SIR GEORGE WILLIAMS UNIVERSITY

A METHOD OF TESTING VERBALLY CHILDREN'S READINESS FOR THE IDENTIFICATION OF STYLISTIC ELEMENTS IN PAINTINGS

MASTER OF ARTS IN ARTS EDUCATION

SEPTEMBER, 1967

DEAN CHESHIRE

ACKNOWLEDGMENTS

I would like to thank Prof. A. Pinsky, Prof. L. Sherman, Prof. S. Horner, and Dr. G.M. Mahoney of Sir George Williams University for the help that they have given me in the preparation of this thesis. I would also like to thank Mr. Donaldson of Cedar Park School, in Pointe Claire, and the teachers of his staff, who so kindly made available to me the children who took part in the lesson and test experiments.

LIST OF TABLES

Table		Page
1.	Grade I - Ages 6 to 7 Years	33
2.	Grade II - Ages 7 to 8 Years	34
3.	Grade III - Ages 8 to 9 Years	35
4.	Grade IV - Ages 9 to 10 Years	36
5.	Grade V - Ages 10 to 11 Years	37
6.	Grade VI - Ages 11 to 12 Years	38
7.	Grade VII - Ages 12 to 13 Years	39
8.	Proportion of Answers Above Chance	41
9.	Completion Form	54

CONTENTS

		Page
ACKNOWLEDGMENTS		ii
LIST OF TABLES		iii
INTRODUCTION		1
Chapter		
I.	SOME EXPLANATIONS OF PERCEPTION	3
II.	BACKGROUND OF SOME STUDIES OF PERCEPTION	6
III.	LEARNING TO PERCEIVE	9
IV.	"SET"	15
V.	PERCEPTION OF LIGHT, COLOUR, SHAPE, LINE, ETC.	18
VI.	THE ABILITY IN CHILDREN TO ABSTRACT	23
VII.	PROCEDURE USED FOR THE LESSON AND TEST	25
VIII.	RESULTS OF THE EXPERIMENT	32
IX.	DISCUSSION	42
X.	CONCLUSIONS	45
XI.	SUMMARY	47
BIBLIOGRAPHY		55

INTRODUCTION

The problem of the study on which this thesis is based was to test the hypothesis that all children of school age can discuss and remember in abstract terms reproductions of paintings which have been shown to them for a short period of time. The memory of these abstracts images was to be carried over a period of from six to ten minutes when the children were given a test on reproductions of paintings by the same four artists whose works had been shown to and discussed with them in the lesson period. The reproductions of the paintings shown in the test period were different from those in the lesson period.

The present study is approached from a different angle than most work on art education research done up to the present because the author had an hypothesis to begin with. Kenneth R. Beittel stated in 1958 that "most research related to art and art education has been concerned with problems of description and measurement. There are not many experimental studies in which some treatment is applied or some hypothesis put to a test."[1]

Complex sets of learnings are "based on such processes as discrimination, perception, transposition, and generalization -- all facili-

---

[1]Kenneth R. Beittel, "Art Education," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960.

INTRODUCTION

The problem of the study on which this thesis is based was to test the hypothesis that all children of school age can discuss and remember in abstract terms reproductions of paintings which have been shown to them for a short period of time. The memory of these abstracts images was to be carried over a period of from six to ten minutes when the children were given a test on reproductions of paintings by the same four artists whose works had been shown to and discussed with them in the lesson period. The reproductions of the paintings shown in the test period were different from those in the lesson period.

The present study is approached from a different angle than most work on art education research done up to the present because the author had an hypothesis to begin with. Kenneth R. Beittel stated in 1958 that "most research related to art and art education has been concerned with problems of description and measurement. There are not many experimental studies in which some treatment is applied or some hypothesis put to a test."[1]

Complex sets of learnings are "based on such processes as discrimination, perception, transposition, and generalization -- all facili-

---

[1]Kenneth R. Beittel, "Art Education," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960.

tated by language."[1] It appears from Flavell's writings that the role of language in forming concepts is an important one.[2] From the personal experience of the present writer it seems to be as important for some people as the visual role. The use of both the verbal (audio) and the visual approach in the present investigation was to ensure that both the verbally-minded and the visually-minded children would be reached. One point of view is that "excessive demand for verbalization may bring about a withdrawal or rebellion from other aspects of learning."[3]

A lesson was given which was intended to help train the child to see more in paintings than he had been able to previously, and to look at paintings in a way which had not been familiar to him before. At first the children did not know what to look for in the paintings but after a few examples (i.e. some visual and verbal training) were given in the lesson the older children were able to find the same qualities for themselves in other paintings that were similar or they were able to distinguish the qualities that differed from those in the paintings already discussed in the lesson. Salome states that Ralph Pearson, in his book How to See Modern Pictures "emphasized visual training as a factor of extreme importance in both the production and appreciation of pictorial design."[4]

---

[1]Martin L. Hoffman and Lois Wladis Hoffman (ed.), Review of Child Development Research (New York: Russell Sage Foundation, 1964), I, p.210

[2]J.H. Flavell, Developmental Psychology of Jean Piaget (Princeton, N.J.: Van Nostrand, 1963)

[3]Martin L. Hoffman and Lois Wladis Hoffman (ed.), Review of Child Development Research (New York: Russell Sage Foundation, 1964), I

[4]R.A. Salome, "Perceptual Training as a Factor in Children's Art," Art Education, XIX No. 9 (December, 1966)

CHAPTER I

SOME EXPLANATIONS OF PERCEPTION

A brief technical outline of how we see is given by M.D. Vernon in her book The Psychology of Perception. Wave lengths of light from the light source and reflected from objects fall on the retina, which is at the back of the eyeball, from the lens of the eye. "Nerve impulses then convey the information of light -- which is responsible for our seeing of form, colour, and brightness -- to the occipital area of the cortex... what in fact reaches the brain is a pattern of nerve impulses the frequency of which corresponds more or less to the brightness of the light reaching the eye."[1]

The philosopher, H.N. Lee states that "sensation is amorphous; perception is of form."[2] Sensations are "conceived rather abstractly to be the content of perceptions in present day psychology. He discusses two types of perception; that of fact and that of "pure perception," or "perceptual intuition." According to Lee perceptual intuition always contains perception of facts. He goes on to say that "perceptual intuition is the direct awareness of that organization of data immediately

---

[1]M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963), p.12

[2]H.N. Lee, Perception and Aesthetic Value (New York: Prentice-Hall Inc., 1938)

apprehended through the senses or in sense imagery."[1] This is the kind of perception which is connected with the apprehension of the aesthetic.

N.L. Gage states that there is the type of perception which deals with "sensation" only and the type of perception which deals with ideas which he terms "apperception, cognition, or imagination."[2] The type of perception dealt with in the present study is that of apperception not that of pure sensation.

Bartlett H. Hayes, Jr. states that education "is the personal assimilation of new experiences in terms of experiences already digested"[3], i.e. apperception.

