at hand and share and coordinate their abilities to overcome the problem facing them.

In performing in this manner, the facilitator is truly expressing his concern for the learner and, through mutual activity, approving of the learner's personal involvement in his unique learning activity. Therefore, the Industrial Arts Facilitator communicates with the learner verbally and through action for the expressed purpose of maximizing the learner's independent dynamic involvement with his own learning activity.

In fact, it is through the process of mutually solving problems together that the facilitator most clearly fulfills his role of the learner's facilitator. Stated another way:

6. The facilitator is an active experimenter taking a dynamic part in facilitating the learner's own learning through the process of creating and adapting ideas and materials together.

The facilitator, along with the learner, is first and foremost an experimenter. He, along with the learner, is one that experiments with

the learner's ideas and materials, as well as his own, in order to assist the learner in finding solutions to the problems that arise out of the learner's activity. Neither the learner nor the facilitator assumes one correct route or way to solve a learning activity problem. Rather, they work together constructively and positively towards a sense of mutual dynamic accomplishments. They together, through experimentation with ideas and materials, reduce the level of frustration attached to the learner's activity and replace it with a forward sense of accomplishment on the part of the learner and the facilitator. Therefore, the Industrial Arts Facilitator is an active experimenter taking a dynamic part in facilitating the learner's own learning through the process of creating and adapting ideas and materials together.

And certainly, along with this, the facilitator is fundamentally described in this manner:

7. The facilitator is himself one member of a group of learners and a learning member of that group.

The facilitator is one individual member of a larger group. His position is not an authoritarian one, but a position that places him on a level with the learners themselves. He is, in fact, a learner within the group itself. Both he and the learners are constantly learning together and relying on each other for direction concerning their mutual learning activities. They are mutually dependent on each other for information, ideas, feelings, materials, and dynamic activity concerning the learner's learning activity. Therefore, the Industrial Arts Facilitator is himself one member of a group of learners and a learning member of that

same group.

By no means does the facilitator discourage the learners from learning from each other. In fact, it is he that allows just the reverse of this as stated here:

8. The facilitator supports and encourages learner-to-learner communication and relationships.

Just as it is significant for the learner-facilitator relationship to be encouraged, it is likewise most important for the learner-to-learner relationship to be supported and encouraged. One of the major strengths within the "open" style of education is the allowance for the development of relationships between peers. The learners are supported and encouraged to express their own thoughts and their own feelings concerning the activities of the learner or learners. In so doing, the learner encounters the various problems involved in expanding and developing his own conceptual and emotional qualities on a peer social level. Just as he investigates, discovers, and expands his conceptual and emotional qualities on a material level. Be it on a material level or a social level, the learning which takes place occurs through direct active experience. Therefore, the Industrial Arts Facilitator supports and encourages learner-to-learner communication and relationships.

The facilitator becomes involved with the learners in the following way:

9. The facilitator is actively involved in the learning activities of the learner primarily on a one-to-one basis.

Because each learner in the group has defined his own interests and has pursued these interests, most every learner will be involved in a

learning activity which is significantly different from every other learner in the group. Because of this wide diversity of interest and activity it is only natural that the facilitator involves himself with each learner's activity on an individual basis. Therefore, the Industrial Arts Facilitator is actively involved in the learning activities of the learner primarily on a one-to-one basis.

The individual interests and learning activities present in the "open" setting necessitates a different style of evaluation. The evaluation techniques can be stated as follows:

10. The facilitator employs cooperative learner-facilitator techniques of evaluation to assess the learner's success and progress in his physical, emotional, and conceptual growth and development

Certainly there is no room for the use of standardized testing in the "open" setting. With each student following his own direction of activity they seldom find themselves confronted with the same type of problems, information, or concrete experiences. They are simply not striving to meet any standard but their own, and they cannot be held responsible for any arbitrary external standard.

The standard used is the learner's own standard. The learner, in the "open" setting, takes considerable responsibility in evaluating himself. This responsibility is shared with the facilitator, but a significant level of learner self-evaluation through direct observation of his own activity and the results stemming from this same activity is placed in the hands of the learner himself. Therefore, the Industrial Arts Facilitator employs co-operative learner-facilitator techniques of

evaluation to assess the learner's success and progress in his physical, emotional, and conceptual growth and development.

It takes a strong individual to fulfill the position of facilitator in an open education setting. This is said more fully in the following:

11. The facilitator is a human being who personally feels quite secure, having considerable belief and trust in his ability and potential to support the numerous and varied human relationships which develop within the facilitator-learner interaction.

The facilitator is a person who is emotionally and conceptually quite secure. This does not mean that the facilitator is a rigid, inflexible individual. It actually means the exact opposite.

The facilitator is a strong person because he has the capacity to believe and trust his own physical, emotional, and conceptual qualities while at the same time supporting the extent and variety of learners' emotions and ideas openly expressed within the "open" setting. Each relationship with each unique learner demands, by definition, a different and unique response from the facilitator. The response to each learner varies considerably in both magnitude and scope from day to day and week to week. Only a strong belief and trust in his own physical, emotional, and conceptual qualities would afford the facilitator the strength to support the many and varied relationships encountered each day. Therefore, the Industrial Arts Facilitator feels quite secure, having considerable belief and trust in his ability and potential to support the numerous and varied human relationships which develop within the facilitator-learner interaction.

The growth and development of the facilitator's human qualities must be significant. Both the quality and the depth of this development is considered to be a most necessary asset in being able to free the student's ever present urge to pursue his own learning. Two basic but very important ways in which this personal strength of the facilitator is employed is described as follows:

12. The facilitator exhibits the quality of being aware of himself and his feelings and of being able to openly and honestly share his feelings within his direct personal relationship with the learner. Furthermore --

13. The facilitator is aware of, accepts, and responds to the varied and numerous emotions of the individual learner in a manner which is supportive of these emotions.

In short, the facilitator is not a fake, a facade of a person. Instead, he is simply himself, real and genuine, being aware of his own feelings and, most importantly, being able to share his feelings with the learner directly and openly. There is open and honest encounter with the learner, each being real and genuine in the process. Each being himself, being accepted as a distinct individual who makes no impositions on the feelings of the other. Each is psychologically safe and in turn open to sharing and expressing their deep felt feelings to each other. This open, trusting, real encounter among facilitator and learner is simply not possible unless the facilitator is especially emotionally strong, resilient, and flexible. He places himself in a position where he must know and express his own feelings and at the same time, accept and give support to the learner's expression of his feelings. Therefore, the Industrial Arts Facilitator is aware of himself and his feelings and is able to openly and

honestly share his feelings within his direct personal relationship with the learner. In turn, the Industrial Arts Facilitator is aware of, accepts, and responds to the varied and numerous emotions of the individual learner in a manner which is supportive of these emotions.

Another area in which the facilitator must be aware and sensitive is explained as follows:

14. The facilitator timely intervenes, or refrains from intervening, in the learner's learning only in direct response to the verbally or physically expressed needs and interests of the learner himself.

The facilitator needs to recognize the distinction and separateness of his own needs and the needs of the learner. He needs to give the learner considerable room and freedom to make decisions and act from these decisions on his own. It is likewise necessary to trust the student to actively move forward with his own learning, facing and solving many of the social and material problems he encounters on his own. In so doing, the facilitator needs to decide when it is best to respond to the learner's verbal or physical expression of need, and when it is, in fact, not the appropriate time to offer assistance to the learner. To learn how to learn requires that the learner take on considerable responsibility for his own learning. It also requires the facilitator not to interfere with the learner's experiences in learning how to be independent and self-reliant. A flexible position of response and non-response to the learner's needs must be established by the facilitator to truly insure that the learner is learning how to learn. Therefore, the Industrial Arts Facilitator timely intervenes, or refrains from intervening, in the

learner's learning except in direct response to the verbally or physically expressed needs and interests of the learner.

The facilitator is also flexible in another important way:

15. The facilitator is cognitively open to new information and ideas.

To the facilitator there is no one correct or proper way to accomplish a task or solve a problem. There is no one body of specific knowledge or practice which is considered "sacred." No body of information is considered narrow or fixed. Instead the ideas and information of the facilitator and the learner must be shared, and from this exchange, a direction is selected and action is taken by the facilitator or the learner or both. The facilitator is simply not depending on a predetermined way of action of solution to the problem, but is responding to the problem with all of the shared knowledge and ideas at the time the problem arises. Therefore, the Industrial Arts Facilitator is cognitively open to new ideas and new information.

The facilitator is likewise open to the following:

16. The facilitator is concerned with and accepts both correct and incorrect learner responses for the purpose of facilitating the learner's understanding and reasoning processes.

It is certain that both correct and incorrect decisions and actions will be made by the learner. Nevertheless, both responses are accepted by the facilitator. They are accepted because the facilitator sees the learner as an experimenter; an investigator and discoverer of his own personal knowledge. As such, it is inherent in the process of discovery

that mistakes will be made and incorrect solutions to problems will be offered. It is only when the learner realizes his mistake, possibly with the assistance of the facilitator, and proceeds to correct his error does real learning, discovery, take place. Both correct and incorrect responses are necessary for learning to take place. Therefore, the Industrial Arts Facilitator is concerned with and accepts both correct and incorrect learner responses for the purpose of facilitating the learner's understanding and reasoning processes.

This being true, the facilitator must certainly be open to the following:

17. The facilitator is not dependent on predetermined lesson plans and fixed time periods.

Lesson plans are a thing of the past in an "open" setting. Lessons are not formally given. Learning is natural, flowing from the self-initiated activity of the individual learner and not the teacher. The 'plan' originates from the students' own interests and through collaboration with the facilitator. The learner continues to pursue his own direction of activity. A pre-arranged plan by the facilitator simply does not meet the needs of the individual learner in an "open" setting. Similarly, each learner, as he follows his own interests, will need varying lengths of time to complete his learning activity. Varying lengths of time during a class, day, week, and even a school year. There is simply no one schedule of time which fits the needs of each individual. Therefore, the Industrial Arts Facilitator is not dependent on predetermined lesson plans and fixed time schedules.

This concludes the characteristics of the facilitator in the "open" educational setting. The writer will now turn his attention to the environment.

The Environment. The third major element necessary for a fluid and continuous evaluation of the "open" process of education to occur is the environment. The writer will present some nine characteristics of the environment within the open education setting.

The first characteristic describes specifically what constitutes the learning environment.

1. The environment consists of materials, machines, individuals, content, time, and space, and the learner himself.

The environment is considered to be all with which the learner and facilitator responds and interacts, the quality and quantity of the materials and machines, the number and variety of individuals and their specific activities, the quantity and division of time for learning activities, plus the amount and quality of space allotted for the individual learner's activity. Therefore, the Industrial Arts Environment consists of materials, machines, individuals, content, time, space, and the learner himself.

The physical part of the environment has the following characteristics:

2. The physical environment is bright, colorful, and safe for the learner to involve himself in his dynamic investigations.

The environment is a physically pleasant place in which to learn. There is adequate lighting with additional lighting in special areas.

It is clean, colorful, and attractive to the eye. Adequate space and proper arrangement of materials and machines is necessary for the safe and productive activities of the learner. Proper space for and arrangement of materials and machines is a significant asset to the learner's safe and efficient activity. Therefore, the Industrial Arts Environment is bright, colorful, and safe for the learner to involve himself in his dynamic investigations.

But the environment is not restricted, as stated in the following:

3. The environment is not restricted by any arbitrary boundaries except those established by the learner himself.

Certainly, part of the environment is found within the classroom itself, but it does not stop there. The learner may need to use the hallway of the school or another room to work on his activity. He may need to use the resource center, the community library, other schools, industry, government, and so on, to accomplish the task he has set out to do. Simply stated, the four walls of a room or even a building cannot be allowed to restrict the active involvement of the learner in his learning. Therefore, the Industrial Arts Environment is not restricted by any arbitrary boundaries except those established by the learner himself.

But the environment within the classroom must receive special attention concerning the following:

4. The environment is rich with widely varying materials and machines with which the learner interacts as he pursues his learning.

There is a very wide selection of materials and machines available

to the learner in his environment. This is necessary because of the great diversity of learning activity and the need to support these activities with appropriate materials and machines. Therefore, the Industrial Arts Environment is rich with widely varying materials and machines with which the learner interacts as he pursues his learning.

The content to be learned within the environment is also varied as explained in the following:

5. The environment is interdisciplinary and integrated concerning the learner's scope and range of active investigations.

No boundaries are established between so called subject areas. Any such boundaries are considered arbitrary and confining. Any knowledge, skill, or materials needed by the learner to successfully pursue his learning activities is considered a necessary part of the environment. Therefore, the Industrial Arts Environment is interdisciplinary and integrated concerning the learner's scope and range of active investigation.

It is necessary to have the following present in the "open" environment:

6. The environment contains adequate space for each individual learner's materials. Furthermore --
7. The environment contains adequate space for the functional storage and placement of materials and machines being shared by the learning group.

Because of the wide variety of individual learning activities present in the open setting, it becomes very important to have space for each learner to store his own personal materials from one day to the

next. Similarly, because each student in the group is using the same or similar materials and machines, there must be significant space for the storage and placement of these items. Each learner needs to have easy access to the items he needs to further his learning activity. Therefore, the Industrial Arts Environment contains adequate space for each individual learner's materials. Similarly, the Industrial Arts Environment contains adequate space for the functional storage and placement of materials and machines being shared by the learning group.

The immediate environment of the learner is flexible as described as follows:

8. The physical environment is flexible in response to the exploratory and constructive interests of the learner.

It is essential that the materials and machines within the open setting be so situated that they can be moved from one particular location to another in order to be in a better position to meet the active learning needs of the learner. Therefore, the Industrial Arts Physical Environment is flexible in response to the exploratory and constructive interests of the learner.

