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A comparative study of the creative expressions in paint and clay of deaf and hearing children

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A COMPARATIVE STUDY OF THE CREATIVE EXPRESSIONS IN PAINT AND CLAY OF DEAF AND HEARING CHILDREN

by

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CHAPTER I

INTRODUCTION

The aim of every sincere teacher of the deaf is to educate his pupils in such a way that they will eventually be able to take their places in a hearing world, not dependent upon charity nor too greatly limited in vocational opportunities because of their handicap. In order to achieve such an aim, many educators of the deaf teach speech, lip-reading, language, reading, writing, arithmetic, geography, history, science, and manual training. These things are all necessary, just as all but the first two are necessary for hearing children. Nevertheless, it has occurred to the author that in spite of all the work and energy expended, there is something missing in this program. That something is creative expression through art media.

The word "creative" is used more and more often--not only in connection with child education but with adult education as well. Many educators have not accepted the importance of creative work in education, but those who have agree that, properly applied, creative expression in art offers endless educational opportunities. Let us consider a few it offers the handicapped.

First, all handicapped children, including the deaf,

are limited in their avenues of expression, and limited, therefore, in their outlets of energy. Many of them express such frustration in frequent temper tantrums, in nervous habits, in inattention, or in mischief. Why, then, do not educators make greater use of all possible means for expression as early as possible in the lives of such children?

Secondly, and this applies primarily to the deaf, a study of such creative expressions might lead to valuable information concerning the creator's interests and abilities long before the artist could express these interests or abilities understandably in spoken or written language.

Third, if a deaf child were encouraged, throughout school, to express himself as freely in some medium he enjoyed, as he is urged to express himself in oral and written language, such expression would undoubtedly lead to more enthusiasm for and interest in language. If, for example, after a trip to the farm, a deaf child were allowed freely to express his ideas in any one of several media, his teacher would very shortly find out certain things about him which otherwise she might never discover. She could see at a glance what animals he was interested in, what activities around a farm impressed him the most, or whether he even

understood the activities at all, and whether the language by which she had explained farm life had helped him in his understanding or not. Then many language lessons could be built from the creative expressions of each child in the class, about that one visit to a farm. Thus, the teacher could not only save herself a great deal of wasted time and energy, but by utilizing the expressed interests of each child, could get more fluent language from him. Other things being equal, interesting activities tend to be repeated. Because much repetition of language constructions is necessary for their mastery by deaf children, the teacher of the deaf would be wise to base this language work on those phases of an activity in which the child had been interested enough to express himself through some media wherein he could experience more success than in language. A young deaf child can express more ideas through art than he can through language for a long period in his development, and, furthermore, express them more fluently.

Feeling so strongly the importance of creative expression to deaf children, the author set about to discover something of their interests and abilities as might be expressed in paint and clay. Since the aim of educators of the deaf is to fit deaf children into a hearing world, the standards for measuring the characteristics and accomplish-

sents of hearing children are used for the deaf whenever possible. For example, the Stanford Achievement Test is employed by teachers of both deaf and hearing groups for measuring achievement in school subjects. However, when the field of creative expression in these two media was examined, it became apparent that no standards existed by which the creative expressions of deaf children could be measured against those of hearing children of the same approximate age and intelligence. For this reason, it was necessary to use both hearing and deaf children in the study, and to set up comparative measures for creative expression.

The purpose of the study, therefore, was four-fold:

1. To obtain a representative sampling of the spontaneous and creative work in paint and clay of a group of eight deaf and eight hearing children, matched as to sex, age, and intelligence.
2. To compare the paintings and modelings done by each deaf child with those of his hearing partner to determine how the deaf child differed from the hearing in interests as expressed by the paintings and modelings.

3. To classify the paintings and modelings of each child to determine whether each deaf child had reached the same level of development in ability to paint and model as his hearing partner.

4. To compare the activities of the deaf and hearing children during their creative moments by means of recorded observations obtained in the individual periods of work.

CHAPTER II

HISTORY

In the more recent literature of education such terms as "creative self-expression", "creative effort", and "creative activity" occur again and again. These phrases are apt to become mere catch-words in the teaching profession unless their origins are studied and their meaning understood. In order to study these origins not only the history of art education but the development of two distinct theories of education in this country must be examined. For this examination, the author has roughly divided the history of American education into two periods---one extending from the early part of the 19th century to about 1900, and the second, from 1900 to the present time.

Prior to 1900, education in general took a secondary place in the minds of the American public because of the much greater and more immediately pressing needs of the times. A living had to be wrested for each family--in many cases from the wilderness. Communities which sprang up in increasing numbers had to have some form of government. Trade increased rapidly, and the population which grew enormously prior to 1900 was a shifting one. As the population

increased, the schools became crowded. It was necessary for the heads of the schools to find teachers for those children and provide materials for study. As a result, the educational leaders were forced to concentrate upon administrative details to the exclusion of considering children's individual needs or of considering education in terms of children's total growth. This is well explained by Payne, in the Introduction to "Creative Education" by Crow, and by Rugg and Shumaker in "The Child Centered School":

> During America's early development, the character and the educational needs of the time caused the emphasis in education to be placed upon the mastery of a limited body of subject matter, and therefore the aim of education was acquisition of knowledge. In the period of our early history the problems of living provided wide opportunity for constructive thought and creative action. To the school was left the more limited task of imparting knowledge. This historical emphasis, moreover, growing out of the needs of life, came in time to dominate the whole educational process. The force of tradition continued the educational program and methods, in spite of the fact that the conditions out of which the program had grown had ceased to exist and new problems and needs had arisen. . . .[1]

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[1] Crow, Charles S., Creative Education. New York: Prentice-Hall, Inc., 1937. Editor's Introduction, p. xxv.

> For a whole century America's educational leaders, confronted by the overwhelming task of housing the increasing hordes of children, of selecting and training thousands of school teachers, and of persuading the unwilling public to finance modern universal education, were compelled to concentrate their attention upon school administration. And it fell out that they got the habit of attending only to administration. In the exigencies of practical affairs demanding immediate action little time or energy was left for the consideration of abstract problems of educational theory. So it happened that in all this time the curriculum was merely tinkered into a patchwork of school subjects, graded to fit the chronological grouping of boys and girls. Even well into the twentieth century the school curriculum ignored almost totally the emerging economic and cultural problems and institutions of contemporary life.[2]

What was the place of art in the schools during this period of development?