Piaget uses the two terms assimilation and accommodation throughout his works. The Hoffmans quoting Flavell (1936) state that "assimilation is a concept that Piaget has borrowed from biology, which in effect holds that the individual takes within himself certain aspects of the environment and they become organized within classes or groups...In the course of the process the child is also making adjustments to these new assimilations. This is referred to as accommodation...These two interrelated processes, assimilation and accommodation, are operative through the entire developmental period"[4] of childhood. According to Jean Piaget

---

[1]H.N. Lee, Perception and Aesthetic Value (New York: Prentice-Hall Inc., 1938)

[2]N.L. Gage, "Perception," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960)

[3]Bartlett H. Hayes, Jr., "Art and Education -- Past and Present," Education of Vision, ed. Gyorgy Kepes (New York: George Braziller, 1965)

[4]Martin L. Hoffman and Lois Wladis Hoffman (ed.), Review of Child Development Research (New York: Russell Sage Foundation, 1964), I, p.216

"perception of light exists from birth....All the rest (perception of forms, sizes, positions, distances, prominence, etc.) is acquired through the combination of reflex activity with higher activities."[1] In the first year of life "there is undoubtedly a close interaction between perception and intelligence in their most elementary states."[2] The Gestaltists "explain intelligence by perception whereas for us perception itself must be interpreted in terms of intelligence."[3] Piaget's two processes of accommodation and assimilation are intellectual and are active at the same time. "The environment is assimilated to the activity of the subject at the same time as the latter accommodates itself to the former."[4] Piaget explains the development of intelligence by these two combined functions. Active assimilation is that in which "the process leading to the structures of the schemata (organization by the subject of information taken in and his giving of 'meaning' to it) is of importance rather than the new structure."[5] Through the schemata the child is able to make discriminations in his world. These discriminations determine his future actions.

---

[1]Jean Piaget, The Origins of Intelligence in Children (trans. ed. Toronto: George J. McLeod Ltd., 1963), p. 62

[2]Ibid.,Foreword

[3]Ibid.,p. 390

[4]Ibid.,p. 136

[5]Jean Piaget, The Origins of Intelligence in Children (trans. ed. Toronto: George J. McLeod Ltd., 1963), p. 115

CHAPTER II

BACKGROUND OF SOME STUDIES OF PERCEPTION

The study of perception, one of the oldest inquiries in psychology, has undergone renewal and change in recent years, and the new departures are instructive for the study of aesthetics."[1]

Today it appears that there are two main schools of thought in relation to perception. One is the Gestaltists' school which according to Boring "does not have a theory of perception because it holds that meaning is given immediately in phenomena."[2] The other school of thought is the Stimulus-Response school.

In the early days of philosophy the two main schools of thought were nativism and empiricism. Nativism turned into phenomenology and Gestaltism (which depends on the isomorphism theory of the brain processes with the stimulus). Empiricism turned into habits of thought of the behaviorists, operationists, and positivists. Nativism, phenomenology, and Gestaltism deal with observations. "They are egoistic, asserting the validity of individual observation and insight....The givens are not to be

---

[1]Dale Harris, "Aesthetic Awareness, A Psychologist's View, Art Education, (May 1966, Vol. 19, No. 5)

[2]Edwin G. Boring, Sensation and Perception in the History of Experimental Psychology (New York: D. Appleton, Century Company Inc., 1942)

explained....Nativism according to Lotze is a faith and not a theory."[1] Those "who thought that you could tell what a man knows by what he does" are "the modern empiricists simply because so much of behavior is learned ...experimentalism is diffident, mistrusting individual observation and relying upon controls, procedures without knowledge, and the other techniques that have been devised to achieve assurance in the face of the unreliability of human observations."[2] This then appears to be the main difference between the two schools of thought; the one, the Gestaltists, believe that the understanding is innate in the objective material and the mind in its relation to this, and the other, the S-R psychologists, who believe that perception is learned. Again, the difference between empiricists and nativists is that the "empiricists undertook to explain perception by the association of sensations and images. It is associated compounds, they thought, that constitute knowledge of an object....In Gestalt psychology, perception has absorbed sensation, whereas in physiological (empiricist) psychology sensation has absorbed perception..."[3] For Piaget "all perception is an accommodation (with or without regrouping) of schemata which have required, for their construction, systematic work of assimilation and organization and intelligence is only the progressive complication of this same work, when immediate perception of the solution is not possible

---

[1]Edwin G. Boring, Sensation and Perception in the History of Experimental Psychology (New York: D. Appleton, Century Company Inc., 1942), pp. 117 and 33

[2]Ibid.,pp. 33 and 117

[3]Ibid.

...only differences of speed and complexity separate perception from comprehension or even from invention."[1] Organization "is the internal aspect of adaption in connection with the interdependence of already adapted elements."[2] Adaption is the result of assimilation and accommodation.

Harlow, working at Wisconsin, has put forth a theory which combines the Gestaltists' and the S-R psychologists approach to perception and learning. This will be noted again in Chapter III of the present study.

---

[1]Jean Piaget, The Origins of Intelligence in Children (trans. ed. Toronto: George J. McLeod Ltd., 1963), p. 390

[2]Ibid.,p. 12

CHAPTER III

LEARNING TO PERCEIVE

There seem to be certain simple characteristics in paintings which young children are not prepared to see, or, if they do see them, they are not able to remember them in relation to the works with which they are connected, even when these characteristics are pointed out to them. Hebb believes that one learns to perceive figures only gradually and that infants and adults, who have had congenital cataracts removed, do not perceive as normal adults do.[1] It takes a certain length of time for them to get used to the perceptual stimuli; a number of days for the adults and a number of years in the case of children. (M.D. Vernon states that it takes ten or eleven years.[2]) Hebb's cell assembly-phase sequence theory, of which the above is one evidence, challenges the Gestalt theory of cortical perceptual fields[3] which was mentioned in Chapter II.

Estes speaks of Harlow and his experiments with animals and people, which establish the fact that as the subject becomes familiar with the particular learning situation he is able to make instantaneous

---

[1]N.L. Gage, "Perception," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960)

[2]M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963)

[3]N.L. Gage, "Perception," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960)

decisions related to this learning instead of the trial and error responses formerly necessary for him. After so much experience along a certain line information is gathered and the problem solved instantaneously.[1] This ties in the wholistic Gestalt response with the trial-and-error (Stimulus-Response) theory by assuming stimulus-response decisions when the material is new and going on to a more wholistic approach once the material has become familiar. It seems a very good explanation of what actually happens in children's ordinary perceptual processes as well as what happened in the test carried out for the present study. The older children seemed to get answers more rapidly towards the end of the test. Towards the end most of them exclaimed "oh!" and wrote down the artist's name immediately. The whole process of perception may occur "without conscious awareness,"[2] according to M.D. Vernon and Piaget.

Most experiments connected with learning have been carried on in a very few standard experimental situations. One of these situations is "simple discrimination learning....Discrimination refers to the selective association of a response with one particular stimulus or stimulus attribute from a set of two or more alternatives."[3] This seems to describe very well the experiment undertaken in the present investigation, except that the experiment of this study was complicated in that there

---

[1]Estes, "Learning," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960)

[2]M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1962)

[3]Estes, "Learning," Encyclopedia of Educational Research, ed. Chester W. Harris (3rd ed.; New York: The Macmillan Company, 1960)

were eight or ten stimuli (the characteristics that the children were to watch for) in each of a set of four alternatives. The older children, in the experiment done for this study, were able to learn to discriminate between the different characteristics presented in different paintings and to remember them for a short period of time. Estes says that most learning that is done in schools involves the formation of discriminations.[1]

The children of Grade I, in the test situation of the present investigation, uniformly did not put reasons for their choices while from Grade II up most of the children attempted to do so even when at times they were wrong in both choice and reason for the choice. According to the Hoffmans, in children from two or three to seven or eight years of age there is "no desire to find logical justification for one's statements of belief."[2] M.D. Vernon backs up this observation with the statement that younger children do not use their intelligence to reason about what they see.[3]

The experiment for the present investigation used several different aspects of colour, form, line, and light. These were discussed and it was explained how each artist used these concepts in different and personal ways. The problem for the children was to sort out this information and apply it where it was needed. The Hoffmans state that "to teach a concept, juxtaposition of two competing ones will force a child to reflect and think rather than to respond with what he already knows. Further, when such

---

[1] Ibid.