The environment is also flexible in the following way:

9. The environment consists of flexible large and small blocks of time within which the learner involves himself in self-initiated investigations.

Varying segments of time within the day are available to the learner. In fact, time segments of one day should be different from the next day to better accommodate the learning activity of the learner.

Therefore, the Industrial Arts Environment consists of flexible large and small blocks of time within which the learner involves himself in self-initiated investigations.

This concludes the characteristics of the "open" environment and the synthesis of the problem.

IMPLICATIONS FOR INDUSTRIAL ARTS

Industrial arts activity which exhibits the characteristics of the open education style of facilitating and learning, would necessarily be quite different from the traditional activities of an Industrial Arts Program. In the first place, the activities themselves would be initiated by the learner himself. The activities could be the typical project, a line production activity, skill development, a science experimental project, or one of any other possible learning activities. Whatever the activity, its origin would be rooted in the learners own purpose and direction and not the facilitator's.

The relationship between the facilitator and the learner would also be significantly different from the relationship found in the traditional setting. In the "open" setting the learner would have significant freedom and responsibility to choose and act with respect to his own learning. He would seek the assistance of the facilitator when necessary concerning problems encountered with his dynamic learning activity, or possibly the lack of understanding he may have concerning content. Both would exchange ideas, information, and personal feelings concerning these

area. Even so, little imposition by the facilitator would be made on the learner's activity. It would be primary to preserve and sustain the purpose and direction of the learner's activity as much as possible.

Also, the environment would be a flexible one. Materials and machines would be abundantly available for the learner's use but would be movable to different areas of the immediate environment to better meet the requirements demanded by the learner's own activity. Likewise, the time allotted for the learner's activity would vary as much as possible to correspond to the time demands of the learner's activity.

Central in this whole process of Open Education is the position of the learner in this setting. He is seen to be in the center of his own learning process and is directly and purposely assisted and encouraged to follow his own direction of learning. The facilitator, through the creative use of his own human qualities, plus a creative use of the environment by both he and the learner secures a personal, intrinsic, and unique education for the learner.

SUMMARY

The purpose of this chapter was to synthesize the material found in Chapter III. The central theme of Open Education is one of process and is, in itself, an art. It is a process because it is a constant, never-ending movement of the individual to further expand, develop and coordinate his physical, emotional, and conceptual qualities. It is an art, for this process considers and responds to the physical, emotional, and conceptual qualities of all involved.

The learner is the central element in the open setting. He is individual, unique, and self-directed in thought, feeling and action. He learns through his own initiated activity and through mutual communication and assistance with other learners and the facilitator. He learns of himself and of his environment, and co-ordinates the two elements through direct, dynamic activity. The learner is quite open to new information as he learns the process of learning how to learn, and his knowledge is very personal and unique. He exhibits joy and satisfaction with his learning activity as he proceeds at his own pace and in his own style. He is evaluated through direct observation and self appraisal.

The facilitator views the learner as a complete human being whose physical, conceptual, and emotional qualities are functioning and involved in his learning activity. He trusts the learner to make responsible decisions within his activity. He communicates openly and honestly through both language and action with the learner. He experiments with the learner on a social level, and on a material level, and becomes one member of the same learning group. He supports the human qualities of the individual, thus strengthening his own human qualities and those of the learner. The facilitator is highly aware of his own feelings and can express them openly with the group. He only intervenes in the activities of the learner when verbally or physically requested to do so, and accepts both the correct and incorrect answers to problems within the learner's learning activity. He is a highly flexible individual with respect to individuals, content, and time schedule.

The Industrial Arts Environment is the materials, machines, individuals, content, time, space, and the learner himself. It is a bright, colorful, and safe space in which to learn, but one which is not restricted by arbitrary boundaries. It is rich with widely varying materials and machines which can be properly stored or re-oriented in the learning area to better meet the needs of the learner. The content is interdisciplinary and integrated, and the learning time is flexible, changing within the day, or from day to day.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to present a summarization of the study along with the conclusions and recommendations derived from Chapter IV.

SUMMARY

The purpose of Chapter I was to introduce the topic, to present a background statement, to present a statement of the problem, the need for the study, the scope and limits of the study, the methods and procedures used in the study, and a definition of terms.

The purpose of Chapter II was to survey the literature and secure the appropriate information and materials for the study of Open Education. This style of education was originated in England and subsequently described in the Plowden Report, a report which evaluated the system of education in England in 1967. This report cited the child development theories of Jean Piaget as being the most descriptive of this style of education than any others.

Piaget describes how children grow and develop in a natural way. He states that all human beings pass through the same stages of development but at their own pace and in their own style, and these stages are chronological in order. The central theme of his theory is the

individual is constantly striving for a balance, or equilibrium, between his internal self and his external environment. To accomplish this balance the human being assimilates, takes in, his experiences with the environment. He then physically, mentally, or emotionally accommodates, adjusts internally, to these new experiences and acts. This process which all human beings use to reach equilibrium is called adaption.

The process of adaption, used to reach equilibrium, is the central process employed by the individual as he passes through the four growth and development periods of Piaget's theory. The first period is the Sensori-motor Period which extends from birth to approximately the age of two years. In this early period, the foundation for the psychological structure of the individual is begun through direct, concrete experiences with his external world as well as with himself. The second period of development is called the Pre-conceptual Period which lasts from two to about age seven years. It is here that the child begins to organize his language and symbolic function and he begins a crude method of trial and error in purposely discovering his environment. The third period is the Concrete Operational Period which lasts from age seven to approximately twelve years. Here the child shows significant ability to think in concrete terms but as yet has not developed the ability to think in abstract terms. The last period is called the period of Formal Operations which lasts from age twelve and onward. It is at this time that the adolescent can truly think in abstract terms and perform controlled experiments.

From here the writer turned his attention to the literature on Open Education. It was found that no definition of this style of education was to be secured, but it was described as being humanistic and affective in nature. Hawkins suggests an in depth description of the intermingling of the I--Thou--It would serve to explain the process of Open Education. The I represents the facilitator, the Thou represents the learner, and the It represents the environment.

The facilitator is a person who views the learner as a human being who is actively seeking to discover himself and his environment. The facilitator is an individual who is physically, conceptually, and emotionally strong and flexible, and has the ability to support these same qualities within the learner. The facilitator himself becomes a member of the group of learners while he communicates and responds with them, always treating them as separate and unique individuals.

The learner is a person who is constantly discovering and creating his own unique body of knowledge. He is striving to understand himself and his external environment through direct, active, concrete experiences with the materials and individuals of his environment. The learner makes significant decisions about his learning and acts as a result of his decisions. He is most often communicating with the facilitator and other learners for the purpose of obtaining more information concerning and understanding of his unique activities.

he environment in the open setting is flexible. It extends outside of the classroom and even outside of the school itself. It even extends

into other disciplines. Learning time is not uniform or fixed and the physical environment can be rearranged to better suit the needs of the learner. The environment has space for the individual students belongings as well as space for the materials and machines shared by the learning group.

The purpose of Chapter III was to make an analysis of the material found in Chapter II. It was found that Piaget's theory of child development is significantly descriptive of the Open Education style both in England and in the United States. His theories deal with the developmental structures of the mind which hold true for individuals and for the human species. These structures are formed as the individual passes through four main periods of development. Maier, Elkind, and Isaacs state that these stages are continuous and repetitive and should not be fixed to any sequential age of the individual. Isaacs further says that this growth and development-learning-occurs through one's own active doing, and all of the experiences are cumulative and form a structure in the child's mind upon which he can build. Elkind, Maier, and Pulaski further explain this process of growth and development through the use of the concepts of assimilation, accommodation, adaption, equilibrium, egocentricity, imitation, causality, and others. The child is constantly building and putting the parts of his world together as he builds a bigger and broader personal world of knowledge and understanding.

No definitive definition of Open Education exists, but numerous authors have attempted to explain the process as they interpret it. Elkind

Sherman, and Rogers concentrate on the learner's self-direction and the conditions which enhance the development of this quality. The center of the entire process is the child himself--his interests, his decisions, his actions, and his results. Nyquist, Beardsley, and Hawkins concur on the learner being at the center of his own activity. Chittenden and Hawkins point up the significance of the active participation of the facilitator with the learner. All in all, the main ability for the student to acquire in this open approach is for him to learn how to learn.

The purpose of Chapter IV was to synthesize the material found in Chapter III. The central theme of Open Education is one of process and is in itself an art. It is a process because it is a constant, never-ending movement of the individual to further expand, develop and coordinate his physical, emotional, and conceptual qualities. It is an art, for this process considers and responds to the physical, emotional, and conceptual qualities of all involved.

The learner is the central element in the open setting. He is individual, unique, and self-directed in thought, feeling and action. He learns through his own initiated activity and through mutual communication and assistance with other learners and facilitator. He learns of himself and of his environment, and co-ordinates the two elements through direct, dynamic activity. The learner is quite open to new information as he learns the process of learning how to learn, and his knowledge is very personal and unique. He exhibits joy and satisfaction with his learning activity as he proceeds at his own pace and in his own style. He is

evaluated through direct observation and self-appraisal.

The facilitator views the learner as a complete human being whose physical, conceptual, and emotional qualities are functioning and involved in his learning activity. He trusts the learner to make responsible decisions within his activity. He communicates openly and honestly through both language and action with the learner. He experiments with the learner on a social level and on a material level, and becomes one member of the same learning group. He supports the human qualities of the individual, thus strengthening his own human qualities and those of the learner. The facilitator is highly aware of his own feelings and can express them openly with the group. He only intervenes in the activities of the learner when verbally or physically requested to do so, and accepts both the correct and incorrect answers to problems within the learner's learning activity. He is a highly flexible individual with respect to individuals, content, and time scheduling.

The Industrial Arts Environment is the materials, machines, individuals, content, time, space and the learner himself. It is a bright, colorful, and safe space in which to learn, but one which is not restricted by arbitrary boundaries. It is rich with widely varying materials and machines which can be properly stored or re-oriented in the learning area to better meet the needs of the learner. The content is interdisciplinary and integrated, and the learning time is flexible, changing within the day, or from day to day.

CONCLUSIONS

As a result of analyzing and synthesizing the literature regarding Jean Piaget's theory of child development and the principles and practices in Open Education, the following conclusions have been formulated. These conclusions have been divided into four areas: conclusions concerning the central theme of open education, plus conclusions pertaining to the learner, the facilitator and the environment in the Open Education setting.

The central theme of Open Education is one of process where both the learner and the facilitator participate together in the active, dynamic endeavor of learning. Open Education, more than another way of teaching, is an art. This process of education is purposely concerned with the growth and development of the learner's physical, conceptual, and emotional qualities within the learner himself. It is an art, for the learner depends on and actively uses all of his human qualities while learning. It is likewise an art for the facilitator, for it is he who is sensitive and responsive to his own human qualities plus the learner's for the purpose of maximizing the learner's involvement in his own personal learning. It was found that in this context, the learner, the facilitator, and the environment had to be redefined.

In the open education setting, the learner is seen as an individual who has an innate and active ability and potential to learn. He is a self-reliant and independent individual who makes significant decisions concerning the purpose, direction, and dynamic activity in which he becomes involved. The learner, through active exploration and discovery on his part, learns of his own capacities and abilities as well as the

characteristics of his external environment. He is, in effect, learning how to learn and how to use new information which becomes available to him as he develops and expands his personal body of knowledge. The learner is given varying time intervals to learn. He can work at his own pace and in his own style, and at the same time he is being evaluated through self-evaluation techniques and direct observation of the results of his active learning. He is viewed as a person who learns through his own involvement with his materials as well as his social environment.

The position of the facilitator in the educational setting has also changed. The facilitator sees the learner as a human being who purposely uses his unique physical, conceptual, and emotional qualities to pursue his personal knowledge. This facilitator, along with the learner, becomes an active member of the larger group of learners through mutual communication and experimentation with the learner's activity. The facilitator is constantly supporting an open, real, flexible, and genuine relationship between himself and the learner as well as between the learners themselves. Evaluation of the learner is through the learner's self-evaluation and self-observation of his chosen activity in co-operation with the facilitator.

The facilitator himself is a physically, conceptually, and emotionally strong individual for it is he that is supporting and encouraging the development of these same qualities within the learners. He is open to new and varied information which becomes part of the learning environment. He accepts and responds to both correct and incorrect responses

from the learner is order to help him clarify his understanding of his activity. He also is not dependent on any pre-arranged lesson plans or time periods for learning activities.

The open environment is considered to be the materials, machines, individuals, content, time, space, and the learner himself. The physical environment is bright, colorful, and safe for the learner to actively pursue his learning. It is not restricted by any arbitrary boundaries and is rich with widely varying materials and machines. The content of the environment is interdisciplinary and integrated with adequate space for both individual storage of materials and proper storage and placement of materials and machines used by the total group. The physical environment as well as the element of time is flexible in order that they may be used most efficiently by the learner.

RECOMMENDATIONS

As a result of this descriptive investigation the following recommendations are presented. The initial recommendation will concern the central theme of Open Education. The remaining recommendations will be divided into three specific areas: recommendations for the learner, recommendations for the facilitator, and recommendations for the environment. The recommendation concerning the central theme of Open Education is contained in the following statement.

The central theme of Open Education is process-- an art of releasing the learner's conceptual, emotional, and physical potentials which, when all are coordinating together, supply him with a

personal and holistic direction of interest, inquiry, and active investigation into his own unique, internal and external environment.

The recommendations concerning the learner follow in an itemized list.

