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VISUAL LEARNING IN ART EDUCATION
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VISUAL LEARNING IN ART EDUCATION AND GENERAL EDUCATION

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ABSTRACT

VISUAL LEARNING IN ART EDUCATION
AND GENERAL EDUCATION

By

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The focus of this research is the identification of the visual perceptual process relative to the art experience and the ways in which this experience in art relates to and reinforces learning.

The initial hypothesis of the study is that there exists a relationship between visual perceptual learning inherent in and essential to the art experience and those perceptual operational percepts necessary for learning to occur.

A review of related literature and previous research on visual perception and visual learning suggests that a correlation does exist. Researchers reviewed were Jean Piaget, Wolfgang Köhler, and Viktor Lowenfeld.

The manner in which visual perception applies to visual learning was identified and conclusions were made as to the ways in which those elements of visual learning are essential to both art education and general education--specifically reading education.

The need for further study is formulated within this thesis. One suggestion for further research was outlined.

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CHAPTER I

INTRODUCTION

Overview

There is a growing concern in our society and the schools for the increasing number of children who attend school but cannot read or read at a level of proficiency far below the established norm for their chronological age.

Although art programs have been traditionally included within the total public school curriculum as peripheral, little research has been conducted which would help to define the ways in which the learning and practice of visual perception during the acquisition of art skills and sensory information relating to the art experience are carried over and otherwise interrelated to learning skills which have visual perception as a foundation.

The ways in which visual perceptual skill training is necessary for the art process and the visual and perceptual skills which are necessary for reading skill building and eventual accomplishment will be compared and examined. Relevant historical literature dealing with both visual learning in art education and reading education will be examined.

For the purpose of constructing a foundation upon which the premise of this study might be developed, it is logical to begin the study with a clarification of the principle factors involved in visual learning and visual perception prior to any comparison between visual education in any two particular areas of a total school curriculum.

Visual learning will be defined for the purposes of this study to include all learning involved with the visual sense. Areas of the affective domain will be included within the visual learning experience. Visual perception will be defined as forming percepts based upon information gathered through the sense of vision.

Two initial premises as to the nature of visual perception are, first, perception is an activity of the mind intermediate between sensation and thought. It is a process of the mind which gives meaning to a (visual) sensation and serves as a preliminary to later cognitive processes. Second, unless the initial sensation or stimulus takes on certain meanings, organizations, significancies or is supplemented with experiential content, the perception will not be a useful one in terms of learning.

Questions

The writer attempted to answer the following questions:

1. In what ways does the art experience nurture or reinforce visual learning and perception?

2. If the hypothesis is sound that visual perception is increased, or at least supported by art experiences, then what is the nature of this process? Are there certain kinds of art experiences that particularly stress visual perception?

3. How can the visual training in art be carried over into areas of the total curriculum? Can an area of education, such as reading, which relies on visual awareness be assisted by supplementing other programs from the curriculum which do not relate directly to the reading experience but do so indirectly through visual perception? (i.e., Can learning in one area [art] affect learning in another [reading]?)

4. How does affective learning in art benefit the learner?

Limitations of the Study

This is an exploratory study. The findings and review of supportive literature should be considered a tentative indication of the ways in which art instruction involving visual perception relates to perceptual skills necessary for the accomplishment of the skill of reading. Much of the data found in the literature contained data that raised unanswered questions which were relevant to the outcome of that study.

CHAPTER II

STATEMENT OF THE PROBLEM

It is important to indicate that the process of learning in art exists as an element of paramount importance to the total education of the student.

The writer's interest in investigating research (or the need for it) related to perception, art and reading education is a result of:

1. The need to clarify the perceptual process as a part of the art experience
2. A concern which grows every day that art programs are indiscriminately being eliminated from the mainstream of education due to a lack of knowledge concerning their relative importance
3. A firm conviction that a relationship exists between visual learning in art and reading education based on writings of such authors as James Charles Mills, Howard Conant, and of the results of tentative studies on reading and art (i.e., Guggenheim study)

4. That by denying a child the right to an art education and visual art experiences we are also withholding the means by which a child can learn not only of the arts but through them.

The problem for this study is actually three-fold:

1. Traditional art programs often are not considered as a part of the general curriculum in today's public schools.
2. Little attempt has been made to correlate visual learning in art with visual learning necessary to other educational disciplines.
3. Why the relationships that have been made have been suppositions and not based upon empirical research.

This study does not propose a solution to these problems. It is designed as an investigative study which indicates the need for more empirical research to further support the premises.

CHAPTER III

A BACKGROUND OF THE STUDY

The Role of Art Education in Society

The purpose and importance of art and art education have been perceived in a variety of ways through the years. In 1864 drawing became a required subject in Boston's public schools. The state of Massachusetts went so far as to pass a state law which required that art be taught to boys over fifteen years of age in cities of over 10,000 population (16:14). In 1899 the National Education Association formed a committee on drawing in public schools which stated as one of its beliefs that the purpose of art is "to offer a consistent development of the faculty of sight" (12:65).

As the Industrial Revolution changed society, the role of art changed within the public school. Art was now considered a way in which technical skills could be developed. America needed craftsmen and designers to create marketable product ideas to feed the hungry appetites of the industrial age. Now schools were encouraged to offer art programs which would stress technical art processes.

At the same time the push toward industrialization was developing, Freudian psychologists were suggesting that

art was a very important means by which the child could express his ego. Well into the 1960s art was viewed by educators as a vehicle for facilitating mental growth and creativity and as an indicator of developmental progress (16:14-23).

It would appear that the importance of art education shifted from its use as a tool of industrial social refinement and back again. Eisner, in his publication "Some Historical Developments in Art Education" (16:14), notes that from the Renaissance to the nineteenth century art, and the arts, were considered marks of refinement, social niceties and cultural accomplishments. Later, largely because of the creation of the Machine Age, technical acquisition was added to the importance of art.

Senator Jack Faxon, in his Report of the Status of the Arts in Michigan, makes commentary about the present-day functioning of art and the arts in education. He states that although the arts are frequently chosen as a recreational or leisure-time activity (more often than football), they are often still considered only for the talented or the socially "elite" (21:60-66).

This attitude has sometimes been perpetuated by artists themselves who, having been singled out by society, have enjoyed this specialness. Charles Silberman states in his book Crisis in the Classroom: " . . . the schools teach them (the student) that interest in the arts is

effeminate or effete, that study of the arts is a frill, and that music, art, beauty and sensitivity bear no relation to any other aspect of the curriculum or of life" (41).

It seems to have occurred to art educators and researchers only relatively recently that the arts are integral to total education for several reasons.

> The arts have been widely recognized as valuable ends in themselves and are becoming ever more recognized (through the results of studies and research methods) as means to other educational ends. The use and recognition of the arts as valuable tools with which the student can more easily and more fully learn other subject matter, and with which the teacher can more effectively disseminate knowledge about other subjects is increasing with excellent results. (The Report of the Michigan Joint Legislative Committee on the Arts) (21)

The two directions research seems to be taking are in the areas of art as a motivational force necessary to make other subjects more palatable and as a skill builder which emphasizes its importance as a tool to other learning. It is to this capability (as an educational skill builder) that the bulk of research reviewed here will address itself.

The Nature of Perception

Although it was not the main focus of this study to examine the nature of perception as it applies to visual learning, it would be prudent to define the ways in which visual perception relates to the learning process prior to any comparison of the perceptual processes as they operate within either art or reading education.

Webster's Encyclopedia of Dictionaries defines visual perception as "to obtain knowledge through the senses; to see . . . to understand . . . intuitive judgment" (45:274). This, however, is not a complete enough description of a most complicated and involved process. Physiologically, it is known that at birth infants possess certain specialized cells. These cells emit nervous impulses upon stimulus from outside the system or from the environment (33:1). As the cells become sensitive to light impulses, the organism (child) can interact with the environment. If this interaction is lacking or in some way impaired, then the understanding of the impulse or stimulus will also be impaired.

Charlotte E. Larson states in a lecture that

> . . . perception is an activity of the mind intermediate between sensation and thought. It is the mental process which gives meaning to the given sensation and acts as a preliminary to thinking. A perception is that which enables the individual to organize and come to understand the environment around him. (33:1)

As adults, she further notes, 80 percent of all learning is visual. This is not true of the infant or very young child, however.

At birth all the child sees in the visual field are blobs of light which eventually take on form as binocular vision becomes more acute. Gestalt psychologists maintain that "because of neural organization it is

inevitable that to perceive in a certain way and these ways of perceiving seem to be universal and predictable" (33:3).