[2] Ed. Martin L. Hoffman and Lois Wladis Hoffman, Review of Child Development Research (New York: Russel Sage Foundation, 1964) I

[3] M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963) p.89

conflict is inherent in the task, rewarding the child is not necessary."[1] They also state that "intolerance of cognitive conflict may well be one of the motivating variables that influence concept acquisition."[2]

There were many more lines, spots of colour, and shapes in the reproductions shown to the children than were actually pointed out to them. There was a great possibility for choice as to what they would look at in the test and still demonstrate a correct answer. Redundancy of information is what makes perceiving objects easy and this certainly seemed to be so for the children in Grades VI and VII and the naive adults. Perception is rapid and accurate when there is a redundancy of information states M.D. Vernon.[3]

In a time interval of a tenth of a second or less it is impossible to perceive an object. "A period of about half a second is necessary for visual acuity to reach its maximum."[4] ("Visual acuity" is the ability to discriminate detail.[5]) The child takes time to learn to discriminate detail and needs more and clearer information than the adult does. In the experiment conducted for the present study each child had about thirty seconds in which he was actually looking at the reproduction. The remainder of the two minutes in which the reproduction was being shown to the rest of the children it was hoped that the image would stay in his mind. This

---

[1]Ed. Martin L. Hoffman and Lois Wladis Hoffman, Review of Child Development Research (New York: Russell Sage Foundation, 1964) I

[2]Ibid.

[3]M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963)

[4]Ibid.

[5]Ibid.

appears to have happened with the older children. With the younger children length of time might well have been a factor in their not having been able to discriminate during the test period, or at least not having been able to remember over a short period of time. M.D. Vernon states that "perception is never instantaneous."[1]

"The perception of children under six or seven is said to be 'syncretic' meaning that they perceive 'wholes' rather than details."[2] This may account for the younger children's not being able to pick out the details of the characteristics which were presented to them. Below a certain age children are not able to separate parts from wholes when looking at pictures or to analyze structure.[3] Also "with younger children there" is "a general tendency towards centration,"[4] that is the act of looking at a certain part of the field only. This may have kept the younger children from recognizing other reproductions of paintings ressembling the ones in the lesson.

The pupils' attention was directed towards the characteristics of the painters' works, their similarities and differences. In the lesson done for the present investigation it might be "that the discussion of formal principles is unnecessary to learning discrimination, though undoubtedly attention to such principles facilitates learning" as Dale Harris states.[5]

---

[1] M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963)

[2] Ibid., p. 84

[3] Ibid.

[4] Ibid.

[5] Dale Harris, "Aesthetic Awareness, A Psychologist's View," Art Education, XIX No. 5 (May, 1966)

This lesson might be carried on with children of eleven and twelve years of age varying it by not drawing the children's attention to the details and characteristics but simply showing them the reproductions for the same length of time as in the original lesson for this study. Thus it might be discovered how much more, if anything, was gained by the children being guided in their search for different characteristics which helped them to recognize similarities in the works of one painter.

According to Vernon the child, at seven years of age can describe the more obvious activities going on in a picture, but it is not until eleven or older that visual aids do not have to be explained carefully.[1] It appears that even the narrative qualities of paintings escape the notice of young children. The children of age seven and eight were able to say that they noticed simply "lines" or colours such as "red, yellow, brown" or some other such simple and direct characteristic.

---

[1]M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963)

CHAPTER IV

"SET"

Perception, in modern psychological positivism, is based upon experience and judgment. "On the basis of experience the mind makes a judgment as to the nature of the external world..."[1] In relation to perception, and this might well be connected to the perception of paintings that this writer showed to children, what one is asked to see in a problem or image and is shown in that problem or image (i.e. the experience that one has with a problem or image) is what one will see when shown other problems or images containing like qualities. Other qualities in the problem or image are disregarded. This amount of perception Kulpe called the "conscious reality", this being different from the combined number of attributes it is possible to see in the problem or image which he termed the "psychic reality" which he determined was "a scientific entity that is built up upon many observations."[2] Yokoyama (1924), Wilcocks (1925), and Chapman (1932) "found that subjects can report more adequately on attributes for which they are set to observe before the exposure (to the problem) than on the other attributes which they have to judge after the exposure from the immediate memory of the stimulus-field.[3] This can be related to the

---

[1]Edwin G. Boring, Sensation and Perception in the History of Experimental Psychology (New York: D. Appleton, Century Company Inc., 1942) p. 23

[2]Ibid.

[3]Ibid.

fact that in the experiment of the present writer it was found that children described how they knew the correct answer of the name of the artist in relation to reproductions of paintings in the same or similar words and giving the same ideas that were used in the lesson to teach them what to look for. In no case were ideas, other than those already given, or offered by the pupils, in the lesson part of the experiment, used by the children in answering in the test. No new ideas, that is, were put forth by the pupils in their answering of the test. Previous experience and expectancy seemed to be highly significant in the older children's ability to perceive the differences between the different paintings' characteristics in the situation presented by the work done for the present study.

"Objects are perceived in habitual ways, and as habit changes, it may be that the actual conditions of perceptual grasp change correspondingly."[1] (It appears that "set" changes in relation to new information as was shown in the test for the present study. A new "set" was created in the children with the new information given about the paintings.) This is related to the idea of judging with regard to previous experience and, in more psychological terms to the idea of apprehension through "set". "...it has long been known that an observer expecting, or 'set', to perceive aspects of the environment will perceive these more readily than in the absence of such a 'set'....'Set' is often a function of familiarity."[2] If the younger children, in the test given for the present study, had had a

---

[1] H.N. Lee, Perception and Aesthetic Value (New York: Prentice-Hall Inc., 1938)

[2] M.D. Vernon, Experiments in Visual Perception, (Harmondsworth: Penguin Books Ltd., 1966) p. 277

longer acquaintance with the paintings' characteristics and so developed a certain amount of familiarity with them, they might have been able to recognize these characteristics when they appeared in other paintings by the same artist, through a process of remembering the characteristics with which they were already familiar. "...perceptual organization is powerfully determined by expectations built upon past commerce with the environment."[1]

Mirko Basaldella discusses the importance of memory in relation to perception and how new concepts are formed by perception added to the images of the memory.[2] It is considered by the present author that memory played an important part in the children's perception of the reproductions of the paintings shown them.

---

[1]J.S. Bruner and L. Postman, "On the Perception of Incoungruity," Experiments in Visual Perception, ed. M.D. Vernon (Harmondsworth: Penguin Books Ltd., 1966)

[2]Mirko Basaldella, "Visual Considerations," Education of Vision, ed. Gyorgy Kepes (New York: George Braziller, 1965)

CHAPTER V

PERCEPTION OF LIGHT, COLOUR, SHAPE, LINE, ETC.

Perception of light is the child's first visual experience. This was one of the reasons why qualities of light were introduced in the lesson given for the present study. Later the child learns to assimilate this perception and by accommodation is able to perceive forms, lines, and textures. Whether or not he is able to differentiate between colours in the beginning is still a matter open to discussion.[1] Light, shape, line, texture, colour, etc. were presented to the children in the lesson period for the present investigation.

For the act of perceiving colour it has been shown "that the distinctness of color depends more upon brightness than upon hue."[2] That is that the lightness or darkness of the colour is more important for its differentiation than the singular colour quality in itself.