The Industrial Arts Learner should be:

1. Allowed and encouraged to pursue the materials and topics that are truly of interest to him.
2. Allowed and encouraged to make significant decisions concerning what he learns, the materials with which he learns, and the specific activity with which he becomes involved.
3. Allowed and encouraged to exercise a personal self-reliant and independent behavior when he is pursuing his interests in the Industrial Arts Laboratory.
4. Exposed to active concrete experience with knowledge before he can be expected to understand a concept, a process, or a skill.
5. Allowed and encouraged to be actively creative in his use of the materials, tools, machines, processes, and concepts which he personally discovers through learning.
6. Allowed and encouraged to use any and all information concerning his unique self and his unique activities in order that he may expand and deepen his knowledge and understanding of himself and his environment.
7. Allowed and encouraged to discover his own knowledge and understanding of his social and material environments and in turn, use this new understanding to produce even more knowledge and understanding in order that he may learn the process involved in learning how to learn.
8. Allowed and encouraged to become involved in active, concrete experiences so his knowledge

and understandings of these unique experiences will be of real, practical, and productive value to him.

9. Given little if any personal criticism or discouragement concerning his purposeful learning activities and behavior.
10. Allowed and encouraged to take time to determine if his learning activity is based on his own purpose and his own initiated direction.
11. Afforded flexible time in which he can pursue his own learning in his own style.
12. Learning if he exhibits the qualities of joy, satisfaction, inquisitiveness, curiosity, and spontaneity within the context of his unique learning activity.
13. Evaluated by both the facilitator and the learner himself, through direct observation of the learner's personally initiated activity and the results stemming from his activity.
14. Allowed and encouraged to share his knowledge and understandings of their social and material environment with other learners.

The recommendations concerning the facilitator follow in an itemized list. The Industrial Arts Facilitator should:

1. Be aware and responsive to the simultaneous growth and development of the learner's physical, conceptual, and emotional qualities and his coordination of these qualities within his dynamic learning activities.
2. Be aware and responsive to the unique and separate physical, emotional, and conceptual qualities of each distinct individual learner.
3. Trust and respect the individual learner's ability and potential to choose, initiate, and actively pursue his own initiated learning activity.

4. Communicate honestly and in an open-ended manner with the learner for the expressed purpose of assisting the learner in clarifying his feelings and thoughts concerning his own purpose and direction of activity.
5. Communicate with the learner verbally and through action for the expressed purpose of maximizing the learner's independent dynamic involvement with his own learning activity.
6. Be an active experimenter taking a dynamic part in facilitating the learner's own learning through the process of creating and adapting ideas and materials together.
7. Be, himself, one member of a group of learner's and a learning member of that group.
8. Support and encourage learner-to-learner communication and relationships.
9. Be actively involved in the learning activities of the learner primarily on a one-to-one basis.
10. Employ co-operative learner-facilitator techniques of evaluation to assess the learner's success and progress in his physical, emotional, and conceptual growth and development.
11. Feel quite secure, and have considerable belief and trust in his ability and potential to support the numerous and varied human relationships which develop within the facilitator-learner interaction.
12. Be aware of himself and his feelings and be able to openly and honestly share his feelings within his direct personal relationships with the learner.
13. Be aware of, accept, and respond to the varied and numerous emotions of the individual learner in a manner which is supportive of those emotions.
14. Intervent, or refrain from intervening, in the learner's learning, only in direct response to the verbally or physically expressed needs and interests of the learner.

15. Be cognitively open to new ideas and new information.
16. Be concerned with and accept both correct and incorrect learner responses for the purpose of facilitating the learner's understanding and reasoning processes.
17. Not be dependent on predetermined lesson plans and fixed time schedules.

The recommendations concerning the Industrial Arts Environment follow in an itemized list. The Industrial Arts Environment should:

1. Consist of materials, machines, individuals, content, time, space, and the learner himself.
2. Be bright, colorful, and safe for the learner to involve himself in his dynamic investigations.
3. Not be restricted by any arbitrary boundaries except those established by the learner himself.
4. Be rich with widely varying materials and machines with which the learner interacts as he pursues his learning.
5. Be interdisciplinary and integrated concerning the learner's scope and range of active investigations.
6. Have sufficient space for the storage and placement of the students' materials and projects.
7. Have easy learner-access to the items he needs to further his learning activity.
8. Be flexible in response to the exploratory and constructive interests of the learner.
9. Consist of flexible large and small blocks of time within which the learner can involve himself in self-initiated investigations.

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PERSONAL MEANING...

- Personal relevance
- Stability
- Individual style and cognition

ADAPTIONS

PERSONAL MEANING...

- From blending of subjective-objective worlds
- Can be tacit and in process of becoming
- Can come from conversion of own reality and inner truth into symbols
- Is an interpretation of the world
- Linked to language and cognitive patterning
- Individually known and private
- Partially sharable when consciously, objectively conceptualized

LATENT DANGERS

PERSONAL MEANING...

- Cultural relevance unattended
- Devaluing of common, public knowledge and cultural heritage
- Limited common verbal currency

INDIVIDUALS

- Individual worth
- Adaptability
- Flexibility

INDIVIDUALS ..

- Are the highest authority
- Create and constitute systems
- Provide input to systems that continually feed 'y them
- Consciously adapt and fit the environment to themselves
- Vary time for completion, interest, and importance
- Move by choice and need within the environment

INDIVIDUALS ...

- Weakening of institutional structure and control
- Preoccupation with small group goals
- Disorganization and breakdown from too rapid a change rate
- Instability
- Discontinuity

INTERPERSONAL REALITY...

- Basic social needs
- Social reality
- Genuine human encounter
- Power of personal identification

INTERPERSONAL REALITY ..

- Social nature stemming from nurturant relationships in early life
- Simultaneously separate from and related to others
- Exists and behaves in a human context
- Authenticity basic to relating
- Educative power lies in people as models of life styles

INTERPERSONAL REALITY..

- Complexity of looking at behavior in social context
- Intangible variables difficult to assess
- Too little importance to instruction, method, and systematic presentation
- Provincial perspective of small group

COLLABORATING-COMMUNICATING...

- Individual within group
- Democratic participation
- Individual and group problems
- Transactional perspective
- Nonverbal communication
- Cultural awareness

COLLABORATING-COMMUNICATING...

- From a feeling of belonging
- A sense of community
- With recognition that individual problems are group problems
- Group problems stem from functioning and organizing of individuals within a system for which they are responsible
- Includes multiple message modes
- Simultaneous and anticipatory transacting
- Covert transactions unknown to communicators and ambiguously perceived by receivers
- Is culture bound

COLLABORATING-COMMUNICATING...

- Complexity of looking simultaneously at individuals in situational context
- No scientific model or techniques for assessment

VALUES

SELF ...

- Unity
- Uniqueness
- Internal strength

ADAPTATIONS

SELF ...

- Is at the center
- A unifying force in personality
- Moves to present awareness
- Unique
- As result of sensing, feeling, and imaging transactions
- Ideally linked to physical origins and universe
- Extended through creative products

LATENT DANGERS

SELF ...

- Preoccupation with self; less interest in others
- Decreased motivation to become persons others want and expect

LIVING ...

- Active, selecting-responding process
- Wholeness
- Individual #/flow vs
- Joy

LIVING ...

- Is interacting with the environment
- Dynamic and emerging
- Growing, transending, and creating
- Is the present
- Holistically
- At different levels
- In multi-sensory modes
- Based on idiosyncratic perceptions and responses
- According to own growth rhythm
- Naturally playful

LIVING ...

- Limitations of passive-receiving paradigm
- Inappropriateness of static, single-criteria assessment
- Dysfunctionality of structured system and rigid scheduling
- Inappropriateness of molecular approach
- Inattention to symbolic-abstract
- Dysfunctionality of standardization
- Coercive attitude that "school is work"

CHANGING ...

- Natural growth
- Internal motivation
- Personal selection
- Responsible action
- Internal evaluation

CHANGING ...

- Is natural
- Results from actively transacting
- Moving in a direction
- By intending
- Through visions created by choice and values served in experience
- From exertion of right to act (or not to act)
- By assuming personal responsibility
- Is facilitated by subjective judgment

CHANGING ...

- Slow or spasmodic
- Inaction from personal bonds or habits, nonstimulating or restrictive environments
- Non-support of cultural norms
- Discrepancy with societal values

FREEING-EXPRESSING ...

- Process
- Horizontal perspective on full human functioning
- Internal, intrinsic satisfaction

FREEING-EXPRESSING ...

- A process phenomenon
- Through physical movement, in quiet, by personal symbol, fantasy, imagination, or any mode of human functioning
- Subjectively experienced

FREEING-EXPRESSING ...

- Less attention to achievement of finished products and externally imposed ends
- Nonhierarchical perspective undermines abstract-symbolic supremacy
- Disruption of external, common standards

UNIFYING-INTEGRATING EXPERIENCES ...

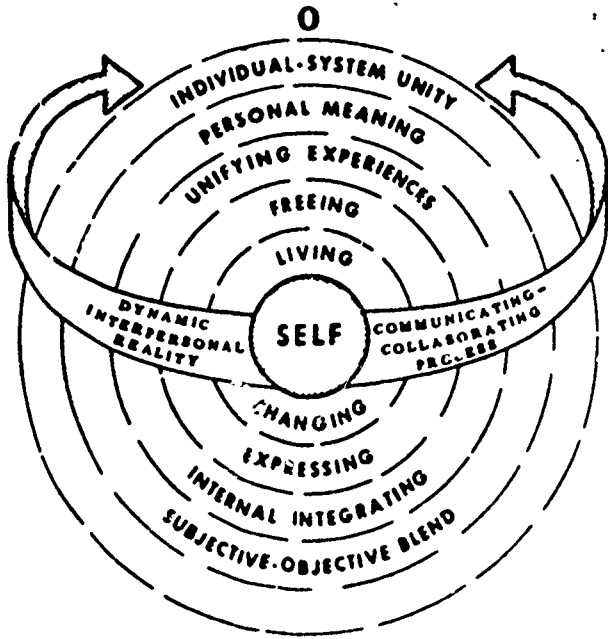
- Defining and solving problems
- Creative growth
- Present and process orientation
- Internal locus of evaluation

UNIFYING-INTEGRATING EXPERIENCES ...

- Reordering, resolving, assimilating
- Involves sensing of patterns, relationships, and possibilities
- Occurs in the present
- Internally experienced linking of ideas, affect, image, attitude, bodily responses
- Intrinsically satisfying and joyful
- Subjectively valid

UNIFYING-INTEGRATING EXPERIENCES ...

- Less attention to retention and acquisition of structured bodies of knowledge
- Insufficient attention to preparation for the future
- Difficulty of movement from purely objective perspective
- Undermining common norms and externally applied standards
- Inadequate tests
- Undermining of Protestant work ethic

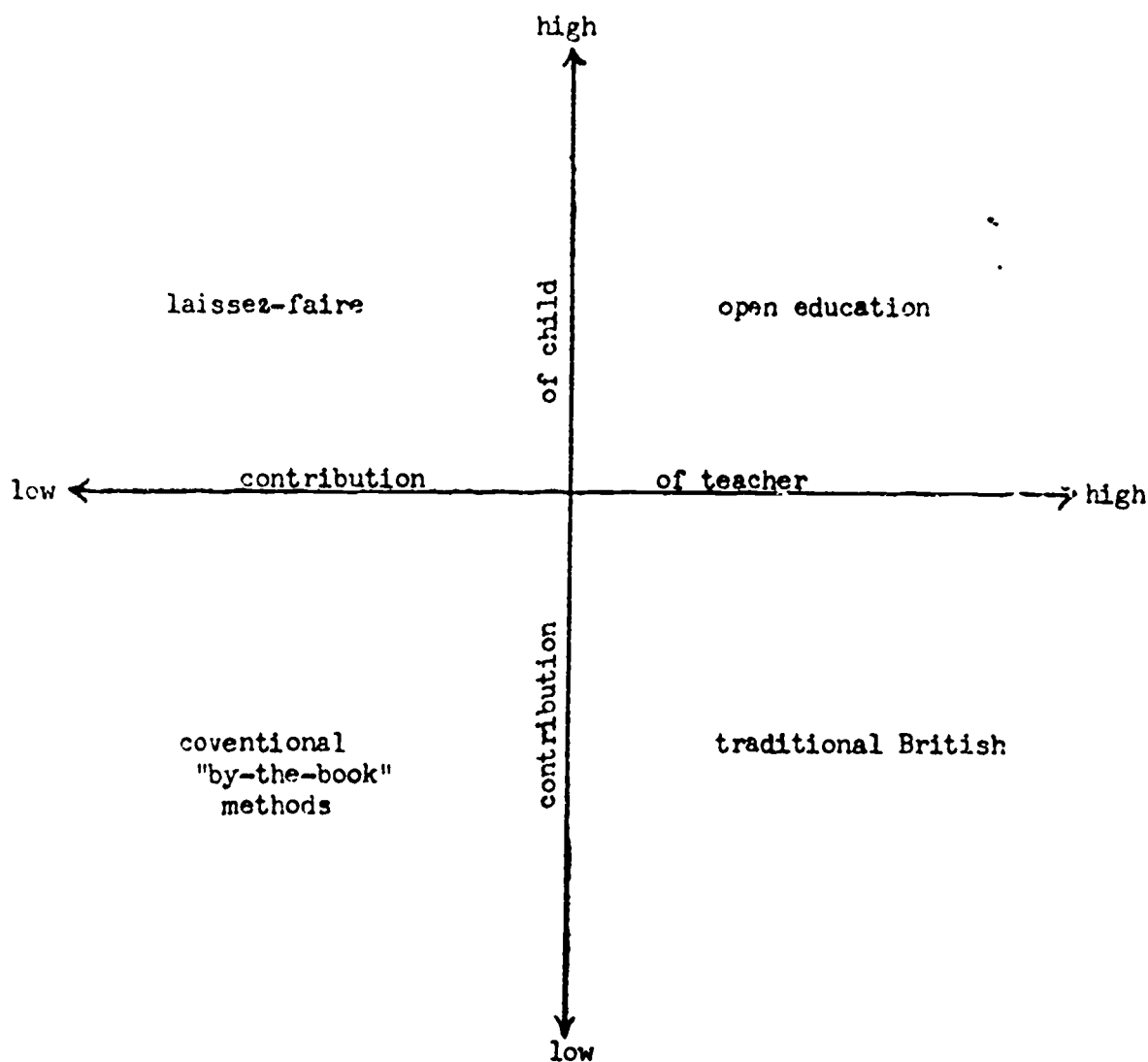


APPENDIX A

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Figure 1¹

Double Classification Scheme Based on Extent to which (1) the Individual Teacher and (2) the Individual Child is an Active Contributor to Decisions Regarding the Content and Process of Learning.