> The early history of drawing, like the early history of other school innovations, offers the familiar picture of a small and scattered group of enthusiasts on the one hand, and an apathetic public and antagonistic school faculty on the other . . . What drawing did appear was expressed in terms of culture rather than use.[3]

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2 Rugg, Harold and Shumaker, Ann. The Child-Centered School. New York: World Book Co., 1928. pp. 16-17.

3 Haney, James P., Art Education in the Public Schools of the United States. New York: American Art Annual, Inc., 1908. pp. 21-22.

Eventually, however, the efforts of this "small and scattered group of enthusiasts" obtained some results.

> Notwithstanding the efforts of William B. Fowle (Boston, 1830-1830), Horace Mann (Boston, 1837-1848), Reubrandt Peale (Philadelphia, 1840-1844), and Henry Barnard (Hartford 1838-1867), drawing did not become firmly established as a required study in public schools until 1870, when the Massachusetts Legislature approved an act including drawing among the branches of learning to be taught in the public schools of the state. Between 1870 and 1907 drawing was made one of the studies required in public schools by act of legislature in thirty-one others. . . .[4]

A more detailed history of the efforts of these and other early educators may be found in "Art Education in the Public Schools of the United States" by Haney.[5]

How was drawing taught, once it became part of the curriculum? From the time drawing was introduced until well into the twentieth century, there was no such thing as spontaneous, creative or free expression in art in the classroom.

> Naturally, therefore, up to that time (1900) those interested in using the arts as media

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[4] Bailey, Henry T., "Drawing", Monroe's Cyclopedia of Education, II, 386, 1913.

[5] Haney, op. cit., pp. 32-45.

> for general education were compelled to devote their chief energies to getting art into the curriculum on any basis. Neither the administrators nor teachers had the slightest notion of creative art and understood little of what even the better "representational" artists were trying to do. Art to school people was mysterious, something set aside from the experience of everyday living. If provided for in the school at all, it was to be treated as a special subject, like music. . . .[6]

In the history of art education very little reference is made to the use of clay. Although clay was possibly among the first materials used in art education in school, there is a dearth of literature concerning its use.

> Clay modeling is by no means a new factor in the school curriculum, yet for some reason educators have devoted less time to discussing it, at least in print, than to almost any other subject taught.[7]

Thus it seems that the history of art education consists mostly of the history of drawing. The author was unable to find the year in which clay as a medium for art work was introduced in the classroom, but it was already in use

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[6] Rugg and Shumaker, op. cit., p. 209.

[7] Expression as a Means of Training Motive, Francis W. Parker School Year Book, III, 156. (Chicago: Faculty of Francis W. Parker School, 1914.)

by 1892.[8] In 1899, Holland wrote "Clay Modelling for Schools", listing the advantages of clay as a medium for art instruction and discussing its use in the classroom.[9] Therefore, it may safely be said that although drawing was probably the first medium used in art lessons, clay was also used at least a decade before the turn of the century.

In 1892 a small book entitled "Clay Modeling in the School-Room" by Hildreth was published.[10] The following statements may be found in the preface:

> . . . Briefly stated Clay Modeling In The Schoolroom is a manual of instruction in the knowledge of form, comprising a series of exercises based in the curved solids, sphere, spheroid, ovoid, cone and cylinder.
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> . . . Clay work in the schoolroom must constantly combine beauty and use and never be allowed to drift into aimless play.[11]

Thus, certain practices in the teaching of art, in both clay modeling and drawing were developed from the

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[8] Hildreth, Ellen S., Clay Modeling in the School-Room. Springfield, Mass.: Milton Bradley Co., 1892.

[9] Holland, Anna M., Clay Modelling for Schools. Boston: Ginn and Co., 1899.

[10] Hildreth, op. cit., p. v.

[11] Ibid., p. vii.

beginning of their use in the classroom.

> One of the first practices which thwarted creative expression in the art was the use of manuals, syllabi and outlines. These commercial publications were cheap and turned art into a "subject."[12]
>
> Closely connected with this practice, we find the use of the copybook, in which all the children made the same picture from the same kind of copybook. The teacher reigned over the process and evaluated the results.[13]

Rugg and Shumaker describe these practices further and in greater detail.

> These schemes were concerned mainly with the teaching of drawing and were frankly designed to fit administrative conditions. Every child would have a pencil. He could learn to draw, as he learned to write, from a copy-book. The teachers had little imagination and knew little about how to originate; only occasional rare mutants among them had even imitative skills in the use of pencil and crayon. Paints were expensive, not available in cheap commercial form, and furthermore, were messy and destructive to the complacent order of the efficient classroom. Freedom, activity, self-expression, had as yet no meaning in the schools' vocabulary.
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> Hence, in the 1890's and the early 1900's, the almost instantaneous success of the commercial "drawing books". The technique was direct imitation of set models, not of

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[12] Talbott, Ruth, "Classroom Teacher's Guide to Child Growth in Creative Art," (Unpublished Master's thesis, Ohio University, Athens, Ohio, 1936), p. 16.

[13] Ibid., p. 17.

the work of the teacher, nor of the real objects. Fine art or free-hand drawing consisted of painstakingly copying the pictures of things. Children, naturally interested in portraying their ideas of objects in the inanimate world, of pose and actions of the animate, or even in scribbling for the sheer love of manipulation and movement, were not permitted to begin with this natural starting point. Drawing from objects and from life was gradually introduced with the development of the psychology of pedagogy and the appointment of professors of art in our new schools of education. But these latter, interested mainly in art rather than in childhood, hedged this form of graphic representation about with rules of procedure, demands for precision, and emphasis upon a degree of exactness which the child's motor coordination was incapable of achieving. Hence a natural antipathy developed against art in our schools. Children disliked the art class because their efforts did not achieve a satisfying result, and the conviction deepened on the part of the ninety and nine that not only drawing and painting, but also the understanding of art, the enjoyment of pictures and sculpture, were for only the talented few. The early years of the development of art instruction, therefore, were marked by uneducative aims. Imitative representation, copying, drawing, and painting by rule of thumb crushed individuality, discouraged spontaneity and originality.[14]

. . . Art was not creative activity--another medium for growth through self-expression.

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[14] Rugg and Shumaker, op. cit., pp. 310-311.

It was an intellectual matter--a body of facts and principles to be acquired, a set of techniques and tools to be mastered for the understanding of those principles. Most of the books on art and art appreciation in the school which have been produced since 1900 have revealed the same emphasis upon learning as acquisition, upon growth as initative understanding.