"Shape and color...fulfill the two most characteristic functions of vision: they convey expression, and they allow us to obtain information through the identification of objects and happenings."[3]

---

[1]Martin L. Hoffman and Lois Wladis Hoffman (ed.), Review of Child Development Research (New York: Russell Sage Foundation, 1964), I

[2]Rudolf Arnheim, Art and Visual Perception: A Psychology of the Creative Eye (Berkeley and Los Angeles: University of California Press, 1954)

[3]Rudolf Arnheim, Art and Visual Perception: A Psychology of the Creative Eye (Berkeley and Los Angeles: University of California Press, 1954)

"Children of less than three years of age seemed more often to choose on the basis of form, whereas those between three and six picked the pattern that had the right color" in an experiment where they were "asked to select from a number of red triangles and green circles the figure that resembled a test pattern presented separately," i.e. memory was involved.

> The test pattern was either a red circle or a green triangle.... The pre-school children made these choices without hesitation, whereas those of more than six were disturbed by the ambiguity of the task and used shapes more often as the criterion of their choice.... as culture begins to train children in practical skills, which rely on shape much more heavily than on color, they turn increasingly to shape as the decisive means of identification... the reaction of the younger children is determined by motor behavior and thus by the 'graspable' qualities of the objects. Once the visual characteristics have become dominant, the majority of the pre-school children will be directed by the strong perceptual appeal of the colors."[1]

Colour seems more readily visible to children and to adults, who have had cateracts removed, than form. "The child tends to see colour as an integral part of the object seen and is slow to abstract it."[2] The ability to recognize abstracts shapes from each other, such as diamonds, triangles, etc. develops at about the age of four, and older children are prone to see these simple abstract shapes as representing real objects. Perhaps the recognition called for in the experiment for the present investigation was too demanding for children below the ages of ten or eleven years, though in some psychological tests they do seem to be able to **recognize** the difference between the angularity and smoothness or flatness of objects, i.e. their simple abstract qualities. Psychological studies

---

[1] Rudolf Arnheim, Art and Visual Perception: A Psychology of the Creative Eye (Berkeley and Los Angeles: University of California Press, 1954)

[2] M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963)

have most often been carried out with simple abstract shapes and not with more naturalistic ones such as were presented in this experiment.

The Hoffmans state that "for children seven to eleven, color is not a meaningful basis of organization when the items are familiar and realistic."[1] Brian and Goodenough have found that children as young as twenty-one months of age tended to be form conscious rather than colour conscious. At three appeared a preference for colour. Form again becomes dominant at the age of about six. Others have found colour predominant over form in young children and gradually change to form preference at the age of five or six.[2] It seems important to attend more to "individual differences in the stages in which various phenomena appear, rather than being overly dependent on age levels."[3] Other researchers relating their research to personality discovered that people who were more colour conscious tended to be "more perceptive and sensitive to other people, whereas form reactors tended to be more practical, realistic and socially conforming. Form reactors were also more common among women than among men."[4]

Some psychologists believe that colour shows a passive personality while shape dominance reveals an intellectual, active organizing mind. "The effect of color is much too direct and spontaneous to be only the product of an interpretation attached to it by learning."[5]

---

[1]Martin L. Hoffman and Lois Wladis Hoffman (ed.), Review of Child Development Research (New York: Russell Sage Foundation, 1964) I

[2]Ibid.

[3]Ibid.

[4]Ibid., p. 231

[5]Rudolf Arnheim, Art and Visual Perception: A Psychology of the Creative Eye (Berkeley and Los Angeles: University of California Press, 1954)

"Representation by outline seems to be the simplest psychologically and most natural technique for making an image by hand."[1] An outline can be traced around any shape and it is for this reason that outline is used by children in their drawings. The "child begins his pictorial activities by making lines."[2] Primitive peoples also use this mode of description and this is why it is so well understood by children and primitives. The above was one of the reasons for the inclusion of the two artists' works that depended a great deal on outline for their expression.

"Young children have a narrow perceptual span, i.e. a relatively restricted number of lines may be seen simultaneously, and remembered after the eyes have shifted to another spot."[3] Possibly this was the reason that some of the younger children were not able to remember characteristic lines in connection with artists' names in the test given for the present study.

Some of the shapes and lines seen in paintings might be considered as embedded figures and young children find these hard to distinguish. "There was significant decrease in errors on embedded figures with increasing age" in experiments done with four to eight year olds.[4]

Separate studies by Gottschaldt and Witkin "indicate that the young child responds less adequately than adults to tasks involving the

---

[1]Rudolf Arnheim, Art and Visual Perception: A Psychology of the Creative Eye (Berkeley and Los Angeles: University of California Press, 1954)

[2]Ibid.

[3]Lila Ghent, "Perception of Overlapping and Embedded Figures by Children of Different Ages," Experiments in Visual Perception, ed. M.D. Vernon (Harmondsworth: Penguin Books Ltd., 1966)

[4]Ibid., p. 55

differentiating of figures not clearly set apart from each other."[1] Possibly details such as lines and forms do not stand out clearly enough as being definitely apart from one another so that they can be considered separately in a painting and be remembered by the child once the painting has been removed from his sight. In the Grade II class, participating in the lesson given for the present study, the responses concerning simple colour seemed to be most numerous with line coming a near second and light and shape following. The responses from Grade VII were much more varied and complicated. Typical responses from Grade II in answer to the question "how do you know?" were "yellow red brown" or simply "colours", or "lines" while Grade VII gave such answers as "light flashes, lots of figures" or "very distinct, every bit is showing, lines, wispy clothing."

---

[1]Lila Ghent, "Perception of Overlapping and Embedded Figures by Children of Different Ages," Experiments in Visual Perception, ed. M.D. Vernon (Harmondsworth: Penguin Books Ltd., 1966), p. 52

CHAPTER VI

THE ABILITY IN CHILDREN TO ABSTRACT

The Hoffmans, in the Review of Child Development, give the basic stages that Piaget has determined. At age four to seven, which he called the "intuitive phase," the child is able to "distinguish between the symbol of a thing and the actual thing but he is still dominated by his perceptions not conceptions....He is still egocentric with his judgment subjective."[1] Perhaps his subjectivity kept him from becoming involved in all the abstract qualities presented verbally and visually about the paintings which were pointed out to the six and seven year olds as well as to the older pupils during the lesson given for the present study. The young child is perhaps too involved in the total view which takes all his attention. Among the seven year olds however there did seem to be a few who were not so occupied and were able to pick out the abstract characteristics (having remembered them) and record them. These few were however very much in the minority among the younger children.

The next stage that the Hoffmans discuss is the "concrete operations" phase which takes in the ages from seven to eleven years. Here there is an "intense intellectual and conceptual growth."[2] The

---

[1]Martin L. Hoffman and Lois Wladis Hoffman (ed.), Review of Child Development Research (New York: Russell Sage Foundation, 1964), I, p. 219

[2]Ibid., p. 220

child becomes more objective and "manifests increasing emancipation from perceptual dominance of the environment."[1] He begins to think about the world and to organize his percepts into concepts. This probably accounts for the increasing ability of the older children in the test situation to give abstract reasons for their recognition of the individual paintings. They were able to think over what had been presented to them earlier and to make deductions from this material.

The period of "formal operations" comes at the ages between eleven and fifteen years. "It is at this point that the child is able to take the final steps to true abstract thinking and conceptualization....For the first time he can ignore content. He can handle many variables in a 'systematic order' where before he was capable of handling only one."[2] It was at this stage that most of the children became capable of analyzing the paintings, shown to them during the lesson and the test given for the present investigation in an adult manner, always remembering of course those few exceptions where children much younger were capable of doing this.

"A child of about five or six can show abstraction ability, since he can ignore irrelevancies....The findings indicate that children may be less dominated by the perceptual aspect of the environment somewhat earlier" than had previously been considered possible.[3] It is therefore a question whether the child's inability to abstract and remember qualities pointed out to him verbally and visually at an early age is due to his lack of abstraction ability alone.