Many of the components of perception develop simultaneously, although it is known that the sense of touch or kinesthetic learning is perhaps the most primary. While it is unclear as to which of the six areas of learning in perception comes in which order, it is apparent that each and every area is of some importance to the other. Without integration of all the fields the child's later learning rate may be impaired. Larson states,

> . . . we must consider how the motor adds to and supports the visual, or the auditory supplements or confirms the tactual or any other combination. The motor movements of the body must be matched by the visual movements such as up, down, right, left, etc. Poor eye motor coordination or the inability to coordinate vision with the movements of parts of the body may result in difficulties in learning to write, cut, paste, and draw. (33:7)

As was noted previously, the process of storehousing perceptions is natural and universal as well as predictable to the total process of development. The following outlines this process of perceptual development of a visual nature:

1. The ability to note differences
2. The ability to note similarities
3. Contour-shape-form
    a. form constancy
    b. figure-ground
4. Integration of the sense fields
    a. eye motor

5. Space structure
    a. space relations
    b. positions in space (18:5)

It is the area of spatial relationships or positions in space that is the most intriguing because the body is equipped with nothing within the nervous system which actually gives the child or viewer information as to the relationship of objects in space or for that matter the child's relationship spatially to things around him. The child's only means by which he can perceive the world spatially is in direct relation to himself. It appears we are the center of our own universe. Things are perceived in direct relation to the person doing the perceiving. It would seem that problems with visualizing this implied relationship can later lead to learning difficulties.

Any stimuli which is within the visual field must be perceived against a background in order to be an understandable and useful perception. Visually, we are constantly called upon to discriminate between one or more figures existing in space or against a background. This ability is essential to learning.

Perception, if it is visual, is not just an innate response to stimuli. Charlotte Larson states that perception to be useful in terms of learning must take on certain meaning to the perceiver (33:1). It is not enough to simply become aware through the senses of something out

there in our world. What must follow is an integration of senses which leads to conceptualization. In other words, after the child sees, feels, smells, tastes or does any of these things in combination, the stimulus must be met with a response of a cognitive nature. Perception is incomplete without its second component--the understanding or intuitive judgment of the stimulus.

It is important to go a step further in explaining this complicated process. To say that perception only involves response to stimulus and cognition of this process would eliminate a third, less identifiable and less measurable element, but an important one. This concerns the perceiver's selective process--the factor in perception that is in the affective domain. It is at this level that the child making the perception can come to know intuitively that thing which is being perceived. At this point the child's feelings and imaginations create the total perception--a perception which, though viewed by several from the same stimulus, is special and unique to that one person who is making the perception. It is perhaps in this area that the art experience can hold the most relevance because it not only is concerned with the sensory and cognitive elements of perception but with the affective areas also.

The Role of Visual Perception in Art

Following a definition of visual perception and its operatives within the total learning process must come a more specific explanation of visual perception as it operates or is essential to the art experience. In what ways does visual perception become a part of art? How does the art experience itself enhance perception? Does art, by its very nature, make visual demands upon the viewer which reinforces perception? In what ways does the art experience foster and promote learning which could be considered within the affective domain but are equally essential for any meaningful learning to take place?

> One of the oldest and most persistent claims of art teaching has been "the development of the faculty of sight." Unfortunately in the past, such a claim could be based only on the belief that the purpose of art was to "represent" and that artistic merit could be measured by one's ability to reproduce, photographically, the world of nature--how erroneous such a conclusion is must be obvious . . . yet there is partial truth in the development of the faculty of sight if it is meant as an increase in sensitiveness. (12:14)

Perhaps to better define the role of perception, particularly visual perception, within the art experience, it is necessary to first identify the ways in which the art experience calls upon perceptual powers as a normal functioning of the experience. Italo de Francesco, recognizing the need for a clear definition of perception (as it relates to art) states,

> . . . to understand what it is that one perceives, it may be useful to think as the scientists do. The psychologists, for example, say that the most common perception is of an object . . . an object has a figuration, depth, solidity, and surface qualities. When seen in terms of planes, objects produce a stimulus pattern in the eye and the beholder senses light, shade and perspective resulting in depth perception. (12:15)

Although volumes have been written relating visual perception and the total perceptual process to learning, little has been researched in the past which would more clearly define the ways in which visual perception is essential to art. Such a definition would, however, need to borrow heavily from research on perception per se. Since the bulk of this research has been conducted by psychologists, particularly Gestalt psychologists, this would be a logical source and starting point in approaching a more definitive explanation of the perceptual process (including visual components) in art and the art experience.

CHAPTER IV

RELATED LITERATURE

The Nature of Perception and Its Relationship to Visual Learning

The meaning of the term "perceptual learning" must be arrived at through examination of both concepts--learning and (visual) perception. Hilgard defines learning as: ". . . the process by which an activity originates or is changed through reacting to an encountered situation . . ." (29). Perceptual learning, therefore, would involve a change in the perceptual state or process as a result of learning. Visual perception has many definitions--all of which contribute to its total meaning.

Jean Piaget, a figure in the forefront of perceptual research, theorized that basically perception was learned. He suggested that infants and young children pass through three stages of perceptual development:

1. A basic awareness of form.
2. The stage of concrete operations at which time perceptual actions are internalized.
3. The final stage of higher levels of conceptualization. (12)

Piaget, in effect, maintained a developmentalist's point of view toward visual perception.

In their book Studies in Cognitive Development, authors Elkind and Flavell translate Piaget's words "a perception may be a synthesis of elements or it may constitute a single whole or it may be a system of elations" (19). A more detailed examination of Piaget's research on visual perception reveals that perception is a culmination of a long process of development (27:75). According to Piaget, childrens' first perceptions of visual spatial relationships are topological in nature. This would occur up to the age of four or five months. At this stage the child does not coordinate vision with grasping ability. In referring to this stage Kenneth Lansing states,

> The spatial relationships that (the child) does detect . . . are topological in nature. This means that he can see the proximity separation, and serial order of objects, and it also means that he can see things enclosed in other things, plus the continuity of a line or surface. (32:208)

Piaget refers to the early stages of perceptual development as the pre-language stage. Before the child reaches the age of five months, no schema of the permanent object is in evidence. The infant does not reach for an object which is visually perceived until about the age of 4 1/2 months. At this point the child begins reaching for things he sees in the visual field coordinating vision and prehension (8:4). This begins the second stage of perceptual development within the Pre-Language stage. At the age of 9-10 months the child will search for an object

that has been taken from the range of vision. "The increase in visual and tactile exploration helps him to learn the permanence of solid objects as well as the constancy of shape and size, and it helps him to see Euclidean and projective spatial relationships" (32:208). The third and last part of the pre-operational stage is arrived at around the age of one and lasting until the age of two years. The child engages in further systematic sensory exploration (the sensori-motor stage). Lansing states, "He internalizes and coordinates his sensory impressions and actions, and the result . . . is a mental and conceptual image" (32:208).

The second stage of the child's visual development is the pre-operational stage from 2-7 years. It is at this stage that representational thinking proper is evidenced. Now representational thought applies to far and near space, events outside the immediate perceptual sphere, to the past and to the future in which plans and projects are formed (8:6). Towards the age of seven or so the problems of conservation and logic are beginning to be resolved. Sarah Campbell states,

> These operations that can be observed between the ages of seven years and eleven to twelve years are already logical operations. They are only operations of classes and relations and are not yet operations of the logic of propositions. . . . These operations always center around an action or an application to specific objects. For this reason we call them "concrete operations." We use the term "operational

> groupings" to designate those elementary and immediate systems of action which are patterned as they occur in spatial and temporal contiguity; these simple systems do not yet include all of the logic of classes and relations. (8:9)

The last stage of development which begins at about the age of twelve years is called the stage of propositional operations and is characteristic of the whole adolescent development. "This is the period during which new logical operations appear: propositional operations, the logic of propositions, implication, and so forth. The adolescent is no longer limited to concrete reasoning about objects, he begins to reason hypothetically" (8:11).

Perhaps there was no one group that exercised as much influence upon concepts relating to perception (in a child's learning) as did the Gestalt psychologists in the 1930s. The gestaltist's focus on perceptual problems and issues was much more atomistic than was Piaget's. Whereas Piaget was willing to allow for experiential entities and synthesis of elements into a whole in perception, the followers and proponents of the gestalt school of thought came to believe that experiential factors were not of prime importance to the perceptual development of the young learner. In his book Gestalt Psychology, Katz emphasizes the point that the gestalt followers were less concerned with the experiential levels of the child. Learning in the affective domain was de-emphasized. He states "gestalt theorists reply that all visual percepts

are influenced by knowledge that comes with experience but experience by no means plays the major role in forming objects into separate entities" (29:137). Katz himself hypothesizes "that all objects appear as closed units originally, without experience. For instance, the concept of form pregnancies is of great significance. It is believed universal and acts regardless of experience . . ." (29:137).