Turn through these manuals, these pedagogical books on teaching youth to draw, to paint, to model. You will note that they are concerned principally with the development of a graduated series of steps by which young people may learn to draw, by which they may learn to reproduce frequently recurring forms. As the authors of one of the most influential of these early manuals phrased it, they were concerned to build up in the child a "graphic vocabulary". Now, these workers did recognize that "children draw well only when they wish to tell some specific thing by their drawing." Being themselves sensitive to art, real lovers and appreciators of the fine, of the beautiful, they sensed that each child has some potentiality for artistic insight.

Working in teacher-training institutions, however, they were constantly reminded that whatever they did for the schools must fit the administrative conditions of large classes, untrained teachers, a rather inflexible time schedule, and lack of art materials. Hence, in trying to help quantity production of art in the schools--an attempt into which they never should have been led--they concentrated upon methodology, upon developing a graduated scheme by which boys and girls could learn the technique of representative drawing. Naturally, therefore, the essence of their whole product was imitative representation. Drill, technique,

> copying were to be the central means by which skill and correlation were to be built up. Thus the emphasis was altogether upon acquisition, adaptation, conformity; upon following a set "scheme"? Indeed, the books supplied the pupil with schemas of the object to be represented. They expected him to follow set rules of procedure, leaving his own variations and interpretations out of consideration until the schema had become more or less fixed.[15]

In summary, up to the turn of the century there was emphasis upon technique, methods, and administration throughout our whole school system. And here, with some overlapping in the matter of time, may be seen the beginnings of a new trend in education, a new child-centered philosophy which was destined to have slow but far-reaching effects upon the whole field of education, but particularly upon art. In fact, it was in the field of children's art, preceding Dewey's work, that a mention of child-interest was made.

> * * * As early as 1885 Ebenezer Cooke published an article on children's drawings in which he described the successive stages of development as he had observed them, and urged that art instruction in the schools be made to conform more nearly to the mentality and interests of the child. Cooke's article attracted much attention and had a decided influence upon educational practice.[16]

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[15] Ibid., pp. 218-219.

[16] Goodenough, Florence L., Measurement of Intelligence by Drawings. New York: World Book Co., 1926, p. 1.

Eleven years later, in 1896, John and Mary Dewey started a revolutionary type of school.

> According to Dewey's theory, therefore, the life of the school was to be active, not passive; the children were to work, not merely to listen. The curriculum was to be organized around four chief impulses: the social instinct of the children, the instinct of making--the constructive impulse, the expressive instinct--the art instinct, and the impulse toward inquiry or finding out things.[17]

At first Dewey's theory met with very little enthusiasm on the part of educational leaders.

> During these pioneering years in the first decade of the twentieth century the propagation of the child-centered educational philosophy was slow and difficult. . . .[18]

However, interest in the child developed in another direction. From 1900 on there developed the scientific study of education--surveys, rating systems and measurements in administration and class room procedure. Analysis of the mental capacities of children was perhaps the most striking contribution of the work of these technicians. These students of science in education made a valuable contribution in bringing to the fore a new concept--the

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[17] Rugg and Shumaker, op. cit., pp. 39-40.

[18] Ibid., p. 45.

concept of analysis.[19]

This scientific interest in children carried over into the field of children's art. The scientific interest in children's drawings reached its greatest height between 1900 and 1915. During this period there were two great international research undertakings. One was done by Lamprecht, in which drawings were made according to standardized directions by children all over the world and on all levels of culture. The drawings were sent to Lamprecht for examination and comparison. He was primarily interested in the question of racial similarities and differences. Another investigator, Ivanoff, adopted a plan of Claparede, who proposed a careful study of the developmental stages in drawing. Ivanoff worked out a method of scoring the drawings according to a six point scale which considered (a) a sense of proportion, (b) imaginative conception, and (c) technical and artistic value. He then compared the obtained values with teachers' ratings for general ability, standing in each of the school subjects, and certain moral and social traits. He found a positive correlation in almost all instances.[20]

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[19] Ibid., pp. 27-32.

[20] Goodenough, op. cit., pp. 1-2.

One of the first scales for the measurement of drawing ability was devised by Thorndike in 1913.[21] In 1915 Childs supplemented the Thorndike Scale and used it to measure the drawing ability of over two thousand children in Indiana public schools.[22] In 1919 Manuel presented his study of the essential psychophysical characteristics of persons talented in drawing, and explained how the test method might be used to diagnose such talent.[23] A new type of scale for measuring progress in drawing year by year or grade by grade was developed by Kline and Carey in 1922.[24] In 1924 McCarty's study of the interests and abilities of children in the kindergarten, first and second grades was published. This is

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[21] Thorndike, Edward L., The Measurement of Achievement in Drawing. (Teachers College Record, Vol. XIV, No. 5). New York: Teachers College, Columbia University, 1913.

[22] Childs, H. G., "Measurement of the Drawing Ability of 2177 Children in Indiana City School Systems, by a Supplemented Thorndike Scale." Journal of Educational Psychology, VI (1915), pp. 301-408.

[23] Manuel, Herschel T., A Study of Talent in Drawing. (School and Home Education Monograph No. 3.) Bloomington, Ill.: Public School Pub. Co., 1919.

[24] Kline, Linus W. and Carey, Gertrude L., A Measuring Scale for Free Hand Drawing. (Johns Hopkins Studies in Education No. 5.) Baltimore: Johns Hopkins Press, 1922.

one of the largest studies ever made of children's drawings--over thirty thousand were used.[35] In 1926 Goodenough studied the intellectual factors involved in the spontaneous drawing of young children, and constructed a scale to be used in the measurement of these factors.[36] Another scale for the measurement of quality in children's painting was developed by Tiebout in 1926.[37] Since 1930 there have been any number of scientific studies of the creative expression of children. Some of these are studies of children's interests,[38] others are studies of the stages of development in painting or drawing,[39] and others are

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35 McCarty, Stella A., Children's Drawings - A Study of Interests and Abilities. Baltimore: Williams and Wilkins Co., 1924.

36 Goodenough, op. cit.

37 Tiebout, Carolyn, The Measurement of Quality in Children's Painting by the Scale Method. (Studies in the Psychology of Art, II. Univ. of Iowa Studies in Psychology, No. 19.) Princeton: Psychological Review Co., 1926, pp. 85-93.

38 Richardson, Hollye, "Children's Interests as Revealed by Their Drawings in Intermediate Grades." (Unpublished Master's thesis, Peabody College, Nashville, Tenn.) 1926.