¹adapted from Bussis & Chittenden, 1970

en
no

action,
, may

TYPE IV: (Open Education)
Child Active
Teacher Active

- posture
- laissez faire

Materials - wide variety in all subject areas, often in different ways or different times

- well organized
- storage and housekeeping are well attended to

Structure - no one right way

- no fixed curriculum
- no fixed schedule
- talking and movement allowed but reasonable limits maintained
- possibly family groupings

Teacher - teacher is a person

- teacher is actively involved
- teacher provides alternatives
- teacher observes and diagnoses and initiates, sometimes structured, sometimes unstructured
- teacher shares information with other teachers

Student - student is a person

- student plans his own activities
- student may work alone or in groups
- student has many opportunities to learn from
- student learns skills and attitudes

Characteristics

- flexibility
- responsibility
- trust
- fluidity of space and time
- respect for children
- honesty
- co-operation and sharing

For an example of how one open classroom teacher changed her basic arrangement five times during the year see Harriet, Hays, The Unstructured Day in an American School, Boston: Boston Division of Independent Schools, 1970, p. 4-9.



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Laissez-Faire Description

- adult plays supportive but entirely non-directive role
- children have a great deal of freedom
- adult passively accepts the curriculum
- adult avoids expressing personal preferences or direct suggestions
- emphasis is on curriculum rather than education

Associated Laissez-Faire Beliefs

- conceived values
- progressive attitudes
- system 3 teacher

CONTRIBUTION

LOW

Sneaky Telling Description

- teacher is imaginative
- teacher uses creative material with discovery method
- integrated day teacher
- emphasis is on children's need to understand rather than to construct established external objectives of the lesson are clearly
- teacher may understand what she is doing and goal to be reached, but little is at her own invention

Associated Sneaky Telling Beliefs

- conceived values
- semi-progressive attitudes
- system 3 teacher

CONTRIBUTION

Open-ended Instruction Description

- adult under stands and respects the child's interests
- classroom environment reflects teacher's interests
- children are engaged in activities which are interesting
- children are related to in the context of their interests
- teacher serves as a resource person
- teacher looks to the materials and a child's interests as main about failure in terms of the suitability of the materials, plus a variety of uses
- teacher shares ideas about children and learning
- total life of child is relevant to classroom learning
- teacher is viewed as important part of the learning process
- teacher respects children, is honest in her contacts with her peers
- teacher recognizes the emotion of the children in creating and acting in the classroom, in her own and in her peers

Associated Open-ended Beliefs

- conceived values
- progressive attitudes
- system 4 teacher

OF TEACHER

HIGH

Programmed Instruction Description

- adult is passive conveyor of decisions made elsewhere
- adult accepts packaged teaching material
- education is preparation for life rather than life itself
- children have little to say in determining a goal for themselves

Associated Programmed Instruction Beliefs

- operative values
- traditional attitudes
- system 1 teacher

OF CHILD

LOW

Traditional British Description

- children have little to say
- adult very active in analysis making it her business to know what is going on
- strong adult who may be sympathetic with many children
- does it her own way, makes her decisions about the content of curriculum material
- little credit or decision making on part of student

Associated Traditional British Beliefs

- subject values
- traditional attitudes
- system 2 teacher

FIGURE 1

Values from Morris; attitudes from Kurling and Pedhazur; system teacher from Morris



Table B-1

ALTERNATIVE O: GUIDING PRINCIPLES AND PRACTICES BASED ON IMPLICIT ASSUMPTIONS

Implicit Assumptions	Guiding Principles and Practices
Self	Central focus upon self, i.e., self-confrontation and enhancement, self-understanding, self-acceptance, and self in different situations
Is at the center	Develop conscious awareness of individual uniqueness and unity and appreciation of richness variation can provide
A unifying force in personality	Exploration and sharing of the subjective
Known in present awareness	Develop appreciation of natural world
Unique	Provide communion and sense of relatedness with nature (sensory, meditative, reflective)
As result of sensing, feeling, and imaging transactions	Retention enhanced through creativity
Naturally linked to physical origins and universe	Response to products is response to person
Extended through creative products	Optimal stimulation, accommodation, and assimilation; challenge and provision just beyond what can be fully comprehended. Even though enjoyed
Living	
Is transacting with the environment beyond and beyond	



Table B-1 (continued)

Implicit Assumptions	Guiding Principles and Practices
Growing, transcending, and creating	Uncertainty, ambiguity, voids, or gaps as basis for beginning search
In the present	Self-selection and exploration
Holistically	Invite total involvement of individuals
At different levels	Translation and transfer from one level or type of functioning to another for richer interpretation of experiencing
In multisensory modes	Sharing of individual reactions, sections, and interpretations
Based on idiosyncratic perceptions and responses	Emphasize idiosyncratic developmental patterns
According to own growth rhythm	Encourage play for its own sake
Naturally playful	Focus on responses while doing, thinking, or being, i.e., "What is happening right now?"
A process phenomenon through physical movement, in space, by personal symbol, fantasy, imagination, or any mode of human functioning	Encourage multiple modes of expressing and experiencing (multi-level and multi-sensory)

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Table B-1 (continued)

	Implicit Assumptions	Guiding Principles and Practices
<u>Feeling-expressing</u>	Subjectively experienced	Focus inward to own reactions and functioning
<u>Unifying-integrating</u> experiences	Reordering, resolving, assimilating Intuitive sensing of patterns, relationships, and possibilities Occurs in the present Internally experienced linking of idea, affect, image, attitude, bodily responses Intrinsically satisfying and joyful Subjectively valid	Opportunities for creative synthesis or integration Incubation periods and time for reflection Utilize pre- or unconscious ordering Present orientation, i.e., "Where am I right now?" Experiencing followed by conceptualizing Restructuring experience (rather than adding information) Emphasis on feelings of unification and wholeness accompanying resolution, definition, or transcendence Subjective assessment in terms of growth and change, continuity and variation

Table B-1 (continued)

	<u>Implicit Assumptions</u>	<u>Guiding Principles and Practices</u>
<u>Personal</u> <u>Meaning</u>	<p>From blending of subjective-objective worlds</p> <p>Can be tacit and in process of becoming</p> <p>Can come from conversion of own reality and inner truth into symbols</p> <p>Is an interpretation of the world</p> <p>Linked to language and cognitive patterning</p> <p>individually known and private</p> <p>Partially sharable when consciously, objectively conceptualized</p>	<p>Experiencing internal responses and needs, extending outward to external world, and relating the two</p> <p>Patience for what is emerging and cannot yet be expressed to others</p> <p>Sharing of what is most real to self and others</p> <p>Proficiency in achieving meaningful, personal synthesis, i.e., making sense out of experiencing and attaching labels to <u>felt</u> meanings</p> <p>Develop and modify own cognitive structurings; encourage readiness for internal structuring</p> <p>Let people <u>be</u> with their experiencing; voluntary sharing</p> <p>Assume more than what is verbalized</p> <p>Provoke through inquiry, clarification, prohibition</p> <p>Expand meaning to wider, deeper, more personal levels</p>

Table B-1 (continued)

Implicit Assumptions	Guiding Principles and Practices
<u>Changing . . .</u>	
Is natural	Encourage acceptance of change
Results from actively transacting	Engagement via problem-definition and responsibility for own growth
Moving in a direction	Develop awareness of trends and patterns
By intending	Locus of control within educational participants (adults and children); choice
Through visions created by choice and values tested in experience	Develop readiness for risk-taking
From exertion of right to act (or not to act)	Encourage dreams and desires Responsibility learned by being given and accepting it; accept consequences of not acting
By assuming personal responsibility	Allow maximum responsibility for clarity and readiness levels
Is facilitated by subjective judgment	Encourage development of internal value systems and locus of control; setting and evaluation
<u>Individuals . . .</u>	Self-determination
Create and constitute systems	Individual health affects system functioning

Table B-1 (continued)

Implicit Assumptions	Guiding Principles and Practices
<p><u>Individuals</u></p> <p>Provide input to systems which continually modify them</p> <p>Consciously adapt and fit the environment to themselves</p> <p>Vary time for completion, interest, and inspiration</p> <p>Move by choice and need within the environment</p> <p>Social nature stemming from nurturant relationships in early life</p> <p>Simultaneously separate from and related to others</p> <p>Exists and behaves in a human context</p> <p>Authenticity basic to relating</p> <p>Educative power lies in people as models of life styles</p>	<p>Assume dynamics and change</p> <p>Tune in to continuous feedback</p> <p>Freedom and flexibility for modification of self or environment</p> <p>Self-scheduling and self-selection</p> <p>Free access to environmental resources, both human and material</p> <p>Group interaction to meet social needs</p> <p>Separateness to meet need for solitude; distinguish between aloneness and loneliness</p> <p>Develop interpersonal sensitivity and communication</p> <p>Stress genuine human encounter and congruency</p> <p>Share beliefs and values underlying life styles</p>
<p><u>Interpersonal reality</u></p>	



Effective Approaches to Collaborative Communication

Collaborative Communication

- Free feeling of belonging
- A sense of community
- Joint participation in decision-making
- Working for common goals
- Group shares responsibility for well-being of individual members
- Analysis of own group functions
- Situational approach to assessment
- Dialogic
- Sharing frames of reference
- Tune in to body, facial, vocal cues, and silences
- Assume complexity in interpersonal transactions and need for subjective data
- Focus upon nonverbal as well as verbal
- Develop awareness of confrontational interaction (verbal-nonverbal discrepancies)
- Search for common denominators of human experience
- Share cultural subgroup backgrounds for understanding of differences and appreciation of commonality
- Involves multiple message modes
- Simultaneous and anticipatory transacting
- Covert transmissions unknown to communicators and ambiguously perceived by receivers
- Is culture bound



There is a great deal being written today about informal education. Teachers, parents and students interested in the open classroom need models to observe. This tool is to help an observer look for the distinguishing attributes of an open classroom; specifically, those of time, space, material, and interaction involved in learning.

In developing this guide, we included only those characteristics which could be inferred from the environments or directly observe. However, all of them may not be observable in one visit. It is recommended that a minimum of thirty minutes be spent for each observation. The space at the right is provided for your comments.

Erlie Koisner
Florence Schulman
Judy Steingleser
THE OPEN CLASSROOM ORGANIZATION
UNDER A MEMBERSHIP WITH THE U.S. OFFICE
OF EDUCATION. FORMER MEMBERSHIP WITH
OFFICE OF THE U.S. DEPARTMENT OF HEALTH,
EDUCATION AND WELFARE.

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Florence Schulman
Judy Steingleser 1972

K.S.S. OBSERVATION GUIDE FOR THE OPEN CLASSROOM		SEVSC, May, 1972
DATE	SCHOOL	ROOM
		TEACHER
		NO. CHILDREN
TYPE _____ RELEVANT CONDITIONS OF DAY _____		
I. AMBIENCE (Room Environment and Atmosphere)		
Room is bright and colorful.		
Children's work is on display.		
There is a wide range of materials and equipment for use by children as needed at interest centers, on shelves or tables.		
paper, pencils crayons felt pens scissors glue, paste magazines art materials newspaper reference books maps, globes listening centers record player tape recorder projector, radio, T.V. tape, stapler		
Children are free to move to areas outside of room to work. (Outdoors, other classrooms, halls) What system, if any, is used to allow for this movement?		
It is possible for child to be alone and quiet.		
Tone of room implies self-discipline and ease with environment.		
Many activities go on simultaneously. Little time is spent in waiting for turn to participate in activity.		
There are many signs of enjoyment: laughter, excitement, discovery, sharing.		
II. TEACHER BEHAVIOR		
Teacher's presence is not compelling.		
Teacher is not center of attention.		
Teacher works with individuals. Teacher works with small groups. Teacher works with whole group.		
Teacher gives encouragement, approval, support.		
Teacher is a responsive person: As a resource By giving feedback By listening attentively By responding to physical contact with child.		
Teacher's questions are open-ended.		
Teacher helps children set own goals and evaluate.		
Teacher encourages child-to-child relationships.		
Teacher accepts the child's language. Teacher accepts the child's feelings.		
Teacher helps children assume responsibility.		
Teacher allows children to make decisions.		
Teacher does not require child to focus on activity for another.		
Teacher initiates and enforces.		
Teacher is consistent in verbal and non-verbal communication. (Comment and body cue carry same effect).		
Teacher spends little time with discipline.		