Most notable among the proponents of the theories of perception relating to the Gestalt were Bender, Read, Shaefer-Simmern and Arnheim. "There were several who stimulated an interest in perception. Hartlaub in 1922 and Taensch in 1923 both wrote of 'eidetic gifts' which were defined as mental pictures produced as an intermediary image between mental function and the act of perception" (43:21).

Most theorists adapting the Gestalt school of thought agreed on certain points, however. These points were:

1. The development of form is arrived at by the child as a result of earlier motor activities.
2. Kinesthetic activities generally precede conceptual activities.
3. Each point of a sensory field does not depend <u>exclusively</u> upon its local stimulus (30:70).

4. Local processes of retinal stimulation may depend upon sets of stimuli (30:70).

Whether the motor activity is a result of natural and universal development or is experientially instigated seems to vary with the opinion of the individual researcher. Seeman (1934) and Mira (1940) support the view that the earliest activity is most certainly one of motor skills. As Uhlin states, "Bender (1944) mentions the Gestalt form factor in the child in a very thorough manner. Motor activity develops first or at least independently of the optic imagery" (43:21). Uhlin quotes Bender's clarification of the Gestalt viewpoint:

> Gestalt psychology holds that the whole or total quality of the image is perceived. . . . The perceptual experience is a gestalt or configuration or pattern in which the whole is more important than the sum of the parts. Organized units or structuralized configurations are the primary form of biological reactions . . . the organism in the act of perception always adds something new to the experienced perception . . . the final gestalt is the result of the original pattern in space (visual perception) the temporal factor of becoming, and the personal sensori-motor factor. (43:21)

The Gestaltists, although quite thorough in their concepts regarding the nature of perception, do not fully explain it as it relates to visual learning.

One of the most thorough conceptions of visual learning has been developed by Gestalt psychologist Rudolph Arnheim. Arnheim maintains that the knowledge required to make visual symbols is provided in large part

by the perceptual image and not by abstract thought. His research tends to indicate his belief that percepts are visual concepts. The Gestalt view is that the earliest of those percepts are not highly detailed but are rather highly generalized and consist in the general structural feature of things (32:200).

Arnheim, in reference to the visual development of the infant, states that,

> At early organic levels, the stimulus compels the reaction. When a strong light enters the visual field, the infant turns toward it . . . this is the prototype of a cognitive response unconditionally surrendered to the object of attention. The response is steered by the stimulus rather than by the initiative of the observer. (1:24)

Arnheim further believes that "in the perception of shape lie the beginnings of concept formation" (1:25). In describing the perception of shape as the grasping of generic features, Arnheim supports the gestalt point of view. Although he does not categorize by chronological age, the stages of development as Piaget does, his order of the theory of development of a visual nature does strongly parallel Piaget's. In summary, Arnheim outlines the visual development in the following general order:

1. Sight is active at the early organic levels.
2. Sight becomes more selective as the infant develops physically and mentally.
3. Concept formation begins to develop as shapes are perceived.
4. Perception ultimately involves intellectualization or problem solving at its most developed stages. (1)

Even authors who were also versed in the principles of art education and perception, such as Arnheim, do not fully explain the role of visual perceptions in learning within art education. Arnheim does make the sweeping statement that "artistic perception is the sensory perception of the world" (2) but he does little more to itemize or categorize the ways in which the art experience fosters, promotes or enhances the visual perceptual process. Arnheim indicates that visual perception does not start from the particular which is then secondarily processed into abstractions by the intellect of the learner but rather operates from generalities to specifics. This being a valid assumption, as related to the art experience, young children would logically be primarily concerned with generalities and simplifications in their early art. There is, however, much evidence that young children see more than they draw, thus the child would be selective or, rather, specific at the onset and working toward generalities in some instances. Abstraction or rather a higher level of symbolization results from a gradual progressive development. At certain times or under particular conditions during development, children may be observed to record only that which they visually see but often see more than they choose to record through drawing. Arnheim makes note of this phenomenon in his book Art and Visual Perception (2).

The most important thing to note here is that however the initial perception manifests itself, children universally progress from simple line presentations to scribbles to actualization of form and ultimately represent these perceptions in a symbolic way (2). This is known to be true.

Other educators and researchers concerned with visual perception as a part of the art experience take a viewpoint somewhat different from Arnheim's. M. D. Vernon, in his book A Further Study of Visual Perception (44), took a largely physiological approach to defining visual perception. He stated that during the process of perception the following things occur:

1. There is a vague awareness of something in the visual field. Light is sensed first and the form of objects later.
2. The stage of the generic object is reached. At this stage visual stimuli and the object viewed are connected by the perceiver. It is at this point that organization occurs.
3. The stage of the specific object is reached. Forms in a field and their parts are fully recognized.
4. Finally, the stage of identification and understanding is reached. (44:20)

Vernon noted that people with visual impairments, for instance, injuries of the occipital cortex, are slow to perceive shape and contour and do in effect become "stuck" at the stage of the generic object. Vernon also pointed out the great importance an awareness of figure-ground processes played to the total of all perceptual

processes. He believed the awareness of figure-ground relationships began initially at the stage of the generic object and was essential even to higher stages of conceptualization. Vernon states "the ability to recognize representations of objects from silhouettes and outline drawings is dependent on experiencing the contour of real objects" (44:50) and also that "figure-ground processes not only contribute to the clarity of perception and the ease of cognition of a complex environment but also minimize the effort required to attend to the perceptual field" (44:50).

Still other researchers took a more holistic approach to the nature of perception. Hebb, for example, believed perception (visual) to be the visual exploration of a figure through many separate fixations upon parts. He hypothesized the perceptual process to be a gradual awareness rather than an innate or instantaneous functioning (32).

In a publication entitled "The Development of Attention and Perception in the Infant and Young Child," Michael Lewis outlined the perceptual process (visual) to be one largely of response to stimulus (34:137). It cannot be denied that as a result of studies conducted by many researchers, be they Gestaltists or otherwise, at certain times visual perception appears to be stimulus instigated and under other conditions, it appears strongly

correlated to other physical functionings; for example, motor coordination or kinesthetic processes.

In Art and the Social Order (25:3-28) D. W. Gotshalk defines perception as a complex operation involving intellectual factors plus sensation, imagination and feeling (affective domain). He divides the perceptual act into three components: (1) sensation, or an awareness of objects, (2) intuition, the awareness of objects in their spatial and temporal order and arrangement, and (3) intellect, the usually effortless and muted interpretations of both the type of object being perceived and its detail. To these three main factors he adds feeling and imagination.

Although Wolfgang Kohler (31) and other Gestalt psychologists concern themselves mainly with the mechanics of vision and perception; that is, those stimuli and response to them which constitute the visual perceptual process, Gotshalk and other researchers find those entities which could be termed within the affective domain as important to the process of perception also. Louise Yochim supports this point when she states: "Perception, therefore, is not merely a sensing of stimuli. It is indeed a set of extremely elaborate processes through which we organize our sensory impressions received from our internal or external environment . . ." (49:24).

> The receiving apparatus for vision is the eye. It consists of elaborate accessory mechanisms which bring an image to focus and the retina which contains

> the sensitive nerve endings or receptors proper. The forms of objects are perceived by the projection of images upon the retina . . . we do not perceive everything at once . . . we have a tendency to combine the elements of experience into two groups--"wholes" or "configuration"--so that the number of separate things that we can see at once are very limited.

And finally,

> Perception is determined jointly by outer (stimulus) and by inner (personal) factors. What is perceived depends as much on the perceiver as on that which is to be perceived. The two factors working together determine perception. (49:26)

Educators and researchers too often cross paths and rub theoretical shoulders to totally discount any one theory concerning perception or visual perception as being invalid. What is important is that more researchers observe, gather information and hypothesize (testing hypotheses with empirical data) as to the nature of visual perception, the better certain units of this process can be isolated into understandable parts. This would allow a researcher the opportunity to utilize this knowledge to better facilitate the child's learning potential.

For the purposes of this paper the following definition of visual perception by Charlotte E. Larson is used:

> Perception is an activity of the mind intermediate between sensation and thought. Unless the sensation, this activity of the sense organ, takes on certain significance and experiential content, it will not be a useful perception in terms of learning. (33:3)

This definition is important because it does not concern itself as much with the source or sequential arrangement of the perceptual process but rather with the importance of that process to learning. This has greater significance when applied to the art experience as her definition takes into account significancies and experiential entities as well as physiological ones. It may well be the strongest links in relating the visual perceptual process in art to increased learning in education of the individual. This will be for future research to determine.