39 Goulling, Mary S., "Drawing and Painting as Graphic Expression of First Grade Children." (Unpublished Master's thesis, Peabody College, Nashville, Tenn.) 1926.

studies of creative expression or creative power in general.[30] It can readily be seen that the scientific study of children has not only continued to the present time, but that the number of such studies has steadily increased from decade to decade since 1900.

To return to the period around 1900, it is interesting to compare the theory of education before 1900 with that developed since then, beginning with Dewey.

> We find as sharp a contrast in theory between the old and the new at this point in our analysis as in our consideration of other aspects. The spirit of the old school was centered about social adjustment, adaptation to the existing order. The aim of conventional education was social efficiency. Growth was seen as increasing power to conform, to acquiesce to a schooled discipline; maturity was viewed from the standpoint of successful compliance with social demands.
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> In the new school, however, it is the creative spirit from within that is encouraged, rather than conformity to a pattern imposed from without. . . This success is due not so much to the changed viewpoint concerning the place of art in education as to the whole new theory of self-expression, the emphasis on the place of creative originality in life. Art in the new school is permitted; in the old it was

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[30] Webb, Ruth K., "Creative Expression in the Elementary School". (Unpublished Master's thesis, Geo. Washington University, Philadelphia, Penn.) 1933

> is that seeking to determine the place of the school and the teacher in a program that will eliminate the deficiencies of other agencies as they have appeared in recent times. . . .[33]

The aims of the new education are summarized by Rugg and Shumaker:

> Experience has a twofold significance, and the aims of the new education encompass it all; on the one hand, maximum growth in creative self-expression, on the other, tolerant understanding of self and of society. . . .[34]

Here at last the term creative self-expression is included in the aims of education. The struggle to obtain this inclusion began with Dewey, and even today this new concept of education has been accepted by all too few educators.[35]

> A careful and sympathetic review of the educational history of the arts during the forty years or so in which they have had a begrudged place in the curriculum, leads to but one conclusion. That conclusion is that not more than a handful of school people have recognized the tremendous opportunities in the materials of graphic and plastic arts as effective media for education.

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[33] Crow, op. cit., p. xxv.

[34] Rugg, and Shumaker, op. cit., p. 8.

[35] Ibid., p. 305.

> imposed. The new school assumes that every child is endowed with the capacity to express himself, and that this innate capacity is immensely worth cultivating. The pupil is placed in an atmosphere conductive to self-expression in every aspect. . .[31]
>
> . . . The child is permitted to set his own standards as he works. . . . The emphasis is not upon finished work, skill, and technical perfection, but upon the release of the child's creative capacities, upon growth in his power to express his own unique ideas naturally and freely, whatever the medium.[32]

An understanding of the newer trends of education is further clarified by Payne.

> Several movements and emphases, therefore, are in evidence, among them the emphasis upon creative education. We do not have to seek far to discover the need for this emphasis. The complex conditions of modern life and the restrictions thus enforced upon the behavior of youth tend to develop stereotyped personalities and to curtail the creative spirit and prevent creative expression. As a matter of fact, in the complex life of the twentieth century, there is little occasion or opportunity for creative expression of youth in the natural situations in the family, the play groups, the neighborhood, or the community. Perhaps, therefore, the most important emphasis in modern education

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[31] Rugg and Shumaker, op. cit., p. 62.

[32] Ibid., p. 64.

> In the new schools only, and in but a few of these, has the central significance of creative self-expression been grasped. . . .

Does this condemnation of the blindness of school people to the possibilities of creative self-expression extend to educators of the deaf? To answer this question, the literature of the education of the deaf, which is unfortunately quite scanty, must be examined.

The first mention of creative self-expression occurs in an article discussing the differences between a project and an activity:[36]

> An activity implies action, practice, and should always meet the individual's felt need. It implies self-expression, which may or may not be creative.

The only other mention of creative self-expression or ability found was in an article dated 1933. The point brought out in this second article was not that educators should encourage creative expression in deaf children in order to enrich the child's personality or to learn more about him and his needs. The emphasis lay in another direction.

> The industrial world of today is a highly specialized one. Trained workers are in

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36 R.H., "What is An Activity?" Volta Review, XXXV (Sept. 1933), 383.

> demand in order to keep the wheel of industry running smoothly and steadily. Thus it is that our schools for the deaf are wisely placing a greater emphasis on the vocational training of the deaf child. But long contact with precise machinery makes automatons of trained workers. Perhaps this may be all the better in some respects, but it is a fact that the creative element is still of great value in most of the industrial mills of today. Care should therefore be taken to impart some amount of this creative element in the deaf child during his school years, and it should be begun at an early age.[37]
>
> . . . . Art education and creative ability should be part of the educational program, directly or indirectly, of the deaf child throughout his school life.[38]
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> . . . . If the children are properly trained from an early age, the creative element should show itself strongly in their later work, and should be much more to their practical advantage than machine-like training alone. With the present movement for art in American industry, and the art-consciousness that has swept the country, the deaf, with their keenly appreciative sense of sight and their undisputed manual dexterity, should, with proper training, find a great new field for themselves on the creative side of our modern industries.[39]

All this is undoubtedly true, but there may be more

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[37] Kowalewski, Felix, "Art Education for the Deaf", American Annals of the Deaf, LXXXIII, No. 4 (Sept. 1938), 359.

[38] Ibid., p. 361.

[39] Ibid., p. 362.

to this question of creative self-expression for the deaf than merely a specific field for adult employment. Have the possibilities of this type of education for teaching language to the deaf--one of the greatest problems in their education--been fully realized?

It is true that the activity program, or the idea of teaching through experiencing has long been used as a means of teaching language--it is practically impossible really to teach a deaf child new language unless he actually experiences the situation for which the language is to be taught, at least in the early years of his education.

> Every progressive teacher of the deaf has found that natural, fluent language can be developed only from the child's own experiences. . . .[40]

In this connection a great many activities are used throughout each year of a deaf child's school life. These are related to many things--home life,[41] community life,[42]

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[40] Blair, Mary, "Projects in the First and Second Grades", Volta Review, XXXIV (Feb. 1932), 59.

[41] Wenzlaff, Susan C., "A Project and Its Application", Volta Review, XXXI (Nov. 1929), 732.