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<p>Children show signs of confidence and self-reliance. They can choose activity. Initiate activities. Know what to do. Gather and return materials. Get involved with activity. (alone, one other child, group, with adult)</p> <p>Maintain attention to task without adult. (alone, one other child, group)</p>	
<p>Children work to, other. Offer help to others. Help when asked. Talk freely while working: (share, discuss, help)</p>	
<p>Children move freely while working. Children move freely from one activity to another.</p>	
<p>Children talk freely to teacher. Children interact with adults other than teacher.</p>	
<p>IV. COGNITIVE</p>	
<p>Subject matter is related to children's interest.</p>	
<p>Extension of concepts develops from children's work.</p>	
<p>There is quality in the children's work. Commitment to process. Commitment to product. Values own work.</p>	
<p>There is a range of levels in the children's work.</p>	
<p>There is evident of skill learning. Children are reading. (alone, w/one child, group, w/adult) Children are writing. Children are working with math.</p> <p>Children seek and use resources on own. Language development occurs through activities.</p>	
<p>The environment indicates reading activities. textbooks creative writing library books activity connected writing records: books writing on bulletin boards and/or charts child-made books typewriter</p> <p>Child can read whatever and whenever he needs to. Child can read wherever he chooses.</p>	
<p>The environment indicates math/science activities. graphs scales plants microscope collections measures animals math games</p> <p>There are materials to work with. Exploration and manipulation are going on.</p>	
<p>There is evidence of art, music, dramatic play, movement and/or dance, as part of the program.</p>	
<p>V. ORGANIZATION</p>	
<p>What is the system of record keeping? (by child _____ by teacher _____)</p>	
<p>If children are working in groups, how did they get there? (Who brought about group and by what means?) What are they doing? _____</p>	
<p>What is the age span in the room? _____</p>	
<p>Do the children interact with more than one adult during the day? _____ If so, who are the other adults? (Other teacher, aide, parent helper, other volunteer?) _____ How do they work with them, in what way? _____</p>	
<p>How is the class day divided in time? How long may children work uninterrupted? _____</p>	
<p>Teacher seems well organized? _____</p>	
<p>Would you like to spend several hours a day in this environment? Why? _____</p>	



PEDAGOGICAL CHARACTERISTICS

OF OPEN EDUCATION TEACHERS AT THE PRIMARY LEVEL

<u>Instruction--Guidance and Extension of Learning</u>	<u>Untrue</u>	<u>Somewhat True</u>	<u>Very True</u>
The teacher tends to give individual children small concentrated amounts of her time rather than giving her general attention to the children as a class all day.	1	2	3
The teacher plans instruction individually and pragmatically; she becomes involved in the work of each child as one who seeks to help him realize his goals and potential.	1	2	3
The teacher gives diagnostic attention to the particular child and the specific activity in which he is involved before suggesting any change, extension, or redirection of activity.	1	2	3
The teacher uses the child's interaction with materials, equipment, and his environment as the basis of her instruction.	1	2	3
Instead of giving whole class assignments, the teacher amplifies and extends the possibilities of activities children have chosen, through conversation, introduction of related materials and direct instruction and individual assignments when warranted.	1	2	3
The teacher keeps in mind long-term goals for her children which inform her guidance and extension of a child's involvement in his chosen activity.	1	2	3
The teacher encourages children's independence and exercise of real choice.	1	2	3
The approach to learning is inter-disciplinary; e.g. the child is not expected to confine himself to a single subject, such as mathematics, when learning.	1	2	3

Activities are not prescribed or constrained by predetermined curricula, but rather arise from children's interests and responses to materials.

<u>Untrue</u>	<u>Somewhat True</u>	<u>Very True</u>
1	2	3

Diagnosis of Learning Events

In diagnosis, the teacher pays attention not only to the correctness of a child's response or solution, but also to the understanding and reasoning processes which led the child to it.

1	2	3
---	---	---

To obtain diagnostic information, the teacher takes an interest in the specific concern of the individual child at the moment, through attentive observing and experience-based questioning.

1	2	3
---	---	---

Errors are seen as a valuable part of the learning process because they provide information which the teacher and child can use to further the child's learning.

1	2	3
---	---	---

In diagnosis, the teacher values the child's fantasy as an aid in understanding his concerns, interests, and motivations.

1	2	3
---	---	---

When the teacher groups children, she bases her grouping upon her own observations and judgement rather than upon standardized tests and norms.

1	2	3
---	---	---

Children do not always depend on teacher judgement; they are also encouraged to diagnose their progress through the materials they are working with.

1	2	3
---	---	---

Provisioning for Learning

Manipulative materials are supplied in great diversity and range with little replication (i.e. not class sets), and children work directly with them.

1	2	3
---	---	---

	<u>Untrue</u>	<u>Somewhat True</u>	<u>Very True</u>
Books are supplied in diversity and profusion, including reference books, children's literature, and "books" written by the students.	1	2	3
The environment includes materials developed by teacher and children and common environmental materials (such as life, rocks, sand, water, pets, egg cartons, and plastic bottles.)	1	2	3
Materials are readily accessible to children.	1	2	3
The teacher frequently modifies the content and arrangement of the classroom based upon diagnosis and evaluation of the children's needs and interests and their use of materials and space.	1	2	3
The teacher permits and encourages children's use of materials in ways she had not foreseen and helps to move activity into useful channels.	1	2	3
While each child has an individual space for his own personal storage, the major portion of the classroom space is organized for shared use by all.	1	2	3
Activity areas provide for a variety of potential usage and allow for a range of ability levels.	1	2	3
Children move freely about the room without asking permission.	1	2	3
Children are free to use other areas of the building and school yard and neighborhood for educational purposes.	1	2	3
Many different activities generally go on simultaneously.	1	2	3
Informal talking between children and exchanging of information and ideas is encouraged as contributing to learning.	1	2	3
Children help one another.	1	2	3
The teacher divides the day into large blocks of time within which children, within which children, with the help of the			

	<u>Untrue</u>	<u>Somewhat True</u>	<u>Very True</u>
teacher, largely determine their own program.	1	2	3
Children generally work individually and in small groups largely determined by their own choices, and guided by the teacher.	1	2	3
The teacher occasionally groups children for lessons directed at specific immediate needs.	1	2	3
The teacher provides some occasions when the whole group gathers for such activities as story or discussion, to share feelings and ideas and activities, and in order to promote the sense of belonging to the group.	1	2	3
The class is heterogeneous with regard to ability; streaming or establishing class assignment according to similarity of ability is not practiced.	1	2	3
The teacher promotes a purposeful atmosphere by expecting and enabling the children to use their time productively and to value their work and learning.	1	2	3

Evaluation of Diagnostic Information

The teacher used her observation of a child's interaction with materials and people as well as what he produces as the basis of her evaluation of his learning.	1	2	3
Standardized, grade-level, or age-level "norms" of performance are not used for evaluating the child or his work.	1	2	3
Evaluation of the effect a child's school experience covers a long range of time--			

more than a year--and is not accomplished by looking only at data collected in a single situation or series of experiences.

<u>True</u>	<u>Somewhat True</u>	<u>Very True</u>
1	2	3

The teacher's record-keeping consists of individual notes and progress reports chronicling the child's cognitive, emotional, and physical development.

1	2	3
---	---	---

The teacher keeps a collection of each child's work for use for making her own evaluation and encouraging the child's self-evaluation.

1	2	3
---	---	---

The teacher uses evaluation of both the child's work and the classroom environment to guide not only her interacting with him but also her provisioning of the environment.

1	2	3
---	---	---

Humaneness--Respect, Openness, and Warmth

The teacher respects each child's personal style of operating, thinking, and acting.

1	2	3
---	---	---

The teacher rarely commands.

1	2	3
---	---	---

The teacher values each child's activities and products as legitimate expressions of his interests, not simply as reflections of his development.

1	2	3
---	---	---

The teacher demonstrates respect for each child's ideas by making use of them whenever possible.

1	2	3
---	---	---

The teacher respects each child's feelings by taking them seriously.

1	2	3
---	---	---

The teacher recognizes and does not try to hide her own emotional responses.

1	2	3
---	---	---

Children feel free to express their feelings.

1	2	3
---	---	---

	<u>True</u>	<u>Somewhat True</u>	<u>Very True</u>
The teacher attempts to recognize each child's emotions with an understanding of that particular child and the circumstances.	1	2	3
Conflict is recognized and worked out within the context of the group, not simply forbidden or handled by the teacher alone.	1	2	3
There is no abdication of responsible adult authority.	1	2	3
The class operates within clear guide lines, made explicit.	1	2	3
The teacher promotes openness and trust among children and in her relationship with each child.	1	2	3
Relationships are characterized by unselfish warmth and affection.	1	2	3
The teacher recognizes and admits her limitations when she feels unable to give a child the help he needs.	1	2	3
In evaluating a child's work, the teacher responds sincerely, based upon a real examination of the product and its relation to the particular child and circumstances.	1	2	3
The teacher promotes an unthreatening climate by helping children to accept mistakes as part of learning, not as measures of failure.	1	2	3

Seeking Opportunity to Promote Growth

The teacher seeks information about new materials.	1	2	3
The teacher experiments herself with materials.	1	2	3

	<u>True</u>	<u>Somewhat True</u>	<u>Very True</u>
The teacher seeks further information about the community and its physical and cultural resources.	1	2	3
The teacher makes use of help from a supportive advisor.	1	2	3
The teacher enjoys ongoing communication with other teachers about children and learning.	1	2	3
The teacher attempts to know more about the children by getting to know their parents or relatives and their neighborhood.	1	2	3

Self-Perception of the Teacher

The teacher views herself as an active experimenter in the process of creating and adapting ideas and materials.	1	2	3
The teacher sees herself as a continual learner who explores new ideas and possibilities both inside and outside the classroom.	1	2	3
The teacher values the way she is teaching as an opportunity for her own personal and professional growth and change.	1	2	3
The teacher feels comfortable with children taking the initiative in learning, making choices, and being independent of her.	1	2	3
The teacher recognizes her own habits and her need for importance and recognition; she tries to restrain herself from intervening in children's activities based on these needs rather than the children's.	1	2	3
The teacher sees her own feelings as an acceptable part of the classroom experience.	1	2	3

	<u>True</u>	<u>Somewhat True</u>	<u>Very True</u>
The teacher trusts children's ability to operate effectively and learn in a framework not centered on her.	1	2	3
The teacher sees herself as one of many sources of knowledge and attention in the classroom.	1	2	3
The teacher feels comfortable working without predetermined lesson plans and set curricula or fixed time periods for subjects.	1	2	3
The teacher views herself as one who can facilitate learning in a structure requiring spontaneous response to individuals and changing situations.	1	2	3

Assumptions--Ideas About Children and the Process of Learning

Children's innate curiosity and self-perpetuating exploratory behavior should form the basis of their learning in school; they should have the opportunity to pursue interests as deeply and for as long as the pursuit is satisfying.

1 2

Providing for sustained involvement requires a flexible and individualized organization of time.

1 2 3

Children are capable, with varying degrees of support, of making intelligent decisions in significant areas of their own learning.

1 2 3

Premature conceptualization based on inadequate direct experience leads to lack of real understanding and to dependence upon others for learning.

1 2 3

Individual children often learn in unpredictable ways, at their own rate, and according to their own style.

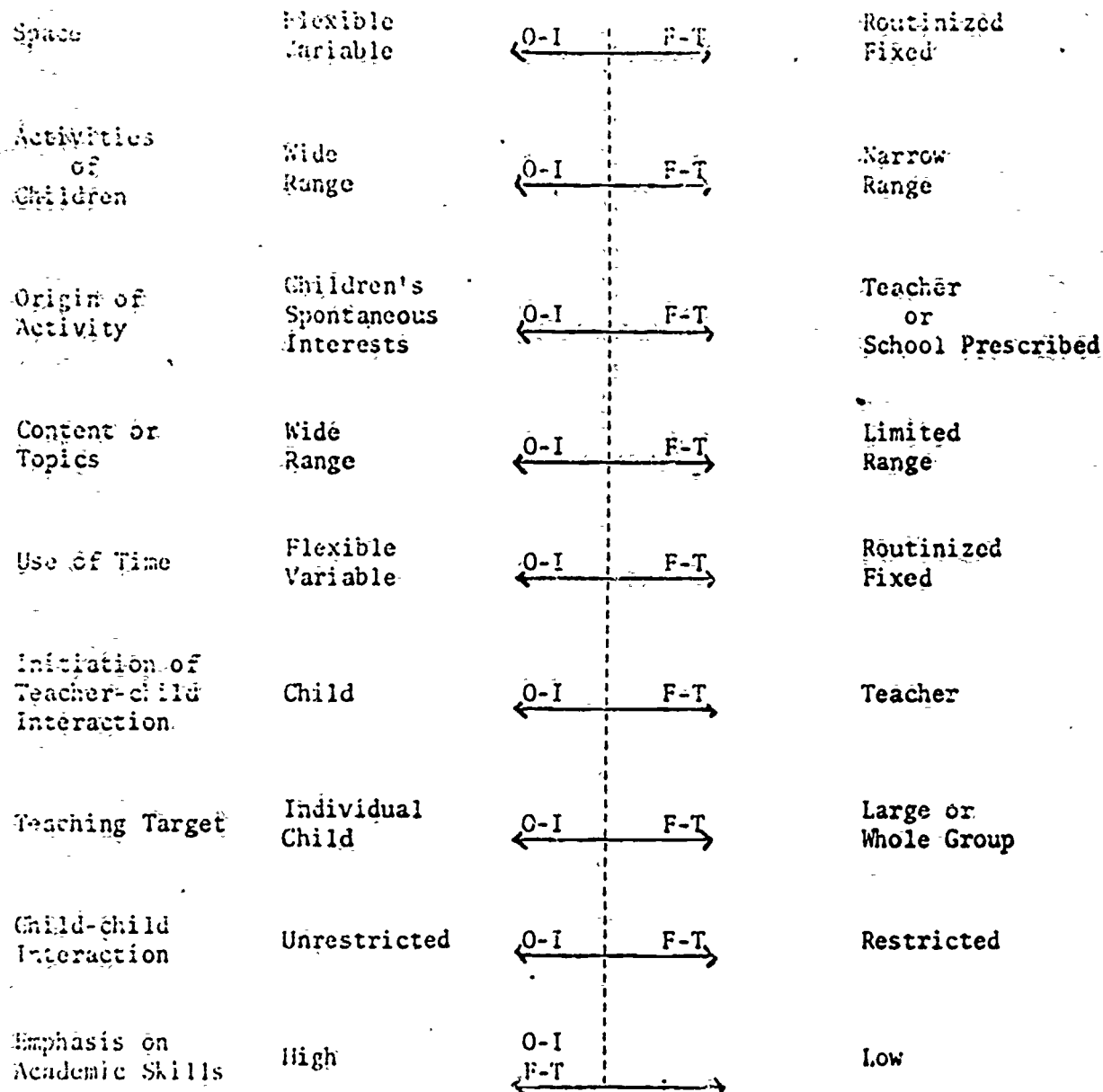
1 2 3

	<u>True</u>	<u>Somewhat True</u>	<u>Very True</u>
Work and play should not be distinguished in the learning process of children because play is a child's way of learning.	1	2	3
Knowledge is a personal synthesis of one's own experience; the learning of "skills" and subjects" proceeds along many intersecting paths simultaneously.	1	2	3
Traditional techniques of evaluation do not necessarily measure those qualities of learning which are most important, and may have a negative effect on learning.	1	2	3
Looking at a child's development over a long period of time is more useful for evaluation than comparing him with his peers or a standardized norm.	1	2	3
Children have the right to make important decisions regarding their own educational experience.	1	2	3
The child must be valued as a human being, treated with courtesy, kindness, and respect.	1	2	3
The child's life in school should not be viewed primarily as a preparation for the future; each child's experiences are justifiable in themselves and not dependent upon future performance for justification.	1	2	3
With a few consistent, reasonable, and explicit rules and limits, children are able to be more free and productive.	1	2	3
An accepting and warm emotional climate is an essential element in children's learning.	1	2	3
Learning is facilitated by relationships of openness, trust, and mutual respect.	1	2	3
Fear of making mistakes or of not doing well impedes a child's progress in learning.	1	2	3