Factors Contributing to Visual Learning

Many researchers believe that there are correlative factors which affect visual learning (education). Although the factor which is initially most essential to visual perception (and in turn learning) is physiological stimulation, other factors cannot be discounted as relevant. Piaget's educational theories are unique in their formulation of educational goals which take into account two processes which are conceptually different yet closely linked: development and learning. Whereas development has to do with general mechanisms of learning, learning itself has to do with specific skills.

Solley and Murphy illustrate in their Development of the Perceptual World (42) that there can be little

doubt that what we perceive is determined jointly by: (1) hereditary factors which govern the limits and capacities of the perceptual process, (2) the cumulative effect of learning operations, and (3) the potentiation of one set of factors by another. They believe that motivation, reinforcement repetition and contiguity are important factors in directing the course that visual learning will take. Supporting the importance of developmental factors they state that maturation of the individual learner is important when determining the readiness or ability towards more complex symbolization or conceptualizations of the learner. They further state, "Perceptions are not fixed from one year to the next. Perception and cognition are more closely knit with affective processes in young children than in adults" (42:126) and "perception and learning are dependent upon the level of maturation achieved by the child--maturation can be facilitated through specific learning" (42:145). They caution, however, that the total process of visual learning is so complex that maturation alone cannot account fully for the development of perception and visual learning.

Kenneth Lansing supports the belief that affective conditions such as motivation and emotion effect perceptual processes and visual learning but warns us that research is tentative in linking emotional states to specific graphic forms or content.

What does the term "visual learning" imply? If visual learning is not arrived at solely through physiological means or even by conceptualization, the true meaning of the term must be arrived at through examination of several concepts in addition to the physiological elements of perception. This writer believes that learning is the process by which the learner is changed through reacting to an encountered situation. Perceptual learning, therefore, would involve a change in the perceptual state or process as a result of this learning. Visual learning would entail not only the reacting to visual stimulus but the climate in which the learner would react. In other words, additional factors such as cultural influences and the influence of the environment on the learner, motivation of both an intrinsic and extrinsic nature, direct experience, maturation and mental, physical and emotional development would all be contributory to that process which is referred to as visual learning. To generalize, there are two main components necessary for visual learning to take place, the first and primary part being the reaction in a physiological manner to stimulus and the response solicited and secondly those factors which could be termed within the affective domain.

The next logical question might be: where in the total education of the child is visual learning most often experienced? Is there any one area which reinforces

both the physical and cognitive factors of visual perception as well as providing and enhancing the climate for affective factors which contribute to the initial perceptions? Rudolph Arnheim believes that the visual arts and educational programs associated with them are the most obvious choice as they facilitate both areas by their very nature. He states:

> The arts are neglected because they are based on perception, and perception is disdained because it is not assumed to involve thought. In fact, educators and administrators cannot justify giving the arts an important position in the curriculum unless they understand that the arts are the most powerful means of strengthening the perceptual component without which productive thinking is impossible in any field of endeavor. (1:3)

Arnheim further states:

> Visual perception, far from being a mere collector of information about particular qualities, objects, and events, turned out to be concerned with the grasping of generalities. By furnishing images of kinds of qualities, kinds of objects, kinds of events, visual perception lays the groundwork of concept formation. The mind, reaching far beyond the stimuli received by the eyes directly and momentarily, operates with the vast range of imagery available through memory and organizes a total lifetimes' experience into a system of visual concepts. The thought mechanisms by which the mind manipulates these concepts operate in direct perception, but also in the interaction between direct perception and stored experience, as well as in the imagination of the artist. . . . (1:294)

Finally he reemphasizes his support of the importance of visual arts in general education:

> Once it is recognized that productive thinking in any area of cognition is perceptual thinking, the central function of art in general education will become evident. The most effective training of

> perceptual thinking can be offered in the art studio. . . . The artist . . . is accustomed to visualizing complexity and to conceiving of phenomena and problems in visual terms. (1:296)

Perhaps the words "art experience" would have more relevance to general education than the term "art studio" which Arnheim uses, as it suggests an involvement in art by a broader population than the reference to "the artist" in an "art studio" situation would imply.

In summary, Arnheim defines the function of the visual art experience as one of reinforcement of productive thinking via the perceptual experience. Since he believes the visual arts to offer this experience through its emphasis on visual patterning and organization, the conclusion would be that the visual arts foster creative and productive thinking (1).

Louise Dunn Yochim, Supervisor of Art for the Chicago Public Schools, agrees essentially with Arnheim but points out that while developmental and mechanical perceptual factors are apparent and practiced in other disciplines outside the field of art education, it is an additional factor, creativity, which distinguishes and enhances the art experience (49). She emphasizes that the ways in which a learner renders visible his particular conceptualization of the idea (motivated experientially) reveals the acuteness of perception that is less likely to come forth so clearly through any other means of expression.

Kenneth Lansing also is supportive of Arnheim's zeal as to the importance of the visual art experience to visual learning and in turn general learning; however, he adds that although the art medium itself is important, research is not yet complete as to the relationship of the art experience to learning of a more general nature (32). He does state that existing theories involving art and perception indicate,

> . . . that perception is learned and that it is affected by both the personality of the individual and his neurophysiological structure. Hence we might say that perception is organismic . . . perception is a function of the interaction between the total organism and its environment . . . child art is affected by perception because it is through perception that the individual gathers the basic mental materials of thinking, feeling and expressing himself. (32:213)

What Is Art--A Description

Prior to an examination of the visual learning experience within the art experience (education), a definition of the function of art is necessary. Kenneth Lansing defines the art experience in the following ways:

> First, the art product is unlike other created objects because it is primarily for aesthetic experience. According to Gotshalk, aesthetic experience is simply intrinsic perception, or attention to an object or field preeminently for the apprehension of the full intrinsic perceptual being and value if the object or field . . . a work of art is the only created product that is intended to serve primarily as the focus of the aesthetic experience. (32:29)

Secondly, "the art object is different from other created forms because it has structural organization or design that is pleasing, whereas the nonart object may or may not have a pleasing structure" and thirdly, "art is the re-arranging of concepts and emotions in a new form that is structurally pleasing and primarily for aesthetic experience" (32:31) and "as a vehicle of communication, the art product permits the observer to perceive and to understand new possibilities for thinking, feeling and imagining. Thus it increases his opportunity for self-determination and self-realization merely because it provides him with more information for life" (32:52).

What if anything does the aesthetic properties of art have to do with visual and perceptual learning? It is interesting to note that the term "aesthetic" is itself derived from the Greek word "aisthanesthae" which means "to perceive" (45:274). It is logical to assume, therefore, that aesthetic growth, which is very much a part of the art experience, is also but another dimension of perceptual growth. "The making of visual art facilitates the aesthetic type of perceptual growth because it causes the individual to practice aesthetic perception. It causes him to pay attention to the sensuous dimension of experience and to the sensuous aspects of his own visual creations" (32:72).

As Arnheim illustrates, the perceptual process is an intellectual broadener as its operants are the "stuff" of intellectual growth. Lansing states that

> . . . the art process contributes to further intellectual growth because it requires concentration on structural organization or composition. (The participant) . . . learns the effect of lines, shapes, colors and textures on one another and on the total visual configuration. He also learns to recognize compatibility between form and content. (32:73)

The visual art experience or process has been recognized as contributory to emotional as well as perceptual and intellectual growth. Although this area falls squarely within the affective domain and is less verifiable through presently existing research, indications are that the art process itself does help the learner to release tension, hostility and feelings of aggression in a more constructive way (32:77). The importance of the visual art experience to the special education curriculum as a reinforcer and vehicle for learning academic skills has been recognized (43). The visual arts assist in establishment of contact with a child's environment. It is believed that the visual stimulation necessary for perceptual development is provided through the art experience. It is this writer's belief that art also helps children cope more readily with their physical environs by assisting with color discrimination. Art can be a means of building independence as an individual. Also, it can be instrumental in building decision-making abilities which help

foster the development of a positive self-image and further encourage independence . . . through the art process, the image of self is nourished and dependence is diminished.

Grant Neils maintains that the visual art experience "is an effective means by which we can work with young people to keep them out of trouble . . . the importance of art in any rehabilitation program cannot be stressed too much" (39:19-21).

One area of growth which is part of the visual learning process merits attention at this point. This area is creative growth or the creative process. In order to better clarify the role the creative process has in fostering perceptual growth, existing concepts, theories and hypotheses concerning the subject of creativity must be reviewed.