[42] Berry, Helen, "The Wayne Grocery Store", Volta Review, XXXV (Jan. 1933), 41.

farming,[43] transportation,[44] special occasions,[45] etc.—and in each activity the teacher integrates as much subject matter as possible—arithmetic, reading, writing, speech, lipreading, language, art work and manual training, such as sewing or construction work. In fact, the whole idea of teaching through activities has long been established in schools for the deaf, although the date of the first activity in a school for the deaf is not mentioned in any available literature. In a personal letter dated February 19, 1942, to the author,[46] Montague of the staff of "The Volta Review", a magazine devoted to the work for the deaf and hard-of-hearing, says the following:

> I think it is pretty well known that the activity program as well as visual education were well established in schools for the deaf before the regular schools found out about them.

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43 Dunlap, Mary M., "Activities with a Special Group". Volta Review, XXXVII (Aug. 1935), 461.

44 Loc. cit.

45 Coburn, Alice T., and others, "The Bell Walkaway Circus". Volta Review, XXXVII (Nov. 1935), 719.

46 Personal Correspondence of the Author, letter from Harriet Montague, Feb. 19, 1942.

This substantiates the previous statement, but it does not fully answer the questions as to the opportunities for free self-expression in schools for the deaf.

It may safely be assumed that such opportunities exist wherever the activity program is being utilized to the greatest possible extent. They may also exist in special art classes, although there is no mention of such opportunities in the literature. However, the extent to which they exist, or the utilization which teachers may make of creative expression on the part of their pupils is not on record. It cannot, therefore, definitely be said that the blindness of educators in general to the possibilities of creative self-expression extends to educators of the deaf. It can be said only that the use of experiences and activities in teaching the deaf is widespread, and that the question of the amount of free, creative self-expression in schools for the deaf is still undetermined.

In conclusion, the history of education for hearing children shows that although the idea of creative education is almost fifty years old, its possibilities are only beginning to be realized by educators. It is conceivable that creative education has been used with deaf children longer than with the hearing, but no records are available which

say so. Apparently, no study of the procedures used with deaf children has been made. There are many uses to which such a study could be put, especially with reference to the re-organization of classroom procedure along lines which would help the deaf better to adjust themselves, industrially and socially, in a hearing world.

CHAPTER III

PROCEDURE

A. Re-statement of purpose:

The purpose of this study was four-fold:

1. To obtain a representative sampling of the spontaneous and creative work in paint and clay of a group of eight deaf and eight hearing children, matched as to sex, age, and intelligence.
2. To compare the paintings and modelings done by each deaf child with those of his hearing partner to determine how the deaf child differed from the hearing in interests as expressed by the paintings and modelings.
3. To classify the paintings and modelings of each child to determine whether each deaf child had reached the same level of development in ability to paint and model as his hearing partner.
4. To compare the activities of the deaf and hearing children during their creative moments by means of recorded observations obtained in the individual periods of work.

B. Procedure in brief:

1. Eight deaf children were matched with eight

hearing children according to age, sex, and intelligence. A minimum of ten paintings and clay models was obtained from each child. The children worked individually and were allowed as much time to complete their work as they wanted. The paintings were marked with one symbol representing the name of the artist and another symbol representing the time at which the painting was made. Each child's paintings were placed in a folder marked with the symbol which stood for the artist's name, and a record was kept of each child's statement of the content of his paintings. The clay models were arranged on shelves in the examiner's room, and a record kept of the object modeled and the date on which it was made.

2. In order to find the interests as expressed in paint and clay by both groups of children, the paintings and clay models were examined twice by the author.

   a. The first examination made was a grouping of both the paintings and the clay models according to types of paintings and models made. Those made by the deaf children were compared

with those made by the hearing children. The following categories were used:

1) For paint:

I. Mere delineation of objects, related or unrelated

II. Design

III. Composition, story, or action

2) For clay:

I. Object merely modeled and named

II. Design

III. Story, action, or series of related objects if the child made more than one object in a period and showed by word or gesture that they were meant to be related.

b. The second examination was an enumeration of the objects painted in those paintings placed in Type I and the objects modeled in Type I by each child, and the number of times those objects were painted and modeled by each artist.

3. One examination was made of both the paintings and the clay models. A jury of six judges examined the

expressions in both media. A typewritten statement was attached to each painting, and a similar statement was put under each clay model. These statements explained what the paintings and clay models were. The following classifications were used for this examination:

a. For paint:

1) Scribbling stage--no meaning is given to the picture.

2) Symbolic stage--scribble with meaning attached by the artist. The objects painted would not be recognized without definition.

3) Schematic stage--the objects begin to resemble what they are supposed to represent. The artist has drawn what he knows to be true rather than what he sees.

4) Representative stage--the objects painted are clearly defined and detailed, and the artist has made use of perspective and/or light and shade.

The six ratings thus obtained for each painting were averaged.

b. For clay:

1) Manipulative stage--corresponds to the scribbling stage in paint. The object modeled in no way resembles that which the artist said it was.

2) Symbolic stage--the object made has definite form. It resembles the object which the artist says it is, but is crudely made.

3) Realistic stage--the object is well modeled, detailed, and easily identified.

The six ratings thus obtained for each clay model were averaged.

4. Finally, the activities of the children during the experimental periods were recorded. A comparison was made of the activities of the deaf with those of the hearing children.

C. Obtaining the paintings and clay models:

1. Subjects

Sixteen children were used in this study, eight of whom were deaf and eight hearing. The deaf children attended Central Institute for the Deaf in St. Louis, Missouri. Five of them were resident pupils and three were day pupils. The hearing children attended Stix Elementary School, a public school in St. Louis.

a. Ages

The eight deaf children ranged in age at the beginning of the experiment from 5 years 11 months to 8 years 9 months. These particular children were chosen for the following reasons:

1) They were able to express themselves understandably in spoken language to the examiner. This was necessary to the experiment, since the children had to be able to tell the examiner what they had painted or modeled. It meant that all the deaf children in the study had been in school at least three years, including preschool, and had acquired a speaking vocabulary of at least 300 words and an even larger lipreading vocabulary. It was necessary that they be fluent lipreaders so that they could understand what the examiner said to them.

2) At the lower end of the age limit, McCarty[47] found that the scribble and symbolic stages of drawing reach their culmination, with few exceptions, by

[47] McCarty, op. cit., pp. 133-134.

the time the child is four years old.