	<u>True</u>	<u>Somewhat True</u>	<u>Very True</u>
Objectives of education should include, but go beyond, literacy, dissemination of information and concept acquisition.	1	2	3
The function of school is to help children learn to learn; to acquire both the ability and the willingness to extend their intellectual and emotional resources and bring them to bear in making decisions, organizing experience, and utilizing knowledge.	1	2	3

Figure 1

The Position of Open-Informal and Traditional-Formal Classes
on Selected Dimensions of Classroom Life



O-I = Open-Informal Classes; F-T = Formal-Traditional Classes

Criteria for Open Classrooms Classified According to Categories of Essentiality

A. General Criteria Basic to All Classrooms which Promote the Growth of Each Individual towards Realizing his Potential.

1. *The teacher is moving towards or has achieved a degree of self-understanding and acceptance of his own self-worth.* According to Carl Rogers (1969), self-acceptance precedes the acceptance of an "other" which is necessary to classrooms which facilitate optimal growth. However, it may be that the importance of this criteria will vary with the age of the students. That is, self-acceptance and self-understanding may be a more important achievement for teachers of one-particular age group rather than another in establishing a classroom atmosphere which promotes individual growth.

2. *The teacher's attitude and interactions convey the recognition and acceptance of the intrinsic value of each individual.* The teacher's attitude towards others and his interactions reflecting this attitude are based not only on his own self-acceptance but also on the belief in each individual's potential for goodness, worth, dignity and uniqueness.

3. *There is a feeling of mutual trust and respect between teacher and students and between students.* An atmosphere conducive to a mutuality of trust and respect is built on the teacher's prior attitude of recognizing the intrinsic value of each individual.

Implicit in these first three criteria is a hierarchy of attitudes towards the self and towards others which unguirds a healthy classroom environment. Since a consideration of this hierarchy goes beyond the purposes of this paper, the reader is referred to Marshall (1972) for an elaboration of this conception.

4. *The teacher's goals and guiding philosophy of education are based on a conception of human needs which includes*

- (a) the need for love, acceptance, and belonging,
- (b) the need for competence and for interacting effectively and creatively with one's environment,
- (c) the need for feelings of self-esteem and a sense of identity, and
- (d) the need for a sense of responsibility and purposefulness.

The teacher's goals and philosophy are also based on a conception of learning which

- (a) emphasizes the importance of the learner's active involvement in exploring and experiencing those parts of the real world that touch on his needs for growth,
- (b) takes into account the wide range of individual differences in levels and styles of learning, and
- (c) builds on the sequence of skills and concepts which underpin the structure of knowledge.

B. Necessary Criteria Specific to Open Classrooms

1. *The atmosphere is permeated with an openness, an awareness, and a respect towards*

- (a) the whole range of individual differences,
- (b) the integration and interaction of the cognitive and affective domains of human functioning,
- (c) the recognition of feelings,
- (d) divergent ideas,
- (e) errors and ambiguity.

This crucial attitude of openness results in a realness and an honesty of each individual with himself and with others. It presupposes the ability to experience and become aware of all of one's feelings so that one can react according to the reality of the situation rather than defensively hiding behind preconceived role expectations regarding the way a teacher "should" react or about what a child "should" say. True openness to feelings and individual differences allows the teacher to respond to each individual and his needs in a manner appropriate to the ongoing dynamics of the situation. As a result, those students who are not yet ready to make choices and initiate and direct their own learning are provided with the direction, structure, and guidance necessary to foster their growth towards independence and responsibility.

2. *The teacher is a facilitator of learning, a catalyst who is:*

- (a) a resource person rather than an authority figure, helping individuals find ways of answering their questions and asking questions which stimulate the student's interest and pursuit of competence;
- (b) a provisioner of the educational environment, providing a wide variety of learning activities and materials from which the students may choose and which may be used in divergent as well as convergent directions;
- (c) an empathetic guide, encouraging variations in the learner's behavior and between learners, reflective of an awareness of and responsiveness to the learner's frame of reference;
- (d) an active experimenter and perennial learner in his own right.

3. *With the teacher's guidance, opportunities are provided for students to assume responsibility and draw on their own resources for initiating, choosing, directing, and evaluating their own learning.* On the basis of information gleaned from observing the transactions an individual makes within the learning environment, experiences are planned to capitalize on the needs and readiness of each individual to assume responsibility and move towards self-direction and an expansion of interests and skills. Emphasis is on cooperation and self-evaluation rather than on competition and externally-imposed judgment.

4. *Learning occurs because it is personally meaningful to the individual* rather than because it is dictated by some outside authority. Learning is meaningful when it touches on vital concerns of the individual, when it involves the wholeness of the individual—integrating the affective and cognitive components—when it meets an individual's needs as a human being for self-esteem, acceptance, and realizing his potential, and when it promotes constructive transactions with the world around him—resulting in a sense of purposefulness and involvement.

It is these criteria, which when added to those in the first category and supported by those in the third, that are required to produce an open classroom.

C. Characteristics of Open Classrooms Derived From and Supportive of the Essential Criteria

1. *Learning topics are interdisciplinary and integrated.* Few boundaries exist between subject matter areas.
2. *The learning environment is rich and varied.* Materials and experiences are added or changed to meet the students' needs for stimulation and challenge.
3. *There is a minimal amount of scheduling and a flexibility in the day.* Large segments of time are available so that learning activities may be pursued until they are completed to the learner's satisfaction.
4. *There is an openness in the spatial arrangement of the learning environ-*

ment, allowing freedom of movement from one learning area to another as well as beyond the classroom. The total environment is a source of learning.

It is the characteristics in this last category which, when found in the absence of those in the first two categories, reveals a classroom with the trappings of an open classroom, but without the essence of openness, yielding a false positive.

Differentiating Terminology

In addition to specifying the criteria for an open classroom, it is also important to differentiate the term "open classroom" from other labels which have sometimes been spuriously used to refer to openness, e.g., "integrated day," "informal education," "unstructured classroom."

The "integrated day," or "integrated curriculum" usually refers to situations where topics for learning are not divided into the usual subject matter categories of reading, spelling, arithmetic, science, art, etc., nor studied at particular times during the day. Instead, learning cuts across all these categories. For example, children may become interested in studying about marine life. They read about the varieties and habits of fish, measure and compare the relative sizes of fish or construct scale models, investigate the ecology or evolution of a particular species, and write and illustrate reports about what they have discovered. Most open classrooms, especially at the elementary level, include an integrated curriculum and day; but classrooms with integrated curricula are not necessarily open. It is possible to have a fine teacher-directed classroom based on this type of integrated approach.

"Informal education" has been used to describe those situations where an attempt has been made to move away from the rigidities of a fixed time schedule, formally prescribed curricula, and traditional hierarchical role relationships. In-

formal classrooms vary as to the degree and areas in which a loosening of procedures has occurred. As is the case with classrooms based on an integrated curriculum, there is an overlap between the characteristics of informal education and open education, since open classrooms are usually characterized by informality. That is, on a continuum from formal to informal, open classrooms would be placed towards the informal end. However, not all informal classrooms meet all the criteria for openness. Thus, neither an informal classroom nor an integrated curriculum are synonymous with an open classroom.

A related confusion surrounding the concept of the open classroom concerns structure. There are at least two dimensions to the structure of a classroom. First, many aspects of the classroom, such as relationships, curriculum, time schedule, arrangement of space and equipment, can be placed along a continuum progressing from unstructured disorganization to rigid structure. In addition to this, a second dimension of structure along which the components of the learning environment can be analyzed is the visibility of the structure. In other words, it is also possible to evaluate the ease with which aspects of the classroom structure can be detected by the lay observer.

Although the interpersonal relationships in an open classroom may lack structure—at least of a hierarchical nature—other aspects, such as time

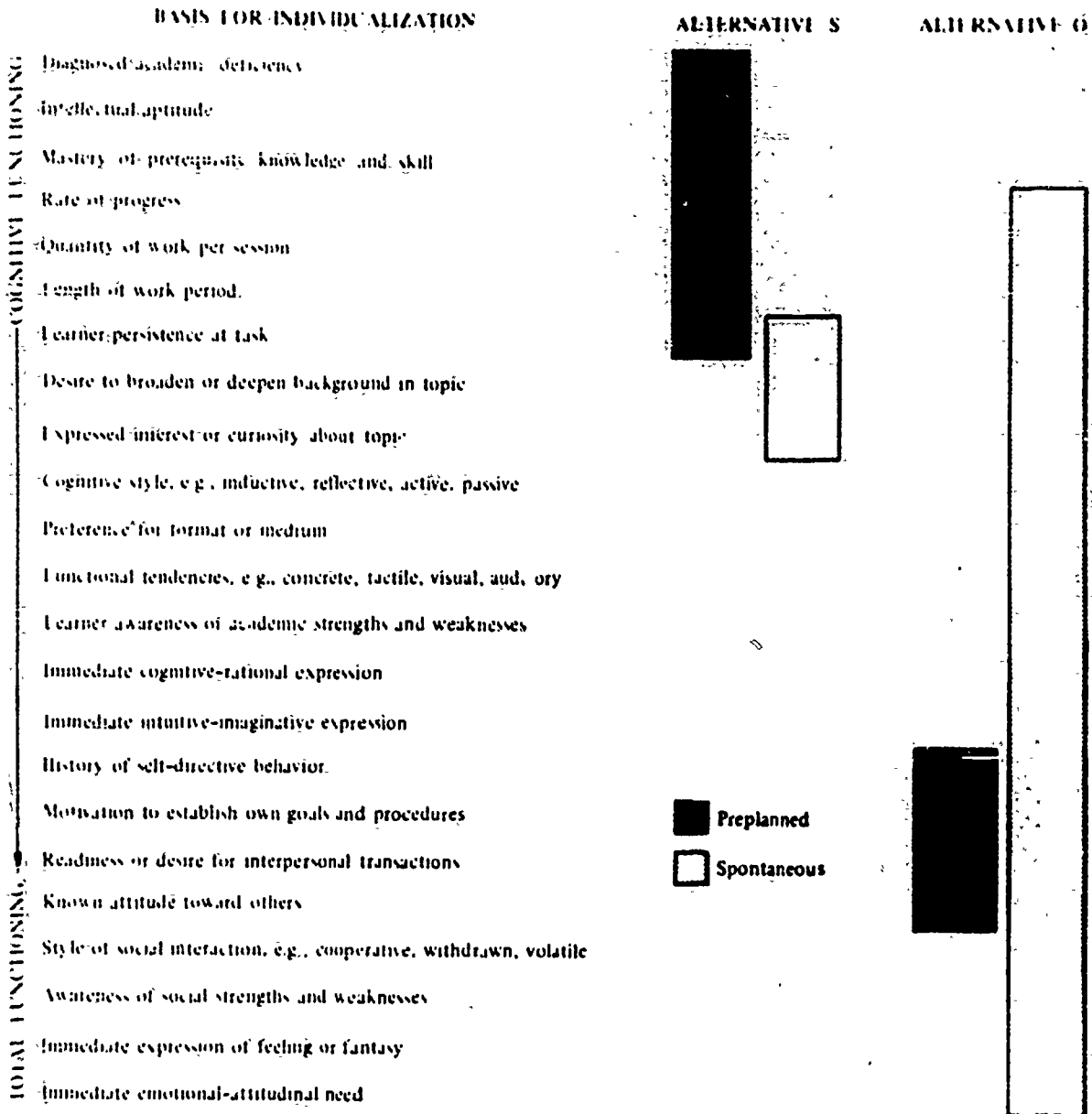


FIGURE 2 AREAS AND MODES OF INDIVIDUALIZING

APPENDIX J

492 Westside Drive
Rochester, NY 14624
April 17, 1974

Dear Sir:

I am a Graduate Student pursuing the Masters Degree in Industrial Arts. My topic is as follows: INDUSTRIAL ARTS IN THE OPEN EDUCATION SETTING, An Analysis of the Rationale of Open Education and its Implications for the Field of Industrial Arts.

I do have numerous sources of information on this topic, but it was suggested by the Education Department of Albany, New York that I contact you in this regard.

I am specifically interested in knowing more about, first, the Philosophical and Psychological foundations of Open Education, and secondly, how this could be applied to the Elementary, Junior, and/or Senior High School in general--not just Industrial Arts.