Visual Learning and Creativity

Perhaps one of the most important ways to foster creativity in the young child is to offer that child experiences which enhance creative growth. Armando Brissoni emphasizes this opinion in his publication, "Creative Experiences of Young Children" (6:18-22). His statement that "as far as creative development in the child is concerned, the most important role is the one of experience" (6:22). He hypothesizes that to deprive the child of opportunities for creative experiences through the art experience is to deprive them of

their greatest cognitive faculty: experience and creativity. Viktor Lowenfeld in Creative and Mental Growth argues "a view of child development that emphasizes the relationship between mental health, self-concept and creativity" (32:89). In Lowenfeld's view the attainment of creativity is realized as the child is exposed through all his senses (tactile, visual and audial) to the qualities of life. It is through these direct experiences that perceptual powers and imagination and creativity are best developed. He feels, however, that it is the duty of the teacher of art to help provide and maintain for meaningful experiences (32).

J. P. Guilford, a leader in research on creativity, identified two patterns in the thinking process: (1) convergent thinking, a process of gathering and organizing data and (2) divergent thinking which involves the abilities to improvise, invent and rearrange concepts, and use image-forming skills. While most of education today is geared toward convergent thought processes, it is the divergent processes upon which the visual art experience depends (26:142-61).

Guilford identifies the following factors as being essential to creativity: free flow of ideas, fluency of thought, originality, spontaneous and adaptive flexibility and logical evaluation. Hans Sachs describes creativity as an interaction between an individual and

his needs and expression (49). English defines it as the "ability to find new solutions to a problem or new modes of artistic expression; bringing into existence a product new to the individual" (49:45). Perhaps John Dewey summarized it best when he stated: "Perception and imagination are the basic mental processes involved in art expression, but all faculties of thought, namely--logic, memory, sensibility, and intellect are utilized in the production of a creative idea" (49:39).

As Lowenfeld points out, it is important that the atmosphere for the creative experience be provided by the art teacher. It is through the creative experience that the learner can expand upon his sensory perceptions by increasing his aesthetic and perceptual development. It is important that these abilities be encouraged early in the child's life as they might correspond with the learner's natural process of development. "Because art experiences involve all of the learner's abilities, it is important to provide him with challenging opportunities which engage his skills early in life and which continue to do so in later years" (49:68).

This brings us to a most important process of the child's visual learning development. Viktor Lowenfeld is considered a pioneer in the study and identification of the stages of development that a child passes through during his lifetime. It is with the research of Viktor

Lowenfeld that this writer's examination of child development (in terms of visual learning) begins.

Development as a Reflection of Growth

Lowenfeld states in his text, Creative and Mental Growth,

> The first few years of life are probably the most vital in a child's development. It is during this period that he begins to establish learning patterns, attitudes, and a sense of himself as a being, all of which will color his life. Art can contribute a tremendous amount to this development, for it is in the interaction between the child and his environment that learning takes place. . . . although the child expresses himself vocally very early in life, his first permanent record usually takes the form of a scribble at about the age of eighteen months or so. This first mark is an important step in his development, for it is the beginning of expression which leads not only to drawing and painting but also to the written word. (35:89)

Lowenfeld refers to this early stage as the Scribbling Stage. Lasting from its onset at about the age of two years to the age of four years, starting with random kinesthetic movements, to more controlled markings, and finally to the stage where the child begins to consciously name the marks he has made thus giving them meaning.

Following the Scribbling Stage the child begins to consciously create form. This stage lasting from the ages of four to seven years is referred to by Lowenfeld as the Preschematic Stage. Examination of the drawings of a child in this visual development reveal a representation of space different from an adult's. The child

perceives the space in the world around him only in relationship to himself. That is to say, the child conceives space primarily in relation to himself. Lowenfeld refers to this as "body space" (35:124). Lowenfeld considers the art work of children at this stage and successive stages of visual development to be suggestive in many instances of intellectual growth.

"Generally, the more details included in a drawing, the more aware the child is of those things around him. Our whole concept of intelligence is based upon how completely a child draws a man" (28). The more a person knows about his environment, the more he is actively aware of and can utilize the various factors within it, the more intellectually developed he is (35:129).

At the age of seven to nine years, the child arrives at the stage Lowenfeld calls The Schematic Stage. At this stage of development the child has a definite concept of man and his environment (35:145). He arrives at a schema, or a concept, which he repeats again and again. The more visually structured qualities of the child's art works indicate that the child is beginning to structure his thought processes and organize things into meaningful relationships (35:186). At this point in time Lowenfeld believes it is essential that the child's self-concept develops positively. He states: "To develop a positive image of oneself, to encourage confidence in one's own

means of expression, to provide the opportunity for constructive divergent thinking, should certainly be the aims of the art program" (35:187).

The next stage of development Lowenfeld identifies as the age of dawning realism or The Gang Age (9-12 years). One of the most outstanding characteristics of this stage is the child's discovery that he is a member of society (35:189). The child is developing a greater visual awareness and showing more of a concern for detail. Color is used in conjunction with the experiences that the child associates with the color chosen.

Finally, the child reaches the age of reasoning: The Pseudo-Naturalistic Stage between the ages of twelve to fourteen years. "This stage of development marks the end of art as a spontaneous activity and the beginning of a period of reasoning . . ." (35:255). At this stage Lowenfeld believes there are two types of ways of expression which emerge. One type of learner learns better visually while the other type learns best haptically. Lowenfeld concedes that it is rare to find a child who only learns either one way or the other and does not combine the two. His haptic-visual typology describes on one hand the visually oriented individual who he typifies as using the eyes to obtain sense impressions and the haptic person whose perceptions are derived from kinethetic experiences. Writing a decade before

Lowenfeld's Creative and Mental Growth was published, Norman C. Meier may have laid the groundwork for Lowenfeld research when he stated: ". . . certain neurophysical and developmental factors seem to be normally a precondition for the rest of the total development and that these predisposing conditions are not present equally in all persons nor if absent can they be established" (37:115).

Twenty years later, Florence Goodenough became concerned with children's eye-hand motor coordination and general intellectual development. Goodenough's primary concern seemed to be with identifying the common developmental characteristics in children's art work and was concerned that children had accurate observations of the subject matter they chose to represent (47:7).

Although educators and researchers alike may have disagreed as to the approach to take when identifying a child's visual development, there was certainly a sharing of common concern even when the emphasis was placed on a different part of the developmental process.

This writer finds it useful to compile a chart for the purpose of clarity of comparison among some of the outstanding researchers as to visual and perceptual development of the child in order to arrive at some generalized descriptions of the total process (see page 44).

The Values of the Visual Art Experience to Visual Learning

It is this writer's contention that many factors contribute to the visual learning process. These are of a physical perceptual nature, processes of cognitive intellectual development, aesthetic sensitivity and creative behavior, maturation and development, and finally those factors considered to fall within the range of the affective domain such as feeling, emotion, self-motivation and self-concept. The following represent the specific value to the visual learning process that the visual art experience has contributed:

1. A child can make symbols based upon his concepts.
2. The art product is a means whereby the child can visually communicate his feelings.
3. The art experience, to be meaningful, forces the learner to organize the visual symbols he has created.
4. Self-concepts and motivation are increased and enhanced through the creative process.
5. Visual awareness and the manipulation of line, color, shape, figure-ground relationships, are essential to the visual art experience and are prerequisites to general learning.

6. The visual arts help the child to extend his frame of reference by relating to the environment.

7. In order that the child might produce the art product, the learner must first produce visual configurations.

8. Visual learning requires independent thought.

9. Perceptual growth (becoming cognizant of the character and the existence of the relationship of things) is increased as the individual increases aesthetic awareness.

10. The making of the visual art product and the process itself is an aid to intellectual growth as it helps to develop the participant's knowledge of himself and the environment by directly involving him in the art process.

11. Through visual learning the child attends to compositional factors, re-forms concepts, and redefines and clarifies percepts.