> In the evolution of drawing technique four fairly well defined stages have been recognized:
>
> 1. During the scribble stage children make purposeless and meaningless marks, for the mere satisfaction of manipulating the pencil, and seeing something happen as a result.
>
> 2. Soon definite meanings are assigned to these scribblings. They become houses, or persons, or animals according to the child's desire, and assume a place in his imaginative world. Cases are known in which children were able to identify these drawings and name them correctly several months after they had been made, although to the adult observer they bore no resemblance to the objects represented. . . It may be called the symbolic stage, and usually reaches its culmination at four years.
>
> . . . . . .

It is evident that the kindergarten-primary period on the whole coincides with the period of schematic drawing. The scribble stage is in the last stage of transition at four years, and is rarely found in the later years. The stage of symbolism merges rapidly into the schematic. The schematic characteristics--the flat silhouette, unrelieved by shading, or the bare outline, suggesting only dimensions--predominate throughout the period. True representative art appears rarely during these years, although there are evidences of the earlier stages of transition in some drawings.

3) At the upper end of the age limit, Sargent found

that spontaneity of creative work in the primary grades disappears when children in the third or fourth year in school become dissatisfied. He found that at the age of nine or ten, the ability to draw does not develop as rapidly as the ability to see.[48] The development of this critical attitude was also found by Talbott:[49]

> In the first stage of creation, painting is play for the young child, and he is better off with almost no teaching. The creative fantasy must be respected and allowed free play for a long time before any laws of art can be brought to the child without harm.
>
> The child enters the second stage of creation when he is about ten or eleven years old. He is no longer so easily pleased and he becomes critical. He becomes dissatisfied because he cannot express his inner image on canvas.

Rokford[50] writes that in some cases this "natural, spontaneous, creative impulse" diminishes as early as eight or nine years. Childs[51] and Clark[52] agree

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[48] Sargent, Walter, and Miller, Elizabeth. How Children Learn to Draw. Boston: Ginn and Co., 1916, p. 233.

[49] Talbott, op. cit., pp. 31-32.

[50] Rokford, Eugenia. "Creative Environment". The Instructor, XLII (Sept. 1933), 29.

[51] Childs, op. cit., p. 407.

[52] Clark, John S., "Some Observations on Children's Drawings". Educational Review, XIII (1897), 76-79.

that after the sixth or seventh year there is little or no development or improvement in children's drawings, and that this is due to the child's recognition of his inability to draw what he sees.

Since it is not possible to compare scribblings for interest or content, no children younger than five were used in this study. Although there was some disagreement among previous investigators as to the time when children begin to be dissatisfied with their work, the upper age limit for this study had to be set at nine years because of the scarcity of deaf children available between the ages of five and eight.

The eight deaf children chosen were matched with eight hearing children from the Otis Elementary Public School. This school was chosen because of its proximity to the school where the experiment was conducted and because it had a large enrollment, thus giving opportunity for several choices in the selection of hearing children to match with the deaf. The hearing children chosen ranged in age from 5 years 11 months to 8 years 7 months. They were matched with the deaf children as to age and sex. Below is a table comparing the ages of the deaf and hearing children at the beginning of the experiment.

Table 1

Comparison of Ages of Subjects

Deaf		Hearing	
Boys	Ages	Boys	Ages
B	5 yr. 11 mo.	Q	5 yr. 11 mo.
L	8 yr.	W	7 yr. 11 mo.
V	8 yr.	C	8 yr. 1 mo.
S	6 yr. 1 mo.	P	8 yr. 1 mo.
Girls	**Ages**	**Girls**	**Ages**
A	6 yr. 8 mo.	K	6 yr. 7 mo.
J	6 yr. 8 mo.	M	6 yr. 6 mo.
H	7 yr. 5 mo.	N	7 yr. 6 mo.
Y	8 yr. 9 mo.	I	8 yr. 7 mo.
Mean:	7 yr. 5 mo.	Mean:	7 yr. 3 mo.

*Throughout this study the children are listed in all tables as they are listed in Table 1.

b. Intelligence quotients of subjects

1) Test used:

The intelligence test used for the measurement of the intelligence of both the hearing and the deaf children in this study is purely a performance test for school age children. It was selected and standardized by Lane and Schneider in 1940.[53] The test is in reality a scale, composed of several standardized

[53] Lane, Helen S. and Schneider, Jennylouise. "A Performance Test for School-Age Deaf Children". American Annals of the Deaf, LXXXVI, No. 5 (Nov. 1941), pp. 441-447.

performance tests, presented in the following order:

1. Kohs Block Design
2. Knox Cube
3. Seguin Board
4. Manikin and Feature Profile
5. Form Boards
   a. Two-Figure Board
   b. Healy A
   c. Casuist Board
6. Healy Picture Completion I
7. Drawing (for children of mental age of 7 years or less)

Obviously it would not be fair to measure a deaf child's intelligence by any scale which requires verbal response or interpretation of verbal instructions since the subject's score on any such test would be markedly influenced by lipreading ability, number of years in school, the degree of deafness, and the age of onset of deafness. Since no test which measures language ability or understanding could be used in this study, it was necessary to test all children with a performance scale. Although the test is admittedly limited in scope, it does furnish a comparable measure of the intelligence of the children used in this study.

2) Results:

The intelligence quotients of both groups of children are recorded in Table 2, below.

Table 2

Comparison of Intelligence Quotients of Subjects

Deaf		Hearing	
Boys	Score	Boys	Score
B	136	Q	115
L	130	W	80
V	125	C	121
S	105	P	102
Girls	Score	Girls	Score
A	116	X	115
J	143	M	100
H	111	N	153
Y	92	I	145
Means:	119.5	Means:	116.3

2. Situation in which the children painted and modeled

Since the purpose of the study was, first, to obtain a representative sampling of the spontaneous, creative ideas of the two groups of children, the situation in which they painted and modeled had to be as normal as possible, and yet the same for both groups. The possibility of asking every child's teacher to obtain samplings of his painting and modeling during the regular classroom period was decided against for these reasons:

a. The children might be influenced by their associates or by their teacher.

b. It would not be possible for the examiner to note each child's work habits.

c. The conditions under which each child did his creative work would vary considerably, and this might be an important factor in influencing the ideas of any given child.

It was therefore decided that the examiner's own class room would be used for the experiment. This meant that all children, both hearing and deaf, worked under as nearly the same conditions as possible, and all under the control of the examiner. Each child came to the experimental room on an average of once a week, either after school hours or on Saturday morning throughout the experimental period. A schedule of hours was arranged and followed as closely as possible.

3. Media used in the experiment

Two media were used in this experiment, paint and clay. Two were used because it was possible that all children could not express themselves as well in one medium as they might in another.