---

[1] Ibid., p. 222

[2] Ibid., p. 222

[3] Ibid., p. 229

CHAPTER VII

PROCEDURE USED FOR THE LESSON AND TEST

A short introduction to the lesson and test was given to pupils of average intelligence (most making B or C averages in their school work). They were in groups of about 12 each. The pupils were told that they would be given a short lesson in which three reproductions of paintings from each of four artists would be discussed. The children were asked to give ideas of their own concerning the characteristics found in each of the paintings after they had heard what to look for in the first one. They were told specifically that they were to try to recognize each reproduction of a painting in the lesson and test not through the common subject matter or the kind of clothes that the people might be wearing but by the characteristics which they would discover. All the reproductions of the paintings concerned people. Most of the paintings were of groups of people. They were all paintings done two hundred years ago or more and the first reaction of the children was to speak of what the people in the paintings were doing and what they were wearing. However they soon became accustomed to look for the different characteristics which each of the paintings presented.

The first thing done in the lesson was to present the names of all four of the painters in the order in which the reproductions of their paintings would be shown in the lesson. These names were printed on a card and left open to the view of the pupils during the lesson period and the test period.

The second step was to discuss the characteristics of each painting as it was held up to view. First three reproductions of paintings by Botticelli, then three paintings by Blake, then three paintings by Rembrandt, and lastly three paintings by El Greco. All of the reproductions of the paintings were chosen because they represented a mature phase of the artists' work, because they were figure paintings, and because each of the four artist's works were sufficiently different from one another that it was simple for adults to distinguish the differences. Each painting was shown separately to the class and discussed briefly; the characteristics being discussed and pointed out at the same time by the finger of the researcher. The painting was then shown individually to each pupil and more points were discussed and the former points reviewed when the pupils had a chance to get a close-up view. This procedure took about two minutes for each of the twelve reproductions of paintings in the lesson. When the children had been shown one reproduction and had had it discussed they were eager to try this new approach with the subsequent reproductions that were exposed. Botticelli and Blake were presented one after the other because they were two painters who dealt a great deal with line, and this was emphasized. Rembrandt and El Greco were shown one after the other because they had the common characteristic of light which illuminated their paintings in a personal way. This dependence on light or line was emphasized as it was thought that if the other characteristics proved too complicated the pupils might at least remember these two. As it turned out this was not necessary for the classes of grade V and above. They seemed to have no difficulty in remembering several characteristics of each of the painters' works.

The reproductions used in the lesson were then put away and the

class was given a form to fill out with name, age, birthday, class, and room number. At the bottom of this form there was a space where the pupils could write the names of other artists that they had heard of and knew of some of the paintings. As it turned out very few of the pupils even in grade VII knew the name of any artist. However there were a few who had heard of Rembrandt and Leonardo da Vinci. There was a place on the form with twelve lines numbered one to twelve and the pupils were instructed to fill these in as each of the twelve reproductions of the test was presented to them. Beside each of these twelve spaces there was a space where the pupils were asked to write how they knew that a particular painting belonged to a particular painter; that is they were asked to fill in the characteristics which they found in each painting. The discussion of this form took about six to seven minutes.

The test was given by holding each of the twelve test reproductions up to the class in general. After one had been seen by the whole class it was taken around to each child in particular so that he could get a close-up view of it, as was done in the lesson. This took about the same amount of time for each of the reproductions as it had taken for each reproduction during the lesson part of the experiment.

The reproductions used for both lesson and test were taken from the books on painters published by Purnell and Sons Limited, copyright 1965, and printed by Purnell and Sons Limited, Paulton, Nr. Bristol, England. The reproductions were cut from the books and glued to grey cardboard with a white margin left round each cut-out reproduction. The larger reproductions were glued to cardboard 22" x 14" in size. The smaller reproductions were glued to cardboard 11" x 14". These reproductions were inexpensive but of a fairly good quality.

It was determined beforehand which of the characteristics of the paintings would be presented to the children. These had to do with form, colour, line, light qualities, detail, etc. The following is a list of the painters whose works were used and a description of the characteristics which could be found usually in each of their paintings.

BOTTICELLI - (1444-1510)

1. Lines in the contours and in the clothing and hair.
2. Movement of the lines is quick and nervous often.
3. Clothing does not always follow the figure that it clothes but has a life of its own.
4. Details are carefully painted -- flowers, leaves, and clothing.
5. Delicate texture of the materials, there is much fine veiling which is transparent.
6. Elongated forms of the figures which are slender and graceful in men and women.
7. Wistful, melancholic heads are characteristic of Botticelli.
8. Naturalistic backgrounds of landscape or architecture often.

BLAKE - (1757-1827)

1. Another painter using line but a line of a different kind; lines here are not as agitated as in Botticelli, they describe the clothing and the figures.
2. Figures are sturdier and not so graceful as in Botticelli.
3. Clothing tends to cling to the body which seems to be compressed by the line that follows its contour.
4. Parallel movement much used in figures and background.
5. Strong verticals stressed not only in the background but in the foreground, and horizontals or a circular motion.
6. Colours are not very bright.
7. Muscles in the figures are clearly marked unlike the graceful, smooth figures of Botticelli.

REMBRANDT - (1606-1669)

1. Lines are not important here.

2. Light is the chief organizing element (means of expression, as line was Botticelli's)

3. Light and colour are usually warm.

4. Colours are usually red, yellow, and brown.

5. Details are not carefully painted but only suggested.

6. Backgrounds are usually dark without much detail.

7. Clothing hangs naturalistically from the bodies.

EL GRECO - (1541-1614)

1. Lines are not important here either.

2. Light is important but a different light from that of the diffused light of Rembrandt's paintings; this is a sharp light.

3. Light is in long slashes or triangular and seems to have a great deal of movement.

4. Colours are strong and there is often blue, green, and purple.

5. Strong contrasts of light and dark values give a lightning effect.

6. There is a great deal of movement unlike Rembrandt's paintings which are usually full of repose.

7. Clothing sometimes takes unnatural shapes for the sake of the movement.

8. Figures tend to be elongated and twisted (distorted) to fill a space (fit the pattern).

9. Much use of unnatural-looking clouds.

10. Tendency to an upward movement.

The following is a list of the reproductions of the paintings (with the sizes of the reproductions used) in the order in which they were given in the lesson:-

BOTTICELLI

1. Spring (H 12", W 18½")
2. Mars and Venus (H 7½", W 18½")
3. Madonna of the Pomegranate, 1487 (D 9½")

BLAKE

1. Soldiers Casting Lots for Christ's Garments, 1800 (H 11 3/4", W 8 3/4")
2. Pity, c. 1795 (H 7", W 9")
3. Buoso Donati Attacked by the Serpent. Inferno, Canto XXV (H 6¼",W 9")

REMBRANDT

1. The Anatomy Lesson of Professor Nicolaes Tulp, 1632 (H 13", W 17¼")
2. The Night Watch, 1642 (H 8¼", W 9 3/4")
3. The Jewish Bride, c. 1665 (H 7", W 10")

EL GRECO

1. Burial of the Count of Orgaz, 1586/88 (H 16¼", W 13¼")
2. Resurrection, after 1600 (H 12¼", W 5½")
3. Assumption of the Virgin, 1577 (H 12½", W 7")

The following is a list of the reproductions of the paintings (with the sizes of the reproductions used) in the order in which they were given in the test:-