12. While creating art the child can release emotions in a constructive manner.

One of the most current theories as to how the visual learning accomplished through the art process is related to achievements in other learning has been recently published in the September 3, 1977, edition

CORRELATIVE FACTORS IN DEVELOPMENTAL, CREATIVE AND PERCEPTUAL GROWTH IN CHILDREN

KENNETH LANSING	VIKTOR LOWENFELD	LOUISE YOCHIM	JEAN PIAGET
Age 2-4 Scribbling stage Kinesthetic activity scribbling from uncontrolled to naming	Age 2-4 scribbling stage	Infancy to 5 yrs. scribbling gradual development of motor coordination names scribbles	Pre-language stage at 4 1/2 months can coordinate vision with movements at about age of 2 begins to see objects as having independent existence
Figurative stage from 3-12 visual symbolization helps child to understand concrete objects establishes a relationship to visual reality uses base line to define spatial relationships Late Figurative Stage 9-12 developing perspective; awareness of real relationships Artistic decision 12 years and up abstract conceptualization	Age 4-7 years preschematic egocentric depiction of space forming concepts age 7-9 Schematic stage; forms schema repeats concepts Dawning realism 9-12; visually aware; sees role in society; concepts more advanced pseudo-naturalistic reasoning begins attention to detail sees whole relationships	Early childhood ages 5-7 Symbolic stage; incomplete hand-eye coordination; some relationships with reality conscious creation of forms changing symbols Later childhood age 8-10 small muscle devel. repeats concepts develops base-line Preadolescence age 11-13; rapid muscular growth; conscious of environment; independent thinking	2-7 years Pre-operational sensori-motor level develops reasoning 7-12 years concrete operations problems of conservation; solved reasoning propositional operations 12 and up uses logic understands abstraction

of the Saturday Review of Literature. Dr. Jean Huston, director of the Foundation for Mind Research, Pamona, New York, believes that a child who has been deprived of the visual stimulation an art program offers "is systematically cut off from the ways he can perceive the world and, as a result, his brain is systematically damaged." Dr. Huston and co-researcher Dr. Robert Masters conclude that since the brain increases its "grey matter" or cells or neurons prior to the age of six years, learning experiences in life will cause countless interconnections and associations based on sight and sound with these neurons. They theorize that "the arts stimulate greater body awareness and less muscular inhibition," Dr. Masters said. "Lack of stimulation of that sort leads to inhibitions in the motor cortex and in the ability to think certain kinds of thoughts and to feel certain kinds of feelings." Their studies suggest that the lack of art experiences at the early elementary school education level may retard and thus damage brain development in children (48).

The Role of Perception in Reading

It is accepted that the first learning of an infant is most probably accomplished through the differentiation of motor and tactile stimuli; it is the

advanced primary integration of the sense fields, particularly that which involves vision, which becomes an early essential toward the accomplishment of the ability to read. It follows, therefore, that the child who is having difficulties perceiving or training the eyes to perceive the visual stimuli the world offers, will find the general appearances of visual stimulus confusing. The result will be a lowering of efficiency which will be nonconducive to learning.

The initial perceptions involving vision operate hand in hand with eye-motor coordination. Perception without the ability to coordinate the vision with movements of the body will result in difficulties in learning to write, paste, cut, draw and certainly to read (18).

Gerald G. Duffy and George B. Sherman state in their text How To Teach Reading Systematically that "visual discrimination, visual memory and visual sequencing are necessary for the readiness stage of word recognition" (8:115). These authors recognize the necessity for training which involves visual-perceptual skills and that the creation of memory skills is extremely important to the reading process itself.

Marianne Frostig was one of the first researchers to organize a system for concrete identification of perceptual testing devices. She attempted to measure the previously undocumented perceptual skills as they applied

to reading. Her data indicate that there is a coefficiency of between .4 and .5 significance of visual perceptual abilities and the ultimate skill of reading. This significance occurring prior to grade three. After the child reaches the third grade level, her studies indicate that mechanical perceptual skills are over-shadowed by such important elements as motivation and the formation of a positive self-concept by the learner. She states, "defects in visual perception are common in children with reading difficulties" (23:26). In a group referred to her reading center, she found that 78 percent of those attending the center with reading difficulties demonstrated visual perceptual inadequacies (23).

The question remains: if there is a correlation between visual perception and reading, can a program of perceptual training be administered which would in effect help to measure increments in reading skills as a result of the training program? There is positive evidence in this direction. By examining the results of the research of Marion Neal Faustman entitled "Some Effects of Perception Training on First Grade Success in Reading," a correlation between the training for specific perceptual skills and specific reading skill achievement was strongly indicated" (20:12). Faustman's purpose for the study she conducted was mainly to investigate the effects of selected kinds of perceptual lessons upon first grade

reading achievement. She used fourteen classes of kindergarten children in both the control and the experimental groups. Both groups were randomly selected. The teachers for each group were given identical training in every respect except one--the teachers for the experimental group were given teaching strategies used in the training for visual perception. Areas which were stressed were: (1) visual-motor skills, (2) figure-ground differentiation, (3) position in space, (4) form constancy, and (5) spatial relationships.

At the conclusion of Faustman's study there was a documented increase in perception skill points of 35 in the experimental group while the control group demonstrated an increase of only 9.67 points in the areas of perception using the chi square significance at the .01 level. First grade achievement levels for both groups tested later on in the first grade using the Gates Word Recognition Test were: control group raw score = 14.14; experimental groups = 16.27 (20).

It is evident that many skills must be developed either systematically or simultaneously and mastered in order for reading to take place. They are:

1. visual acuity
2. visual analysis
3. tracking

4. figure-ground differentiation
5. form and size recognition
6. an awareness of configuration (shaping of letters)
7. the principles of closure (completing the incomplete letter)
8. memory
9. synthesis
10. awareness of spatial relationships (8)

After listing those skills necessary for reading to occur, the writer perceives a correlation between those perceptual skills necessary for reading education with similar skills taught within the art process. Each of these principles are part and parcel of the art experience, either directly or indirectly. This raises the question--if such a correlation exists, then cannot those perceptual principles which are inherent in the art experience and essential to reading be re-emphasized to the greater benefit of both disciplines?

CHAPTER V

VISUAL LEARNING, ART AND READING

At this point some questions occur to the writer which require attention prior to making any comparisons between the visual perceptual process in both art and reading education.

Some Questions

1. If visual perceptual education can benefit the acquisition of reading skills, does it follow that other educational disciplines which naturally stress visual perceptual skills can also serve as an increment to reading readiness or mastery?
2. What educational experiences most reinforce perceptual acuity by their very nature?
3. Does the art experience provide this alternative?
4. If art education does inherently stress or provide for expansion of mechanical perceptual skills or those accompanying affectively oriented entities (motivation, self-concept, etc.), could a perceptual training program be administered within

the art program for the purpose of furthering these skills and expanding their influence upon other subjects?

5. What additional factors contribute to the viability of the art experience as a tool for greater learning in the basic skill areas (i.e., reading)?

In order to address these and other related questions properly, it is necessary to examine first the nature of art and the art process as it applies or compares to the learning process of reading and visual perception.

Some authors and art educators only hint at the interrelationship of art education to reading education. For instance, June King McFee in her book, Preparation for Art, recognized the multi-dimensionality of the art process and reviewed in her studies the ways in which art serves as an important function in children's general education. She takes the position that "children's performances in other subjects might be promoted through art" (36:6).

Italo de Francisco, in Art Education: Its Means and Ends, states that one of the oldest and most persistent claims of art teachers had been that art aids in the development of visual perception (12:14). De Francisco agrees that there is a connection between the two processes but points out that teaching strategies designed to

increase visual perception in art are at best limited. Richard A. Salome shares this concern when he states, "studies which inquire into the effectiveness of specific teaching (art) strategies designed to improve visual perceptual performances are limited and exploratory in art education." He also believes that "investigation of perceptual training in reading readiness programs might have implications for art education" (40:58).

Now, almost twenty years after de Francisco's studies led him to the conclusion that not enough research was being conducted by art educators in the area of perception, little further research in this area has been accomplished.

James Charles Mills, however, did conduct research linking art to both perception and reading education. He hypothesized "art lessons that stressed the inclusion of detail would bring about an increment in reading readiness test scores" (38:25).

Goodenough (24:174) and later Harris proposed that "children's ability to recall and utilize an increasing amount of detail in their drawings was evidence of cognitive development" (28). Mills took the research conclusions of Goodenough and Harris and in effect reversed the supposition. He devised art lessons which placed emphasis on the inclusion of detail in the hopes that this would increase mechanically, cognitive development.

In other words, Mills felt that if detail were evidence of higher cognition, would it not follow that by encouraging the child to use detail in their art lessons, the cognitive levels would be raised. Mills' studies with rural Appalachian children with reading deficiencies did in fact support his theory (38). He concluded that as a result of his studies and pilot program with these children, "a child's reading development can be improved through art lessons that stress the inclusion of detail." Mills further stated, "the relationship of visual perception in reading, if not obvious, seems at least logical. Art education could play an important role in reading by helping the child to differentiate letters and words" (38).