We should think it a crime to give a child with a

> literary gift no chance to put his thoughts into writing. It is just as truly a crime not to give the child who neither speaks nor writes fluently but whose fingers can speak freely with clay, no chance to say his say to the world.[54]

It is true that perhaps some child in the experiment could have expressed himself better in some medium other than paint or clay, but time did not permit the use of any others. While paint and clay are more commonly used in schools than any other art material, with the exception of crayons, it was possible that these media were new to some of the subjects in the experiment. To these children, the new media might prove a stimulus to greater creative effort.

> We cannot expect everyone to be good in drawing or painting. Some might be excellent in clay work only. Sometimes a seemingly ungifted pupil can surprise one with high grade work, done in a material which he has never before tried. Everyone has more or less originality and it is just a question of finding his medium of expression.[55]

a. Paint

The choice of this medium was influenced by several factors:

1) Painting or drawing is one of the most popular activities of children.

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[54] Francis W. Parker School Year Book, op. cit., p. 138.

[55] Toldi, Hilde, "Creative Art Expressed Mental Disposition of Children". School Arts, XI (June 1941), 358.

> The most universal mode of human expression, other than oral language and gesture, is drawing. . . .
>
> Drawing is also among the earliest instruments for the expression of ideas in early childhood. It is the most typical and universal form of manual representation employed in the kindergarten and the primary school. . . .[55]

2) Paintings are easily collected and preserved.

3) Paintings may be subjected to several types of analysis.

4) Water colors were used instead of regular paints because they are easily removed from clothing in case of accidents and require less care than ordinary paint.

Easels were not used because the colors would run more easily than if the painting were done on a flat surface. Large paper (white newsprint, 18"x24") and long handled brushes were used to encourage large, free movements.

b. Clay

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[55] McCarty, op. cit., p. 7.

There were several reasons for the choice of clay as a medium for expression:

1) It permits of expression in three dimensions, thereby reducing any difficulties of perspective which occur with a medium which permits of expression in only two dimensions.

> Most of the objects that children wish to reproduce have three dimensions; hence the advantage of using clay rather than painting or drawing materials. The attempt to express three dimensions in terms of length and breadth has always presented a big difficulty to the child and the teacher. The child is confused when he has to represent a right angle as an acute or an obtuse angle, and a circle as an ellipse or a straight line. All the difficulties of perspective are non-existent when objects are modelled "in the round."[57]

> It records the actual shape in contrast to drawing, which records only one aspect of the shape--a reduction from three dimensions to two.[58]

2) Mistakes in clay are easily rectified.

> This is a great consideration, as a child who is not naturally capable

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[57] Anthonies, Susanna W., Pottery and Modelling. Bath, England: Pitman Press, 1931, p. 12.

[58] Francis Parker School Year Book, op. cit., p. 138.

> with his hands, or who has had no training to make his hands capable, need not be discouraged; here he has a medium that is not wasted because he has failed to do, at the first attempt, what his mind wished to do. He has failed once, but he can try, try again and again, until at last he succeeds and feels the power which leads to the highest kind of creative work.[50]

3) Permoplast was chosen instead of regular clay because if the objects modeled from it were dropped, they would not break. Permoplast is, however, a plastic like clay, and has many of the same qualities.

Sticks (meat skewers) were supplied with the clay for making outlines in it.

4. Instructions to the children

The children worked individually. The paint, paper, brushes, clay and sticks were put on a long table at one end of the room. When the child came in, he was given the following instructions:

> "Which would you like to do first--model in clay or paint? Fine. You

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50 Anthonies, op. cit., pp. 11-12.

> may model (paint) anything you like--toys, animals, furniture, children, a story or anything else you think of. When you are through modeling,(painting) will you please paint (model) something, too?"

To prevent copying, no child was allowed to see any other subject's work for the duration of the experiment.

5. Number of paintings and models obtained

A minimum of ten paintings and ten models in clay was obtained from each child. It was decided that fewer paintings and modelings would not be representative of each child's ideas and abilities. As McCarty says,[60]

> Obviously, it must be recognized that one drawing is not an adequate measure of any child's range or trend of interest.

These paintings and modelings were made over a period of eleven weeks, from November 13, 1941, to January 31,

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60 McCarty, op. cit., p. 37.

1942. In no case was any child asked to paint or model oftener than twice a week. This prevented any fatigue or lessening of interest, which would have greatly affected any child's work. On the other hand, if any child asked to paint more than one picture or to model more than one object during his period of work, he was permitted to do so. No child was told to hurry nor told that he must finish within a certain period of time.

6. Preservation of paintings and clay models

In order that none of the judges might be influenced either by knowledge of the artist or of the order in which the paintings were made, each painting was marked on the back with the symbol which stood for the artist and the symbol for the time at which the painting was made. The symbol for each child's name is given in Table 1, page 40. The symbols for the order in which the paintings were made are as follows:

Painting 1	x	Painting 7	m
Painting 2	y	Painting 8	o
Painting 3	p	Painting 9	1
Painting 4	s	Painting 10	v

Painting 5	t	Painting 11	a
Painting 6	s	Painting 12	b

If more than one painting was made during a period, the paintings made in that period were marked thus:

Painting 1 x_1

Painting 2 x_2

Painting 3 x_3

etc.

Each child's paintings were put in a folder marked with the symbol which stood for his name. The models in clay were also arranged according to artist and sequence of creation on shelves in the author's room by means of large paper sheets, one for each child. A record was kept of each child's statement of the contents of his paintings. Another record was kept of the object which the child said he had modeled and the date on which it was made.

D. Examination of the paintings by the author:

1. According to three types

This examination is called a typing of the paintings in order to distinguish it from the examination made by the judges, which is called a classification. The typing of each painting was made irrespective of any

stage of development in which the painting might be placed. The classification of each painting was made with no regard for type. For example, three paintings might all have been typed as mere delineation, but one of the three might have been classified by the judges as belonging in the scribbling stage, the second might have been classified in the schematic stage, and the third, in the representative stage.

The paintings in each folder were examined by the author and put into one of three piles, according to whether the painting, in the opinion of the author, was:

I. Mere delineation of an object or series of related or unrelated objects

II. Design

III. Composition, action, or story.

In order to judge in which pile a painting should be placed, the artist's own statement of the subject of his painting was used. In the case of the deaf children, this verbal statement was accompanied by physical activity depicting the picture, whenever

such action was necessary to make the meaning of the painting clear to the examiner. It must not be supposed that the examiner was allowed to read any interpretation into the paintings other than that intended by the artist. If the author mistakenly assumed a painting to be that which it was not meant to be, the artist would explain again and again until the examiner understood. This was true of both the paintings and the clay models.