Any information you could send me, or direct me to, will be greatly appreciated.

Sincerely,


James J. Donald

APPENDIX K

CHARLES E. SILBERMAN

100 EAST 85 STREET
NEW YORK, N. Y. 10028

212/861-3730

January 31, 1972

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

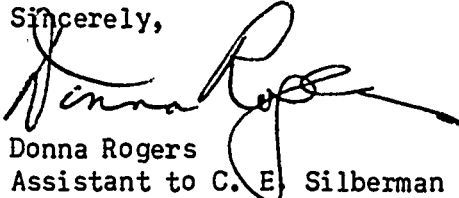
Dear Mr. Donald:

Thank you for your recent letter to Mr. Silberman.

To aid you in your analysis of the rationale of open education, Mr. Silberman suggests that you read his book, *CRISIS IN THE CLASSROOM*, and also Lillian Weber's book, *THE ENGLISH INFANT SCHOOL AND INFORMAL EDUCATION*. These should give you a substantial background.

Hope this is of some help.

Sincerely,



Donna Rogers
Assistant to C. E. Silberman

APPENDIX L

RAMAPO CENTRAL SCHOOL DISTRICT NO. 2

BLUEFIELD SCHOOL

WIDMAN COURT, SPRING VALLEY, N. Y. 10977

PHONE (914) 356-4100

DR. DARWIN G. CARLSON
SuperintendentLEO G. CHAPDELAINÉ
PrincipalBARBARA LYNCH
Assistant Principal

February 8, 1972

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald,

The best bibliography that I have found is:

British Primary Education;
An Annotated Bibliography
Compiled by Lucy A. Haskell

You can procure it from:

Educational Resources Informational Center
Clearinghouse on Early Childhood Education
805 West Pennsylvania
Urbana, Illinois 61801

To understand the philosophical and psychological foundations of open education (as practiced in British Primary Schools as distinguished from "free schools") you will have to read the works of Piaget - greatly influenced the movement - theories of how children learn

Montessori - emphasis on importance of environment and need for children to learn through senses

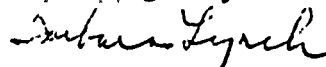
Froebel - the importance of play as a means of learning

I would also recommend anything written by Featherstone. His articles in the New Republic are classic in terms of understanding the movement.

A recent article by Roland Barth in the October 1971 issue of Phil Delta Kappan lists the basic assumptions of open education. This may be helpful to you.

Enclosed is a bibliography I compiled for my teachers. It is very limited but it does provide a starting point.

Kind regards,



Barbara Lynch

BL/sc
encl.

APPENDIX M

225

BOARD OF COOPERATIVE EDUCATIONAL SERVICES
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February 1, 1972

Mr. James J. Donald
 1420 Spencerport Road
 Rochester, New York 14606

Dear Mr. Donald:

Thank you for your letter of January 24th requesting my philosophical and psychological beliefs concerning Open Education.

I have enclosed, for your reference a paper I composed when I became aware of the growing interest and experimentation in open education. Also, enclosed is a packet of materials I have found to be of help in developing such programs.

To aid others in this respect, I would appreciate any materials you have found particularly helpful in your endeavors.

Should you need additional material, please feel free to continue your contacts with this office and/or the New York State Education Department.

I personally appreciate your efforts in this area.

Sincerely yours,


 Roy H. Meuchner
 Administrative Assistant

RHM/emb
 Enc.

c.c. Robert H. Johnstone

APPENDIX N



EDUCATION DEVELOPMENT CENTER

February 1, 1972

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald:

In answer to your letter of January 24, 1972, I am enclosing some materials which describes the philosophy and practices of our approach to the education of young children.

I hope these papers will be of help to you in your work.

Sincerely yours,

A handwritten signature in cursive script that reads "George E. Hein".

George E. Hein
Director
Open Education
Follow Through Project

GEH:dg
Enc.

APPENDIX O

Daniel L. Duke
 4 Seward Street
 Albany, New York 12203
 February 14, 1972

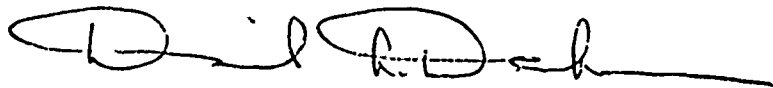
Dear Jim,

Dr. Leese, Chairman of the Department of Curriculum and Instruction, forwarded your mimeographed letter on open education and industrial arts to me. Together with several others in the Department, I am working on the Open Schools Task Group. Among other things, we have investigated the criteria of an open school, surveyed the literature on the subject, and planned a conference for May (you may be interested in attending!). I would be happy to answer specific questions you might have, either in person, by phone, or mail. I am unable to synthesize all of our work in a letter, however.

I have included a copy of criteria befitting an open school on the British model. Please do not quote this sheet, since it is subject to revision. I feel it might prove of use in any event and it might lead you to other conclusions germane to your Masters thesis. In addition, if you have not looked at A Bibliography of Open Education by Roland Barth and Charles Rathbone, do so. It can be obtained for \$1.25 from Advisory for Open Education, 90 Sherman Street, Cambridge, Mass. 02140. Also, the Ford Foundation has recently published 23 pamphlets describing various aspects of open education. Though short and sketchy, these might prove beneficial. As of yet, I know of no attempt to relate open education to industrial arts. It sounds like a most worthy pursuit, however, and I hope you keep me informed on your progress. We are trying to maintain accurate references on all work being done in this area. Other people to contact include the New School for Behavioral Studies in Education at the University of North Dakota and Educational Development Center in Newton, Massachusetts.

Good luck on your endeavors.

Sincerely,



Daniel L. Duke

VASSAR COLLEGE
POUGHKEEPSIE, NEW YORK 12601
Office of the Dean

*Director of
Elementary Teacher Education*

*Director of
Secondary Teacher Education*

February 4, 1972

To: Mr. James J. Donald

From: Dr. Josephine Palmer

Concerning: Information on Open Education

I am sorry but I cannot supply you with the information you have requested due to a heavy teaching schedule and other college and community responsibilities.

There are many current articles and excellent bibliographies now available so I suggest you make use of these and carry on your own research study in this field.

You may wish to send for the following: "British Primary Education" an annotated bibliography compiled by Lucy A. Haskill-July 1971. This may be obtained from:

Education Resource Center
Clearing House on Early Childhood Education
805 West Pennsylvania
Urbana, Illinois 61801

APPENDIX Q

JP/mad

STATE UNIVERSITY COLLEGE
OSWEGO, NEW YORK

Interoffice Communication

TO: Jim Donald DATE: 1st February 1972
FROM: Brian Rumble (Curriculum Lab. S.U.C.O.)
SUBJECT: The Open Classroom

I contacted my friend in England as you requested just before the Christmas vacation. He has just sent me the following information:

Article:

Phi Delta Kappan October 1971 issue.

Book:

"The Open Classroom" by Herbert Kohl,
published in England by Methuen Ltd.,
in 1970. U.S. copyright granted
in 1969.

I hope you will find this information helpful.

APPENDIX R



SCOPE

"A COOPERATIVE EFFORT SERVING SUFFOLK EDUCATION"

WALTER H. HEATH - EXECUTIVE SECRETARY

February 4, 1972

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald:

In response to your letter of January 24, it is suggested that you refer to the bibliography and footnotes contained in Crises in the Classroom, by Charles Silverman. This volume should lead you to other appropriate resources. For information on application in the elementary and junior high school, it is suggested that you write to Mr. Barry Kane at the Middle Glenn Elementary School, New York. He is the principal of that school. In addition, you might like to write to Dr. Vincent Rogers at the University of Connecticut, Storres, Connecticut and Joe Randazo of the Hartford, Connecticut Public Schools. For information on the senior high school, it is suggested that you contact Bill Russel, High School Principal in Port Washington, Long Island.

I hope this information proves to be of value to you.

Sincerely,

Fred Bockian
Director for Inservice Education

FB/dbt

APPENDIX S

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
ALBANY, NEW YORK 12224

225

BERNARD F. HAAKE
ASSISTANT COMMISSIONER FOR
INSTRUCTIONAL SERVICES
(GENERAL EDUCATION)

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WILLIAM E. YOUNG, DIRECTOR

BUREAU OF
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ASSOCIATES

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VIRGINIA L. HURST PETER A. MARTIN
HOWARD O. YATES.

510. 474-5993.

July 21, 1971

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald:

Your letter addressed to the Commissioner of Education has been referred to this office for reply.

Under separate cover we are sending you the following materials:

Redesign: Characteristics of the NSE
Adapt or Adopt?
Open Education: What It Is?
Open Education: Its Philosophy...
Information and Planning Kit for Open Education

We hope you find these materials helpful.

Cordially yours,



Robert H. Johnstone, Chairman
Task Force on Open Education

RHJ:fs

APPENDIX T

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

226

ROBERT S. SECKENDORF
ASSISTANT COMMISSIONER FOR
OCCUPATIONAL EDUCATION

DIVISION OF OCCUPATIONAL EDUCATION INSTRUCTION
ROBERT H. BIELEFELD, DIRECTOR

BUREAU OF INDUSTRIAL ARTS EDUCATION
ARTHUR J. DUDLEY, CHIEF
99 WASHINGTON AVENUE
ALBANY, NEW YORK 12210
518: 474-8023

November 9, 1971

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald:

Your letter to Commissioner Nyquist has been referred to me.

Your inquiry about open education certainly is timely because of the emphasis that the Commissioner has given it in some of his recent addresses and writings. One of the most succinct reviews appeared in the November 1971 issue of the Education Digest. In the belief that this summary would be of interest to you I have enclosed a Xerox copy.

As a concept, open education has not emerged as an "instant program" so I cannot direct you to specific schools that have committed themselves in this direction. As an educational thrust I am sure that it will be picked up by administrators.

I, however, would direct you to three diverse school systems which have industrial arts programs that exemplify facets of the open education approach. In each of these the industrial arts department is forward looking in its approach to child development and learning. First I would commend you to the Greece Central School District where Mr. James Good is the director of the program. Second I would refer you to Mr. Robert Handy of Norwich where an open facility produces some unique teacher-pupil relationships which are the essence of open education. The third school district would be Syosset where Mr. Michael Hacker is the chairman. If you were to request an appointment to visit these centers while in action, I am sure you would observe some interesting practices. At this point in time I do not believe you will find it possible for people to furnish you with prescriptive responses or curricular materials that will answer your queries.

APPENDIX U

233

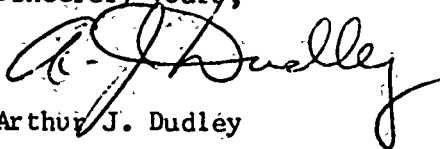
Mr. James J. Donald

-2-

November 9, 1971

In conclusion I would commend you to reading the implications that are listed at the conclusion of the enclosed article on The Concept of Open Education by Commissioner Nyquist.

Sincerely yours,



Arthur J. Dudley

Enc.

APPENDIX U

BEDFORD PUBLIC SCHOOLS

THE FOX LANE CAMPUS, P. O. BOX 180, MOUNT KISCO, NEW YORK 10549

Area Code 914: 666-6731

ANTHONY C. SABELLA
Superintendent of Schools**CHESTER L. TOWNE**
Director of Personnel
and Elementary Education

February 17, 1972

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald:

Enclosed are some bibliographies on OPEN EDUCATION
and BRITISH PRIMARY EDUCATION. There are some duplications.
I hope you will find them helpful for your studies and job.

Sincerely,

*Olivia W. Hill*Olivia W. Hill (Mrs.) MRM
Elementary CoordinatorOWH:MMR
Enclosures

APPENDIX V



*International Center for
Educational Development*

16161 Ventura Boulevard
Encino, California 91316
Phone (213) 986-3171

February 1, 1972

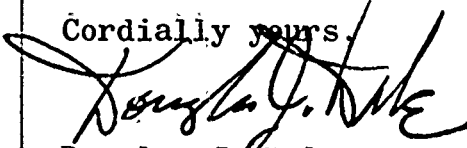
Mr. James J. Donald
1420 Spencerport Road
Rochester, New York 14606

Dear Mr. Donald:

I am enclosing several materials covering the basic philosophy of the open classroom. I hope you find the enclosed bibliography helpful.

If I can be of further assistance to you, please feel free to ask.

Cordially yours,



Douglas J. Dale
Consultant

DJD:mn

Encls.

APPENDIX W

ADVISORY SERVICES - OPEN CORRIDOR REORGANIZATION

New York Public Schools

Lillian Weber, Director

City College of New York
Klapper Hall 214
135th Street and Convent Avenue
New York, N.Y. 10031
212 - 926-7317

March 1, 1972

James J. McDonald
1420 Spencerport Road
Rochester, New York 14606

Dear James J. McDonald:

Professor Weber asked me to let you know that she thinks your dissertation topic is a particularly interesting one. She works in elementary education and is pursuing the application of Industrial Arts work in the education of young children in the Open Corridor Schools here in New York.

Mrs. Weber would suggest that you get in touch with Mrs. Robert A. Low, the Director of "School-Business Partnerships", a special project of the Public Education Association. Her address is 20 West 40th Street, New York, N.Y. 10018. This group is doing work in what might be termed "applied industrial arts" on a secondary level.

Re the "Philosophical and Psychological foundations of Open Education", I am enclosing several bibliographies. Professor Weber has indicated the titles she thinks might be of most interest to you. In addition, I am sending a sheet describing her book, which deals with both the practical and the theoretical aspects of informal education.

We hope that this information will be of use to you. Good luck with your work!

Sincerely,

Robin Walker

Robin Walker
Secretary to Professor Weber



STATE UNIVERSITY OF NEW YORK AT ALBANY
1400 Washington Avenue, Albany, N. Y. 12203
Department of Curriculum & Instruction

Mr. James J. Donald
1420 Spencerport Road
Rochester, New York, 14606

Dear Mr. Donald:

1. As you probably know from your reading, there is little in industrial arts in the open education area. Indeed, there is very little indeed concerning the higher grades.