1. El Greco - The Agony in the Garden, 1580's (?) (H 7 3/4",W 9 3/4")
2. Blake - Beatrice Addressing Dante from the Car. Purgatorio, Canto XXIX (H 6½", W 9")
3. Rembrandt - The Staalmeesters, 1662 (H 12½", W 18½")
4. Blake - The Wise and Foolish Virgins, St. Matthew XXV, 1 - 9, c. 1826 (H 10 3/4", W 8 3/4")
5. Blake - The Court of Death, 1795 (H 7 ¼", W 9")
6. Botticelli - The Calumny of Apelles (H 12½", W 18½")
7. El Greco - Vision of St. John the Divine, Opening of the Fifth Seal, c. 1610/14 (H 10", W 8½")
8. Botticelli - Madonna and Child with Angels (H 11½", W 8¼")
9. Rembrandt - Hendrickje Stoffels as Flora, c. 1657 (H 11", W 9½")
10. El Greco - Purification of the Temple, c. 1600 (H 8¼", W 9 3/4")
11. Rembrandt - Self Portrait with Saskia, c. 1635 (H 11", W 8 3/4")
12. Botticelli - The Birth of Venus (H 11½", W 18")

CHAPTER VIII

RESULTS OF THE EXPERIMENT

It was established on the basis of expanding the binomial that 6 and above identified correctly out of 12 was significantly above chance at the .05 level. Treating the results of the test in the light of this it was found that from the Grade IV level down the pupils seemed not to be able to recognize the characteristics of different artists' works above where it might be considered pure chance when they had been given a verbal (audio) and visual lesson on these characteristics. This is shown in Tables 1, 2, 3, and 4. Most of the pupils in Grade V were able to recognize the differences, however, and the proportion increased so that there were only 2 pupils in each of Grades VI and VII who could not recognize the differences. These findings are presented in detail in Tables 5, 6, and 7. The children from Grade I up to and including Grade V seemed tired after the test. Grade VI and Grade VII children were upset at first when they were shown new paintings to identify in the test instead of the ones that they had been shown previously in the lesson. However when they got down to the identification of each one they found that they were easily able to discriminate between the different characteristics in the different painters' works. These children were very enthusiastic about their discoveries.

TABLE 1

GRADE I - AGES 6 TO 7 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	7	C	1	0
	6	A	2	0,0
	6	B	1	0
	6	C	1	0
Chance	5	A	3	0,0,0
	5	B	1	0
	5	C	1	0
	4	A	2	0,0
	4	B	1	0
	4	C	1	0
	3	B	2	0,0
	3	C	4	0,0,0,0
	2	B	3	0,0,0
	1	C	1	0
	0	C	1	0

Total number of pupils 25.

TABLE 2

GRADE II - AGES 7 TO 8 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	9	D	1	0
	7	B	1	3
	7	C	1	0
	7	D	1	2
	6	B	2	6,2
	6	C	2	4,2
Chance	5	B	1	2
	5	C	1	2
	4	B	3	3,3,2
	3	B	2	3,0
	3	D	1	0
	2	B	1	2
	2	C	3	1,1,0
	2	D	1	1
	1	D	1	0

Total number of pupils 22.

TABLE 3

GRADE III - AGES 8 TO 9 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	10	C	1	6
	9	B	1	7
	8	C	1	5
	7	D	1	5
	6	B	2	4,3
	6	C	1	5
	6	D	2	6,0
Chance	5	B	4	5,2,2,2
	5	C	1	1
	5	D	2	4,0
	4	B	4	3,3,2,2
	4	C	2	3,1
	3	B	4	3,2,2,0
	3	C	1	1
	2	B	4	2,2,1,0
	2	D	1	1
	1	C	1	1

Total number of pupils 33.

TABLE 4

GRADE IV - AGES 9 TO 10 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	11	A	1	10
	8	A	1	6
	8	B+	2	4,5
	8	B	1	6
	7	A	1	5
	7	B	1	6
	6	B	1	6
Chance	5	B+	2	4,2
	5	B	2	5,3
	5	C	3	4,3,3
	4	A	1	4
	4	B+	1	1
	4	B	2	3,3
	4	C	1	3
	3	A	1	3
	3	B	1	3
	3	C	3	2,1,1
	3	D	1	3
	2	B	1	0
	2	C	1	0
	1	C	1	1

Total number of pupils 29.

TABLE 5

GRADE V - AGES 10 TO 11 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	10	A	1	10
	9	A	1	7
	9	B	2	9,7
	9	C	1	8
	8	A	1	8
	8	B	4	8,8,7,6
	8	C	2	7,6
	7	A	2	7,6
	7	B	2	7,6
	7	C	1	5
	6	B	3	6,5,5
Chance	5	B	2	4,4
	5	C	3	5,4,3
	5	D	1	4

Total number of pupils 26.

TABLE 6

GRADE VI - AGES 11 TO 12 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	11 10 9 8 7 6		1 3 6 7 7 1	11 9,7,7 9,9,8,8,6,6 8,8,8,7,7,6,5 7,7,7,7,6,5,4 6
Chance	5 4		1 1	5 3

Total number of pupils 27.

TABLE 7

GRADE VII - AGES 12 TO 13 YEARS

	Mark out of 12	Grade in Class Work	No. of Pupils	Reason They Knew the Answer
Above Chance	12		2	12,11
	11		2	11,9
	10		6	10,10,10,9,9,8
	9		5	9,8,8,7,7
	8		5	8,8,7,7,7
	7		1	7
Chance	5		2	5,3

Total number of pupils 23.

Most of the children in the lower primary grades appear not to be able to distinguish easily differences between characteristics appearing in the works of different painters under the circumstances of the given lesson and test. There are a few surprising exceptions to this general rule as was found in Grade II where one child with a D average in school work was able to recognize 9 out of the 12 paintings in relation to the painters and a child with a C average in school work in Grade III was able to recognize 10 out of the 12 correctly. As children grow older it seems that they are more and more capable of distinguishing the characteristics of different painters' works correctly. By the time Grade V was reached there were only 6 pupils in a class of 26 who could not make this distinction above where it might be merely chance that they were able to discriminate correctly. None of the children in Grade I were able to tell how they distinguished the different paintings from one another even when they were able to do so correctly. 6 pupils in Grade I (a class of 25) got answers correct above where this might be determined by chance.

The pupils, in the test undertaken for the present study, looked for details of the characteristics in the reproductions of the paintings which would tell them which of the artists had painted the works shown to them. The older pupils were able to select and sort out the information given to them in the lesson and to remember and apply it on the verbal and visual level while the younger children were not able to do this. "One of the perceptual skills that art education seems especially suited to develop is the ability to see and deal with visual detail in a selective manner."[1]

---

[1] R.A. Salome, "Perceptual Training as a Factor in Children's Art," Art Education, Vol. XIX, No. IX (December, 1966) pp. 27-29

Table 8 gives the proportion of children's answers that were above and below chance in each of Grades VII, VI, V, and IV so that a comparison may be made.

TABLE 8

PROPORTION OF ANSWERS ABOVE CHANCE

Grade VII	
21/23 no. of answers above chance total no. of pupils	Prop. above chance .913 chance .087 Pupils above chance 21 chance 2
Grade VI	
25/27 no. of answers above chance total no. of pupils	Prop. above chance .926 chance .074 Pupils above chance 25 chance 2
Grade V	
20/26 no. of answers above chance total no. of pupils	Prop. above chance .769 chance .231 Pupils above chance 20 chance 6
Grade IV	
8/29 no. of answers above chance total no. of pupils	Prop. above chance .276 chance .724 Pupils above chance 8 chance 21

In Grade IV and lower than Grade IV chance is uniformly high in the answers of the majority of the pupils.