More recently, educational curriculums and programs have been created and are presently operating which are relating art skills and reading skills. For example, in a program of Arts Education mandated by Congress in 1974 and surfacing in part as a K-12 arts curriculum under development by CEMREL, a national education laboratory, reading skills are developed using art principles as a foundation and tool (15:3). This program was divided into learning packages or modules. Only in their second group of modules was any indirect involvement with perception per se mentioned. The report issued by CEMREL following pilot programming using these modules stated:

> The second group, Aesthetics and Art Elements, encompasses concepts that relate specifically to the elements applied in the arts and environment. Packages such as Aural Texture, Tension, Motor and Texture, Visual/Tactile, appear in this group. (9:56)

Although CEMREL's report indicates that perception or perceptual training was instrumental in the achievement of higher basic skill (including reading) scores, this was accomplished in an incidental manner with no great emphasis going toward the documentation of this perceptual factor. At no time does the study examine the particular ways in which perception applies to the art experience or is relevant to any art lesson. Rather, the approach is one which concerns itself mainly with the effects of motivation on learning and the beneficial results the art experience can bring about through this increased motivation. The relationship between motivation and cognition may be symbiotic, but this was not focused upon in the CEMREL program.

In 1976, during a telephone conversation with the writer, Kathryn Bloom, Director of the Arts in Education Program of the John D. Rockefeller III Fund, discussed a program of arts education, sponsored by the Guggenheim Museum, which implimented the Learning To Read Through The Arts Program in the following ways:

1. The goal of the program was to improve the skills necessary for reading through the art experience.
2. To enhance the self-worth of the child.

3. To increase motivation for learning through the art experience.

4. To stimulate knowledge and skills in reading through the art experience (5).

In a discussion paper prepared by Bloom entitled "Research and Development Needs for Comprehensive Programs in the Arts in Education at the Precollegiate Level," she perhaps comes closest to defining what she believes to be the role of perception during the art experience when she states that the arts can contribute to the general or basic education of every child: "The arts involve the elements of sound, movement, color, mass, space, line, shape and language. These elements, singly or in combination, are common to the concepts underlying many subjects in the curriculum" (4:16). Bloom, recognizing the problems with conducting research which examines the learning process within the art experience, particularly as that process relates to general learning, states:

> A third major, and overreaching research question is concerned with the need to determine ways to evaluate the effectiveness of the process and content of arts in education programs . . . if, however, the major focus of the programs is on the learning, creative and artistic process (rather than the products) and their values in the general education of every student, we are confronting the realities of evaluating covert or inferred learning, which is a nightmare. (4:16)

She lists as two topics of research she feels are in need of continued investigation:

> Research is needed on instructional strategies aimed at those types of objectives which utilize the full learning potential of the arts. In addition, the role of the arts as a tool for evaluating students' competency in the affective domain remains almost totally unexplored. (4:19)

Attitudinal factors play an important and essential part in education. Visual art, in particular, has been considered by many educators to be a useful promoter of positive self-concepts and attitudes toward learning by its very nature. That is to say, the visual arts involve the child in making decisions which are arrived at not only from the senses but also from that child's feelings, emotions, or intrinsic needs. The visual arts allow the child the opportunity to make meaningful perceptions and apply them to some relative experience. Simply because there is a demonstrated relationship between affective education and increased learning does not imply that factors of a physiological nature, such as visual perception, should remain out of the mainstream of research because they are difficult to measure as they apply to the art experience. On the contrary, what is long overdue is more thorough and specific studies of visual perception as it operates within the art process. Only when this is accomplished effectively will these findings then bear a

more concrete relationship to increased reading by their similarities.

Although the emphasis was on the attitudinal (motivational) factors in the Learning To Read Through The Arts program and its benefits to the reading process, the measurable gains in the reading scores were substantial and unexpected enough to merit further examination of the process used. It is doubtful that motivational factors alone could have accounted for the scores in reading which resulted following the exposure and involvement in the program by the youngsters tested. Over the four-month period of the program from pre-test to post- (reading) test, the mean grade level for those students participating in the arts program rose at level 3 of the CAT test score (n+60) from 3.97 (sdl.16) to 4.81 (sd-1.74). The expected gain was only 4.19. Children were raised from their present reading handicaps by an average of 6.2 months beyond that which was projected without the arts program or with regular remedial reading programs alone (10).

But the questions still remain--how does perception apply to the art experience? How is perception, visual or otherwise, implemented in learning? Finally, can effective teaching strategies (similar to those designed by Faustman in her reading study) which emphasize visual perception and/or the perceptual process, be implemented within traditional art programs?

In an attempt to answer the last question first, it is encouraging to note that certain studies and programs are presently being conducted which outline teaching strategies for perceptual training in art education. Several such programs have been created over the past two years under the sponsorship of the ESEA Title III Fund. Schools in New York City were the location of programs combining art and reading improvement. Sylvia K. Corwin directed a program for improving perceptual skills in art classes held at the John F. Kennedy High School in New York City. Areas around which teaching strategies were built include: (11)

visual acuity	closure
tracking	memory
visual analysis	synthesis
figure-ground relationships	visual imagery

Corwin, in describing her pilot study focusing on the relationships between visual arts and reading, discusses the implications of her studies on methodologies for remedial readers at the secondary level:

> In September, 1975, in each of eight public schools, a class of twenty-five tenth graders, reading at least two years below grade level, was placed in an R.I.T.A. class. Each student received one regularly scheduled forty-minute period of art instruction daily. At least twice a week, a reading specialist . . . visited the art class. . . . The creative use of good art media in carefully planned developmental sequences, stimulates and enlivens all learning. (11:52)

Corwin quotes Dr. Erik Mortensen, Office of Educational Evaluation, and his reaction to the program: "The growth grades, based on reading scores of participating students, were not only significantly beyond statistical expectations; they were beyond growth normally expected in a full year's program" (11).

Each lesson in the art area was designed to emphasize competency in each of the above areas. The goal of this program was to deal with concepts and skills ordinarily associated with reading and practicing them within the visual art experience.

It is the opinion of this writer that most art educators would, upon scanning the list of skills and achievements necessary for reading to take place, recognize variations of these skills which are commonly taught in most art programs or are practiced as an integral part of the total art experience. What is not as readily recognized is the skill building potentials (for general education) that each art student is unconsciously using when he practices the making of art.

In making any comparison of visual perception in art and in reading a more specific comparison should be made components or skill areas which are related in nature. In examining the concept of <u>contour awareness</u> it must be noted that this awareness of the shape or configuration of letters or objects must be recognized

by the pre-reader of any age level in order for these shapes to be cognitively associated by the learner with the formation of letters or words. During a drawing lesson emphasizing the recording of the contour lines of a still-life using a drawing instrument, the child can sharpen his perceptions of that outside line in a pleasurable, self-rewarding manner but by no means a less efficient one than are practiced in reading skill building sessions.

Visual Discrimination

This ability to observe subtle differences between letters or groups of letters is also an essential for reading ability or accomplishment.

Helen M. Diemert, in an article, discusses the role of visual discrimination in art. She states:

> Discriminate seeing can be developed in many ways. A close examination of one of them may be sufficient to stimulate our imaginations for devising others. One such method is through the regular and frequent practice of drawing from observation. A close examination of something can hardly be facilitated better than through recording the visual impression with a marking instrument. . . . Only ten minutes of drawing from observation each day would make a remarkable difference in the growth of visual sensitivity, and in the "reading" of visual configuration. (13:16)

This writer believes the connection of visual discrimination in reading and in art is indicated but should be examined in greater depth than Diemert suggests.

Visual discrimination is less difficult to train for in education of the individual because, unlike other

factors in the reading (and perceptual) process, it is not an innate functioning relying upon physiological considerations but rather an acquired one. Warren H. Wheelock states in his publication "An Investigation of Visual Discrimination Training for Beginning Readers" that "it is apparent . . . that skill in visual discrimination is a major factor in beginning reading and that skill is learned" (46).

Still other areas of visual education affecting reading are visual decoding, visual-motor association and visual sequencing. Perhaps visual decoding is practiced most often during the art experience when pictures of art are shown and then discussed in detail, such as during an art history lesson. Visual-motor coordination is most closely linked with three-dimensional art; for example, responding to and coordinating a motor response to a visual stimuli, such as placing clay on a figure being constructed while looking at a live model. It is in the area of visual sequencing that the most direct applications of the art experience are practiced. Since visual sequencing is very important to the art of reading as it would involve stringing together letters to form words and ultimately words to form sentences, it would be most advantageous if a way in which this concept could be related to art practices was found. Samuel Kirk lists several ways in which this part of the reading experience

can be reinforced. He suggests the following activities which are based in the art experience:

1. Have the child reproduce bead patterns. Progress from simple shapes and colors to more difficult patterns.
2. Have the child feel different shapes.
3. Have the children complete geometric pictures.
4. Have the children draw from memory. (30)

Closure

Closure, or the ability of the perceiver to complete the incomplete figure or "close" a letter in reading, is based on the Cloze procedure, a gestalt theory of closure which relies on the impulse to supply the missing element (14:41). This ability is important in reading as it deals with letter formation and visual organization.