2. If you have not already done so, you must visit the open school at Little Falls. Contact Mr. Charles A. Ebetino, superintendent of schools, Little Falls Central School District, 770 East Main Street, Little Falls, New York, 13365, telephone 315 823 1470.

3. The best philosophical and psychological foundations statement for open education is by Sherman. I shall include the reference at the end of this letter. Another excellent conceptualization is by Educational Testing Service. I shall include it also. The most exhaustive and annotated bibliography is: A Bibliography of Open Education by Roland Barth and Charles Rathbone (Newton, Mass.: Educational Development Center, Inc., 55 Chapel Street, 02160).

4. If you are in the Albany area, please feel free to stop by for a chat about your progress. My telephone number is 518 439 8233. It is best to call a few days in advance and leave your number as I am seldom on campus.

Cordially,

Donald A. Myers

Donald A. Myers
Associate Professor

*PHIL &
PSYCHOLOGICAL

Vivian S. Sherman, Two Contrasting Educational Models: Applications and Policy Implications (Menlo Park, California, 1970). Include also, Educational Policy Research Center, Research Memorandum EPRC-6747-9, Contract OEC-1-70-071013-4274. Free, but use university stationery.

**Anne M. Bussis and Edward A. Chittenden, Analysis of an Approach to Open Education (Princeton, New Jersey: Educational Testing Service, 1970).

INDUSTRIAL ARTS IN
THE OPEN EDUCATION SETTING

An Analysis of the Rationale of Open Education
and its Implications for Industrial Arts

ABSTRACT OF

THESIS

Presented in Partial Fulfillment
of the Requirements for Industrial Arts Education 399

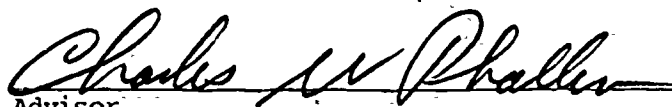
By

James J. Donald, B.S.

State University College
Oswego, New York

1974

Approved by



Advisor

Department of Industrial Arts

Change is a constant reality of living faced by both individuals and institutions, and its acceleration is one of the most critical problems facing technological man. In the long run, Alternative "O" (openness) must prove more practical than idyllic. Survival may require greater openness than man has known throughout his history.

Vivian S. Sherman

INDUSTRIAL ARTS IN
THE OPEN EDUCATION SETTING

An Analysis of the Rationale of Open Education
and its Implications for Industrial Arts

JAMES J. DONALD, B.S.

State University College at Oswego, 1974

PURPOSE OF THE STUDY

The purpose of this study was to develop a basis for the implementation of Industrial Arts Laboratory activities which rest on the nature of the growth and development of the individual and on how his nature gives clarification, definition, and meaning to the objects and events he experiences in his environment.

METHODS, PROCEDURES, AND TREATMENT OF DATA

The method of this research paper was descriptive in nature. The study examined and evaluated present available literature regarding the child development theory of Jean Piaget and the principles and practices of Open Education. The literature was then analyzed and characteristics of the learner, the facilitator, and the environment were subsequently deduced from this analysis.

The procedure used in this investigation was as follows: an introduction and a statement of the problem were presented in Chapter I, a review of the literature regarding the topic was compiled in Chapter II, an analysis of the literature was presented in Chapter III, a synthesis of the problem developed in Chapter IV, and in Chapter V the

conclusions and recommendations were given.

The material was collected and organized in such a way that the reader could secure information about and characteristics of the learner, the facilitator, and the environment within the context of an Open Education setting. This information could be used to assist the reader in implementing Industrial Arts Laboratory activities on the basis of how human beings grow and develop--learn.

RESULTS AND DISCUSSION

So much of education today is based on transmitting a body of knowledge from the teacher to the student. Filling the student's world with facts and information which he is expected to memorize, and subsequently reiterate back to the teacher, is the cycle through which all students must pass. They are all locked together because of the procedures of the teacher, the narrowness of the content, the lack of direct physical experience with the information, and the rigidity of the learning environment. The individual is a member of a group who is being taught refrain from being an individual, looking to other persons and authority figures for their own personal direction, and surrendering their own curiosity and spontaneity to the wishes and direction of others. The individual, in both subtle and direct ways, is being turned away from himself. He is being turned away from his own personal capacity and desire to explore and discover on his own, away from the self-purpose

and the self-direction he needs to be able to truly select and develop a personal approach which gives meaning and impetus to his own life.

Through analysis and synthesis of the literature on the child development theory of Jean Piaget and the literature describing the practices and principles of Open Education it was seen that the vicious cycle of repressing the human desires and needs of the learner can be transformed into a living, growing, spontaneous, joyful, and ever-expanding cycle of self-direction, self-revelation, and self-definition. Through the openness of this style of education the learner is allowed and encouraged to follow his own direction of interests in learning about himself and his environment. He is supported by the facilitator in his efforts to find his own purpose of direction, to take action from this basis and thus to explore and discover the animate and inanimate contents of his environment. Knowledge and understanding of his world is considered a truly personal thing and can only be intrinsically understood through self-evaluation and self-discovery. Through the re-evaluation and re-definition of the three basic elements of education--the learner, the facilitator, and the environment--a more natural and integrated growth and development of the learner can thus be established.

CONCLUSIONS

As a result of analyzing and synthesizing the literature regarding Jean Piaget's theory of child development and the principles and prac-

tices of Open Education, the following conclusions have been formulated. These conclusions have been divided into four areas: conclusions concerning the central theme of open education, plus conclusions pertaining to the learner, the facilitator, and the environment in the Open Education setting.

The central theme of Open Education is one of process where both the learner and the facilitator participate together in the active, dynamic endeavor of learning. Open Education, more than any other method of teaching, is an art. This process of education is purposely concerned with the growth and development and, most significantly, the co-ordination of these human qualities within the learner himself. It is an art, for the learner depends on and actively uses all of his human qualities while learning. It is likewise an art for the facilitator, for it is he who is sensitive and responsive to his own human qualities plus the learner's for the purpose of maximizing the learner's involvement in his personal learning. It was found that in this text, the learner, the facilitator, and the environment had to be redefined.

In the open education setting, the learner is seen as an individual who has an innate and active ability and potential to learn. He is a self-reliant and independent individual who makes significant decisions concerning the purpose, direction, and dynamic activity in which he becomes involved. The learner, through active exploration and discovery on his part, learns of his own capacities and abilities as well as the

characteristics of his external environment. He is, in effect, learning how to learn, and how to use new information which becomes available to him as he develops and expands his personal body of knowledge. The learner is given varying time intervals to learn. He can work at his own pace and in his own style, and at the same time he is being evaluated through self-evaluation techniques and direct observation of the results of his active learning. He is viewed as a person who learns through his own involvement with his material environment as well as with his social environment.

The position of the facilitator in the educational setting has also changed. The facilitator sees the learner as a human being who purposely uses his unique physical, conceptual, and emotional qualities to pursue his personal knowledge. The facilitator, along with the learner, becomes an active member of the larger group of learners through mutual communication and experimentation with the learner's activity. The facilitator is constantly supporting an open, real, flexible, and genuine relationship between himself and the learner as well as between the learners themselves. Evaluation of the learner is through the learner's self-evaluation and self-observation of his chosen activity in co-operation with the facilitator.

The facilitator himself is a physically, conceptually, and emotionally strong individual, for it is he that is supporting and encouraging the development of these same qualities within the learner. He is open

to new and varied information which becomes part of the learning environment. He accepts and responds to both correct and incorrect responses from the learner in order to help him clarify his understanding of his activity. He also is not dependent on any pre-arranged lesson plans or time periods for learning activities.

The open environment is considered to be the materials, machines, individuals, content, time, space, and the learner himself. The physical environment is bright, colorful, and safe for the learner to actively pursue his learning. It is not restricted by any arbitrary boundaries and is rich with widely varying materials and machines. The content of the environment is interdisciplinary and integrated with adequate space for both individual storage of materials and proper storage and placement of materials and machines used by the total group. The physical environment as well as the element of time is flexible in order that they may be used most efficiently by the learner.

RECOMMENDATIONS

As a result of this descriptive investigation the following recommendations are presented. The initial recommendation will concern the central theme of Open Education. The remaining recommendations will be divided into three separate areas: recommendations for the learner, recommendations for the facilitator, and recommendations for the environment. The recommendation concerning the central theme of Open Education is contained in the following statement.

The central theme of Open Education is process--an art of releasing the learner's conceptual, emotional, and physical potentials which, when all are co-ordinating together, supply him with a personal and holistic direction of interest, inquiry, and active investigation into his own unique, internal and external environment.

The recommendations concerning the learner follow in an itemized list.

The Industrial Arts Learner should be:

1. Allowed and encouraged to pursue the materials and topics that are truly of interest to him.
2. Allowed and encouraged to make significant decisions concerning what he learns, the materials with which he learns, and the specific activity with which he becomes involved.
3. Allowed and encouraged to exercise a personal self-reliant and independent behavior when he is pursuing his interests in the Industrial Arts Laboratory.
4. Exposed to active concrete experience with knowledge before he can be expected to understand a concept, a process, or a skill.
5. Allowed and encouraged to be actively creative in his use of the materials, tools, machines, processes, and concepts which he personally discovers through learning.
6. Allowed and encouraged to use any and all information concerning his unique self and his unique activities in order that he may expand and deepen his knowledge and understanding of himself and his environment.
7. Allowed and encouraged to discover his own knowledge and understanding of his social and material environments and in turn, use this new understanding to produce even more knowledge and understanding in order that he may learn the process involved in learning how to learn.
8. Allowed and encouraged to become involved in active, concrete experiences so his knowledge and understandings of these unique experiences will be of real, practical, and productive value to him.

9. Given little if any personal criticism or discouragement concerning his purposeful learning activities and behavior.
10. Allowed and encouraged to take time to determine if his learning activity is based on his own purpose and his own initiated direction.
11. Afforded flexible time in which he can pursue his own learning in his own style.
12. Learning if he exhibits the qualities of joy, satisfaction, inquisitiveness, curiosity, and spontaneity within the context of his unique learning activity.
13. Evaluated by both the facilitator and the learner himself, through direct observation of the learner's personally initiated activity and the results stemming from his activity.
14. Allowed and encouraged to share his knowledge and understandings of his social and material environment with other learners.

The recommendations concerning the facilitator follow in an itemized list. The Industrial Arts Facilitator should:

1. Be aware and responsive to the simultaneous growth and development of the learner's physical, conceptual, and emotional qualities and the learner's coordination of these qualities within his dynamic learning activities.
2. Be aware and responsive to the unique and separate physical, emotional, and conceptual qualities of each distinct individual learner.
3. Trust and respect the individual learner's ability and potential to choose, initiate and actively pursue his own initiated learning activity.
4. Communicate honestly and in an open-ended manner with the learner for the expressed purpose of assisting the learner in clarifying his feelings and thoughts concerning his own purpose and direction of activity.

5. Communicate with the learner, verbally and through action, for the expressed purpose of maximizing the learner's independent dynamic involvement with his own learning activity.
6. Be an active experimenter taking a dynamic part in facilitating the learner's own learning through the process of creating and adapting ideas and materials together.
7. Be, himself, one member of a group of learners and a learning member of that group.
8. Support and encourage learner-to-learner communication and relationships.
9. Be actively involved in the learning activities of the learner primarily on a one-to-one basis.
10. Employ co-operative learner-facilitator techniques of evaluation to assess the learner's success and progress in his physical, emotional, and conceptual growth and development.
11. Feel quite secure, and have considerable belief and trust in his ability and potential to support the numerous and varied human relationships which develop within the facilitator-learner interaction.
12. Be aware of himself and his feelings and be able to openly and honestly share his feelings within his direct personal relationships with the learner.
13. Be aware of, accept, and respond to the varied and numerous emotions of the individual learner in a manner which is supportive of those emotions.
14. Intervene, or refrain from intervening, in the learner's learning, except in direct response to the verbally or physically expressed needs and interests of the learner.
15. Be cognitively open to new ideas and new information.
16. Be concerned with and accept both correct and incorrect learner responses for the purpose of facilitating the learner's understanding and reasoning processes.

17. Not be dependent on predetermined lesson plans and fixed time schedules.

The recommendations concerning the Industrial Arts Environment follow in an itemized list. The Industrial Arts Environment should:

1. Consist of materials, machines, individuals, content, time, space, and the learner himself.
2. Be bright, colorful, and safe for the learner to involve himself in his dynamic investigations.
3. Not be restricted by any arbitrary boundaries except those established by the learner himself.
4. Be rich with widely varying materials and machines with which the learner interacts as he pursues his learning.
5. Be interdisciplinary and integrated concerning the learner's scope and range of active investigations.
6. Have sufficient space for the storage and placement of the students' materials and projects.
7. Have easy learner-access to the items he needs to further his learning activity.
8. Be flexible in response to the exploratory and constructive interests of the learner.
9. Consist of flexible large and small blocks of time within which the learner can involve himself in self-initiated investigations.

This writer feels it is essential that the Industrial Arts Facilitator put the needs and interests of the human being in the forefront of his thinking, feeling and action within the learning environment. For it follows from these recommendations that the facilitator's first responsibility in the learning environment is to foster a relationship

with the learner which is open, alive, responsive, and spontaneous. He must focus upon human development and human relationships of human beings. By utilizing the activity within the Industrial Arts Laboratory, the facilitator should promote the development of human skills along with, and most often before, he promotes the skill of technology. It is only through the process of human development and human interaction that the Industrial Arts Learner will be able to assist in building a better and more understanding world, both socially and in a "nuts and bolts" manner.