CHAPTER IX

DISCUSSION

It seems reasonable to start accustoming even younger children than the Grade V level to look at paintings and to discuss them in relation to their characteristics, in some other manner, however, that which was attempted for the present study. Salome says "readiness which permits the mastery of higher skills must be taught for."[1] This is in "opposition to the biogenetic theory, one does not wait for readiness, but teaches for or provides opportunities for its nurture."[2]

In a book edited by Gyorgy Kepes, the Education of Vision, several writers make a plea for visual education for both those who are interested in the arts and those who are primarily interested in the sciences. Gyorgy Kepes states "that there is a fundamental interdependence between perception and conception, between the visual and the rational." There is experimental evidence "in support of the idea that sensory functions belong to an interdependence system -- that there is a primordial unity of sensory and motor processes" which "is extended to include a corresponding interdependence between the sensory and the intellectual: between art and science. And...that because the visual factor has been for so long misunderstood and consequently neglected,there is an urgent

---

[1] R.A. Salome, "Perceptual Training as a Factor in Children's Art," Art Education, XIX No. 9 (December, 1966)

[2] Ibid.

need today for a re-evaluation of the education of vision."[1]

The basic reason for the faculty of perception is so that the child "may learn to react effectively to his environment."[2] The uses to which we put perception are much more numerous than this however. "One of the ways of using perception is in the recognition of objects for pleasure and not only in the interest of safety."[3]

The child is very curious about the world around him and learns much more than merely how to protect himself with his faculty of perception. We can help him in his efforts by teaching him the perceptual values of his own and other cultures, some of which are displayed in paintings produced by these cultures. "Art education not only helps people to develop an individual taste in the arts but also to make them into thinking individuals who have learned to discriminate between what is useful and good in their environment and what is not."[4]

The classes taking the lesson and test in the experiment for the present investigation seemed serious in their efforts to understand what was wanted of them and to try to perform as well as they could. They were all classes of ordinary children, neither very bright nor very dull but those doing average work in their school lessons. There were a few A-students among the groups and also a few Ds, however most of the average class marks ranged from B to C. These groups were taken from a middle-

---

[1]Gyorgy Kepes, Education of Vision (New York: George Braziller, 1965)

[2]M.D. Vernon, The Psychology of Perception (London: University of London Press Ltd., 1963)

[3]Ibid.

[4]B.H. Hayes, Jr., "Art and Education -- Past and Present," Education of Vision, ed. Gyorgy Kepes (New York: George Braziller, 1965)

class neighbourhood, so that an idea of what the average child in these circumstances might be able to do was demonstrated. Although the children were sitting quite close together in the test period it is believed that there was not much copying of answers. The children were told beforehand that the fact that they had good marks in their school work would not determine whether they were able to perform well in this particular situation. A check was made of answers given by pupils sitting next to one another and it was discovered that if two had the name of the artist correct they had different reasons for considering that the painting was done by that particular artist.

The limitation of this study is that only one aspect of the hypothesis was studied -- that of recognizing and remembering the works of artists by children from a middle-class neighbourhood. Experiments could be carried on in other ways and with other groups of children such as the very clever or those from a deprived environment. Also work could be done with a control group to see whether the lesson was necessary for the results obtained in Grade VI and Grade VII. Another test might be given a month or six months, after the lesson and first test, using different paintings by the same four artists. This would determine how well the children had been able to remember the characteristics pointed out to and discussed with them earlier. An interesting study could also be made as to why some younger children (in Grades II and III) are able to perform on the level of adults. Other ideas for further studies are mentioned in the chapter in the present work on Conclusions.

CHAPTER X

CONCLUSIONS

The following are the results of the lesson and test given in relation to the present study. The children below Grade V could not distinguish between different characteristics found in reproductions of paintings when these characteristics had been pointed out to them and discussed and the children, after a ten minute interval, had been tested on the memory image. However at the Grade V level and above it was found that this discrimination was perfectly possible. It appears therefore that for children such as those studied in the experiment Grade V is at least a safe point at which one can begin to discuss with children various characteristics of works of art in this manner, as most children of Grade V and above can be expected to distinguish the above-mentioned characteristics as easily as adults. (A few experiments were conducted by the author of this study with naive adults and their responses were on the general level of pupils in Grades VI and VII.) Whether one could begin with Grade IV or below has not been decisively disproved.

According to the findings of this study awareness of art and its appreciation and history can be taught at least three or four years earlier than they have been taught in the Montreal school systems up to the present; that is instead of beginning at the Grade VIII level one can begin at the Grade V level at least. Below this level it may be very difficult to teach children in the manner that was attempted in the lesson

for the present study. However there are other ways of handling the situation. Discussion of the difference between photographs and drawings and paintings for example might be considered as an introduction to discriminations which are more complicated; or it might prove feasible to have younger children compare the works of different artists and distinguish between their works if one painting was shown as the test painting and others were shown along with it including a work by the artist of the test painting. The children might then be asked to tell which painting of the assortment so presented was painted by the same artist as was the test painting. Another approach, which might relate to the more intuitive aspects of the learning process of younger children, might include a lengthy period of familiarity with certain art works before a testing period. The present author has heard of one isolated case where a child of three years old was able to distinguish between artists' works through having become familiar with such works over a prolonged period of time.

for the present study. However there are other ways of handling the situation. Discussion of the difference between photographs and drawings and paintings for example might be considered as an introduction to discriminations which are more complicated; or it might prove feasible to have younger children compare the works of different artists and distinguish between their works if one painting was shown as the test painting and others were shown along with it including a work by the artist of the test painting. The children might then be asked to tell which painting of the assortment so presented was painted by the same artist as was the test painting. Another approach, which might relate to the more intuitive aspects of the learning process of younger children, might include a lengthy period of familiarity with certain art works before a testing period. The present author has heard of one isolated case where a child of three years old was able to distinguish between artists' works through having become familiar with such works over a prolonged period of time.

CHAPTER XI

SUMMARY

The hypothesis of the present study was that all children of school age could learn to discriminate, discuss, and remember, over a short period of time, characteristics, of style in paintings, that had been pointed out to them and discussed in abstract visual terms. The paintings shown in the test and lesson were all mature works of painters from the 15th to the 19th century. It was thought that paintings from this period would be sufficiently close in style that they would prove a good touch-stone to the discovery of whether the child was capable of such fine discriminations and thus of assimilating stylistically complex periods of art if taught in this manner. The paintings were however examples of different characteristics which were sufficiently obvious for adults to tell them apart without difficulty. The test proved that this was true also for the children from Grades V, VI, and VII. If paintings from very different periods had been chosen such as for example an Albers from the modern period contrasted with a Rembrandt from the Renaissance it was thought that the differences would be too obvious to give an indication of the possibilities of finer discriminations on the part of the children. It was hoped that it would be discovered, by using some of the more complicated styles, to what extent a child could be expected to discriminate. It is still very possible that young children can see without difficulty the differences between widely differing styles from different periods. However the results of this study may indicate that it is difficult for young children to come to grips with

the more complicated styles and to distinguish differences between styles which were more nearly alike than those taken from different periods in the history of art. It may be too that some obstacles to young children are inherent in the lesson and the test given.

It was thought that part of the test should deal with whether the children could remember characteristics of paintings over a short period of time. As discussed earlier in this work education is a process of apperception and not just pure perception. That is, to be of any educative value to the child the information must not only be perceived but must also be remembered over a period of time and the memory of this information added to information he has previously digested.

In the lesson for this study the children were given various characteristics, about ten for each painter, that they might find in the reproductions of the paintings shown them. These characteristics were pointed out to them by the finger of the instructor in three paintings, of each of the four painters, that were shown. The children had a chance to get a close-up view of these reproductions. There was time for the children to take part in a review of the characteristics previously discussed so that they would become used to finding such characteristics for themselves. In the test for this study different reproductions by the same painters were shown to the children in much the same way except that of course nothing was pointed out to them. They were expected to make a translation from what they saw visually to the verbal explanation of this and to write the result on a form provided for the purpose. This translation from the visual to the verbal may have been part of the difficulty that the younger children encountered in attempting to make the necessary discriminations. The children even in the younger grades

seemed to have no difficulty with the spelling of the words relating to their ideas about the paintings. This is probably due to the fact that the experiment was conducted late in the school year. The children in Grade I wrote painfully but the words were recognizable.