Roy Behrens, an art instructor, maintains that visual organization is a prime factor in art education and the art experience. He believes our language of vision, our formation of patterns and incomplete parts into the whole, is operating during the art process and even during the study of art produced by others. He observes,

> The history of the visual arts is the history of the perceptual principles of past cultures. It is possible that exposure to and study of the visual arts may enable us to discover new ways of seeing other than our own, and to know what our own perception does not presently allow us to know. If the work of visual art . . . is a record of the perceptual principles of our culture including our visual syntax, then it is possible that the making and the study of the works of visual art in our culture may enable us to better employ that perception in

> our perceptual input and, to follow, in our output, that is our interactions with other people and the objects and events of our environment. (3:15)

Although Behrens tends to consider perceptual training and its by-product-learning, in a rather holistic manner, some research, such as that conducted at the Guggenheim Museum for the "Learning To Read Through The Arts" (10) program does begin to more clearly focus upon this relationship of visual learning to both art and reading education.

Following an investigation and definition of visual learning poses the following question: "Where in the total general education curriculum can a parallel be drawn between those factors necessary for learning in the art experience and in another educational discipline similarly related to the visual art experience?"

There are a number of recent research results and hypotheses based on current investigations which indicate that this link exists in the areas of art and reading education. It is believed that they share in common many factors both in the cognitive and affective domains which would strongly suggest that the exposure and learning in one area might lead to increased learning in the other.

Sylvia F. Burns writes in her publication "Children's Art: A Vehicle for Learning":

> Some of the most valuable learnings to be acquired from contact with art media are those perceptual skills such as size, shape, and distance, that are fundamental to beginning reading and writing. Before children can differentiate between such abstractions

> as letters and numbers, they need many different opportunities to develop perceptually through a variety of experiences with less complex concepts. The many colors of paint and crayons, the variety of shapes that can be drawn, painted, cut and pasted, all contribute to perceptual development. . . . Likewise, perceptions of sameness and difference can be fostered through contact with these simple stimuli . . . differentiations among the many gradations of a single color is yet another factor that refines the child's visual skill while serving as an important antecedent learning to read and the printed word. (7:195)

Art and Reading Education as They Relate to the Visual Perceptual Learning Process

The focus of this chapter has been upon the ways in which reading education and art education are similar as they relate to the visual learning process, particularly in the area of visual perception. It becomes apparent upon examination of studies done which compare or integrate visual learning in art and reading that there are other factors which are efficacious to learning but do not relate in a direct manner to perceptual process. Although there exists an affinity between these factors and perception, they operate within or parallel to that process. These might be described as the contributory elements to perception which are within the affective domain. To ignore these elements or factors, even when they muddy the empirical waters of research intended to define and examine perception, would be negligent. Kathryn Bloom is one who feels there is a definite need for greater research on the relationship of the arts with affective education (4:19).

She indicated to this writer that attitudinal factors are essential to the art experience and are implied within the results of most studies connecting art education to increases in learning outside of the art experience but are most difficult for researchers to separate from the more cognitive or mechanical processes of learning. She further suggests that research should be conducted immediately which would deal with both areas (5).

Does perception as it applies to learning in art education and perception as an integral part of the act of reading operate differently upon the learner? Do these differences weaken the relevance of the art experience to reading education or do they strengthen learning potentials to an even greater degree?

To answer the above questions, the ways in which perceptual functionings occur within the art experience should be identified. The basis for answering this may depend on:

1. The act of expression through the art process offers the individual the manner in which to clarify perceptions.
2. The art experience reinforces divergent thinking.
3. More total perception can be achieved because during the art process the learner is called upon not only to see and cognitively know the thing

being perceived but also to attend to that perception in a highly personalized way.

4. The art experience offers intrinsic as well as extrinsic motivation. The studies conducted by CEMREL, Learning To Read Through The Arts, or the Appalachian study conducted by Mills recognize the central role increased motivation plays in the learning process.

5. The art experience requires self-discovery through expression. The Guggenheim study points out that as self-discovery and self-concept were increased, the concept of reading was more easily grasped (10, 4).

CHAPTER VI

SUMMARY AND CONCLUSIONS

Implications for Education

Through the years, the role of art education has changed and evolved from a so-called elite activity to its present consideration as a viable and indispensable part of the total learning process. Unfortunately, economic conditions in some states have presently controlled and defined the limits of quality education. This has indirectly caused the pendulum of favor to swing away from art as an essential for general education back to consideration (due to economic conditions) as an "elite" activity sanctioned and afforded by either the wealthy or the gifted.

A review of the writings of Jean Piaget, Rudolph Arnheim, Viktor Lowenfeld, and other psychologists and educators examining the principles of visual perception indicate that there is a correlation between visual learning within the art experience and perceptual skills necessary for the mastering of the act of reading.

It is only through examination of studies defining the nature of the elements of visual perception as well as

the art experience itself that a determination can be made as to the arts (particularly the visual arts) importance to the learning process.

Several studies have been made which indicate that an active participation in the art experience can and does have significance to reading education. Recent studies include the Learning To Read Through The Arts program at the Guggenheim Museum, research and pilot programs of learning modules conducted by CEMREL, a national research laboratory, and by James Charles Mills who conducted studies with rural Appalachian children who were either non or deficient readers within the framework of the art experience. Mills believed that art lessons which stressed the inclusion of detail increased cognition and ultimately increased reading scores.

Studies conducted by Marion Neal Faustman and Marianne Frostig both formulated ways by which the visual-perceptual process could be defined and thereby utilized through specific sets of perceptual training lessons. The desired result was in both cases an increase in reading scores.

Little research has been conducted which would create perceptual training lessons within the art experience. The studies of Sylvia Corwin and other art teachers within the New York City system of schools have attempted to do this.

It is apparent that although there is a link between visual-perceptual processes in both art and reading, attitudinal factors play an essential role in the increment of learning.

As reading scores continue to decrease at an alarming rate and art programs are relegated to the periphery of educational curriculums, it becomes imperative that research be conducted which would confirm the hypothesis that the art experience does increase learning in general education (particularly reading) through the perceptual process.

Questions

Two questions are still left unanswered at this point. They are:

1. Why has the bulk of existing research been largely concerned with the cognitive areas of visual perception or in terms of physiological functioning? Little relationship is made as to the manner in which the physical experience is synthesized by the learner.
2. Why is so little of literature indicating the benefits of the art experience to reading education supported by measurable empirical research data?

Suggestions for Further Research

Educators must be responsible to the expectations imposed upon them. One of these responsibilities is the provision for any and all methods or modes of education which will enhance the total learning capabilities of every child. What is lacking is a demonstration in clear and concise terms of the ways in which learning in art (visual-perceptual and affective) can effect other learning. This relationship would illustrate the nondispensable qualities of the art experience and place it at the very core of the educational process.

In order to be effective and convincing to the educational community, future studies must prove more evidence through empirical research that an identifying correlation does indeed exist between visual perception as it is operant within the art experience and perception which is relevant to reading education. Any future considerations must not only indicate the ways in which art and reading education and processes are linked through the area of perception but, most importantly, how this correlation can be measured.

This writer proposes that one way in which the measuring process can be facilitated is by the creation of pilot programs in which groups of randomly selected students who are remedial or nonreaders can be measured with pre- and post-tests of a standard achievement type

following their participation in one of the following groups. The groups would be: a regular reading improvement classroom instructed by a remedial reading teacher, a regular art classroom instructed by a trained art teacher, and a group in which students would participate in activities which are specifically designed to increase and reinforce visual perception. This group would be instructed by a trained art instructor who had additional training which would enable him to design and implement lessons which would emphasize visual perception.

Research must also be devised in which the nature of visual perception is defined as it relates to the art experience.

This paper does not attempt to examine in depth the ways in which visual skill building as a part of the perceptual process differs in reading education from that approach common to art education. What is in need of further definition is the manner in which the act of perception in reading skill building and that in art experiences are interrelated. This relationship is not often recognized, even by those who teach art to the young learner. Perhaps the reason for this lack of clarity lies within the very nature of art--for the act of visually perceiving during the art experience is such a personal one, tied up with emotions more frequently than with a step-by-step conquering of skills (as in reading education)

that often the art teacher, art student and even the researcher do not stop to examine the perceptual prerequisites and training that are a natural part of the art experience. Accomplishing this would more clearly identify the implications that visual learning has upon reading education and general education.

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