The children's reaction to the lesson and test was that most of the children in most of the classes seemed to be interested in the reproductions and to make a real effort to perceive the characteristics that were pointed out to them, as well as to recognize similar characteristics in the works of one painter and different ones in the works of other painters. It was pointed out to them that two of the artists in question used light as their main means of expression and two of the artists used line. These points seemed to be fairly well understood by even the youngest of the pupils as their answers showed that they often took into account these two characteristics. The younger children however were not able to distinguish, orthographically at least, between kinds of light or line and gave answers simply as "light" or "line" instead of trying to describe them. The older children were able to differentiate verbally between the qualities of light and line. Thus the test was completed differently by the different groups and possibly it discriminated against the younger children; it is not known whether the younger children were unable to differentiate "qualities of light ..." or were unable to define the differentiation in writing. In answering the test the children all seemed to make an effort to do what was asked of them. The younger ones seemed very tired after this effort. (The whole process took about an hour for each group.) This was true up to and including the Grade V level but the Grade VI and VII pupils seemed to enjoy themselves very much. When the test was finished the instructor went over the test paintings again, at

the request of the classes, and asked them as a group to identify the artists. The answers from the groups of older children were on the whole correct as is to be expected from the results of the test, and were given with a great deal of enthusiasm. It seemed clear that nobody had attempted to talk to them about paintings in this way before and they seemed pleased with their capabilities and their new knowledge. The general opinion of the class teachers was that none of the children would be successful in telling the differences or if some did it would only be those who were gifted in art. As the test showed this general opinion was proved wrong in the case of the older pupils.

There are some weaknesses inherent in this type of lesson and test in relation to the facts uncovered by them. In a classroom atmosphere, dealing with many children at once, control of the atmosphere is not possible as it is in more restricted psychological experiments. The results of this study were influenced by many factors:- there were many children in the class at one time, the personality of the instructor, the size of the resproductions used, and the complex of processes inherent in the test construction (e.g. the fact that there were many characteristics to watch for in one painting; according to the theory of redundancy, discussed earlier in this study on page 12, this may have been an advantage for the older pupils but for the younger ones it may have proved a complicated factor.) Some of these factors may have accounted for the results as summarized. There were many variables in the lesson and test given for this study. It is possible that it might be considered as a test of the test itself, of the child, of the teacher and her capabilities, of the lesson as given, of the material presented, or of the advisability of using reproductions that were glued to cardboard instead of slides or original

paintings or visual material in some other form. The emotions of the children on that particular day due to a previous lesson or to some other cause must be considered as having had an influence on the results of the test. Some of these effects were offset by the fact that the number of correct responses per class steadily increased so that there were more correct answers in each succeeding higher grade tested though they were not tested successively e.g. Grade IV was tested on the first day while Grade I was tested on the third.

On the whole the children up to Grade V were not able to give correct answers to the test beyond the point where it might have been pure chance that they gave such answers. In Grades V, VI, and VII the majority of the children gave answers that were correct beyond the point of pure chance. There were a few among the younger children who gave answers on the level of the older children and these younger children were not always those who had the best marks in their average school work. This may be accounted for by the well-known psychological fact that some people who have little aptitude for certain tasks may do very well at others.

This study shows that the children from Grade V through Grade VII were successful in their attempts to recognize visually the different characteristics in works of painters of similar periods, to transpose this recognition into verbal terms and to write this down. The younger children from Grade I through Grade IV under the particular conditions presented by this lesson and test and discussed above did not on the whole appear to be capable of making the necessary discriminations. This is not to say that it is impossible for younger children to be educated in the history and appreciation of art. However according to the terms of the present study

this was discovered to be unfeasible under the conditions. Several methods were mentioned earlier in this study, in Chapters IX and X, which might prove more appropriate for younger children. For instance a discussion of the difference between photographs, drawings, and paintings might be considered as an introduction to discriminations which are more complicated. It might prove feasible to have younger children compare the works of different artists and distinguish between their works if one painting was shown as the test painting and others were shown along with it including a work by the artist of the test painting. The children might then be asked to tell which painting of the assortment so presented was painted by the same artist as was the test painting (recognition by matching). Another approach, which might relate to the more intuitive aspects of the learning process of younger children, might include a lengthy period of familiarity with certain art works before a testing period. Another possibility would be the showing of paintings which differed more widely from one another such as paintings from the modern abstract period and paintings from the Renaissance. A question which might well be looked into is the possibility that a lesson of the type described, or any other, is not necessary for the discriminations that this study is concerned with, although from information presented by other studies this seems highly improbable. As quoted earlier in this study (on page 13) Dale Harris states "that the discussion of formal principles is unnecessary to learning discrimination, though undoubtedly attention to such principles facilitates learning".[1] This possibility might be tested by having a control group of children take

---

[1]Dale Harris, "Aesthetic Awareness, A Psychologist's View," Art Education, XIX No. 5 (May, 1966)

the test without having previously been given the lesson. Another question is whether the children are able to retain the information learned. This might be tested by giving another test of the same sort to the same children six months later using different works than those previously shown but works by the same four artists at the same period of their development.

The present study concerned itself with groups of children from a middle-class neighbourhood who were considered to be average in their general school work. Other investigations might be carried on in other neighbourhoods and with a different type of child. If a body of material of this sort could be acquired the results of the total would be more conclusive than those which can come from a single investigation such as the present one.

Background study is given, in this investigation, on perception and children's discovered capabilities along these lines by both art educators and psychologists. The necessity for visual education and its combination with verbal education is also discussed.

TABLE 9

COMPLETION FORM

Name

Grade

Age Birthday

Artists	How do you know?

Other artists that you know

BIBLIOGRAPHY

Books

ARNHEIM, RUDOLF. Art and Visual Perception: A Psychology of the Creative Eye. Berkeley and Los Angeles: University of California Press, 1954.

BORING, EDWIN G. Sensation and Perception in the History of Experimental Psychology. New York: D. Appleton, Century Company Inc., 1942.

GIBSON, JAMES J. The Perception of the Visual World. Boston: Houghton Mifflin Company, 1950.

HARRIS, CHESTER W. (ed.). Encyclopedia of Educational Research. 3rd ed.; New York: The Macmillan Company, 1960.

HOFFMAN, MARTING L. and LOIS WLADIS (ed.). Review of Child Development Research. New York: RussellSage Foundation, 1964.

KEPES, GYORGY (ed.). Education of Vision. New York: George Braziller, 1965.

LEE, H.N. Perception and Aesthetic Value. New York: Prentice-Hall Inc., 1938.

McFEE, JUNE. Preparation for Art. San Francisco: Wadsworth Pub. Co., 1961.

PIAGET, JEAN. The Origins of Intelligence in Children. trans. ed. Toronto: George J. McLeod Ltd., 1963.

VERNON, M.D. (ed.). Experiments in Visual Perception. Harmondsworth: Penguin Books Ltd., 1966.

_____. The Psychology of Perception. London: University of London Press Ltd., 1963.
This work has very good sections on the psychology of perception in children.

Articles and Periodicals

HARRIS, DALE. "Aesthetic Awareness, A Psychologist's View," Art Education, XIX No. 5 (May, 1966)

SALOME, R.A. "Perceptual Training as a Factor in Children's Art," Art Education, XIX No. 9 (December, 1966)