In Table 3, page 53, each type--I, II, and III--is listed separately. Opposite each type is tabulated the number of paintings made by the deaf boys, the number made by the deaf girls, and the total number of paintings of the deaf group for that type. Following the figures for the deaf children are those for the hearing--the number of paintings made by the hearing boys, the number made by the hearing girls, and the total number of paintings made by the hearing group for each type.

Table 3

Results of the First Examination of the Paintings

	Deaf			Hearing		
	Boys	Girls	Total	Boys	Girls	Total
Type I	22	32	54	31	29	60
Type II	0	5	5	1	0	1
Type III	23	9	32	21	13	34
	Total number of paintings 91			Total number of paintings 95		

2. <u>According to objects painted in Type I</u>

After the paintings were sorted into the three types mentioned, all those placed in Type I were re-examined, and the object or objects in each painting were listed opposite the symbol for each artist's name, followed by the number of times that object was painted by each child. This is recorded in Table 4, which may be found in the Appendix. This Table shows exactly what objects were painted by each child. An object was counted only once for each painting regardless of the number of times it appeared in each painting.

In Table 5, also in the Appendix, the objects painted are listed first. In the next three columns are tabulated the number of times this object was painted by all the deaf boys, by all the deaf girls,

and the total number of times it was painted by all the deaf children. In the last three columns are tabulated the number of times this object was painted by all the hearing boys, by all the hearing girls, and the total number of times it was painted by all the hearing children. Three comparisons may be made from this table at a glance. We may compare the number of times each object was painted by:

a. The deaf boys and hearing boys

b. The deaf girls and hearing girls

c. The deaf group as a whole and the hearing group as a whole.

E. Examination of the paintings by judges:

For this part of the study, the classification of children's drawings as determined by McCarty[61] was used:

1. Scribble stage, consisting of meaningless and purposeless marks.

2. Symbolic stage, consisting of marks which are meaningless to the observer but which have definite meanings assigned by the artist.

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61 McCarty, op. cit., pp. 133-134.

3. Schematic stage, in which the drawings take on definite characteristics and begin to resemble the objects for which they stand. Of this stage McCarty says further:

> While they may attain considerable accuracy and fullness of detail, schematic drawings are characterized by absence of true perspective, of notan (light and shade), of depth and solidity, and texture. They have been described as picture writing, in which the purpose is the expression of ideas, regardless of aesthetic values. They represent what is known to be rather than what the eye actually sees.

4. Stage of representative art, in which the artist attempts to interpret the appearance of a thing. He makes use of linear perspective, light and shade, atmosphere, and composition.

To obtain these classifications six judges were asked to classify all the paintings. Of these, judges 1, 2, and 3 were especially familiar with deaf children, and judges 4, 5 and 6 were especially familiar with hearing children. No judge was the teacher of any child used in the study. This was arranged in order that no one might recognize any child's work and be unduly influenced in determining that

child's stage of development.

Since stages 2 and 3 in the classification used by the judges definitely refer to the artist's interpretation of what he had painted, it was necessary to include some sort of statement of the contents of each painting. For this, each child's statement of what he painted was used. The term "statement", of course, includes gestures, signs, and written as well as spoken language. The author re-wrote each statement so that the judges could obtain no clues as to the artist's identity from the language used in the statements. These re-written statements of all the children (both hearing and deaf) for all the paintings were typed on separate slips of paper. These papers were then mixed, and an experienced teacher of the deaf was asked to read them and indicate which of the statements were, in her opinion, made by deaf children and which by hearing children. The teacher in question was unable correctly to separate the statements by the deaf from those made by the hearing children, so the statements as re-written by the author may be considered objective.

Each judge classified every painting independently. Each was furnished with a sheet of instructions for rating and a score card for every child. A sample instruction

sheet and a sample score card are included in the Appendix. As soon as each judge classified all the paintings in one folder, the score card he had marked for that folder was taken by the author.

After all the classifications had been made, the six score cards of each child were put in a pile, making a total of sixteen piles of six score cards each. Next, the six classifications for each painting were listed opposite the artist's symbol and the symbol used for that painting. Third, an average of the six classifications for each painting was obtained. Fourth, each of these ten or more averages (depending upon the number of paintings in each folder) was listed and averaged. This second averaging represents the stage of development in painting of each child in the experiment. These stages are recorded in Table 6, below.

Table 6

Stages of Development in Ability to Paint

Deaf		Hearing	
Boys	Score	Boys	Score
B	1.55	Q	1.45
L	2.63	W	2.77
V	2.34	C	3.14
S	2.06	P	3.01
Girls	Score	Girls	Score
A	2.53	X	3.71
J	1.58	M	2.38
H	1.70	N	3.57
Y	2.14	I	3.03

F. Examination of the clay models by the author:

1. According to three types

For this first examination, the author consulted the artist's statement of what he had modeled and then placed the object in one of the three categories or types listed below:

I. One object merely modeled and named, or two or more unrelated objects.

II. Design.

III. Story, action, or series of related objects, if the child made more than one object in a period and showed by word or gesture that they were meant to be related.

The results of this first examination are listed in Table 7, on page 59. The three categories or types--I, II, and III--are listed separately. Opposite each type is tabulated the number of objects modeled by the deaf boys, the number modeled by the deaf girls, and the total number of objects modeled by the deaf group for that type. Following the figures for the deaf children are those for the hearing--

the number of objects modeled by the hearing boys, the number modeled by the hearing girls, and the total number of objects modeled by the hearing group for each type.

Table 7

Results of the First Examination of the Clay Models

	Deaf			Hearing		
	Boys	Girls	Total	Boys	Girls	Total
Type I	40	48	88	44	46	90
Type II	0	0	0	0	0	0
Type III	6	1	7	0	0	0
	Total number of objects modeled 95			Total number of objects modeled 90		

2. <u>According to objects modeled in Type I</u>

Table 8, in the Appendix, shows exactly what models were made by each child. After the clay models were placed in the three types mentioned, all those put in Type I were re-examined, and the objects modeled by each child were listed opposite the symbol for each artist's name, followed by the number of times those objects were modeled by each child.

In Table 9, also in the Appendix, the models are listed first. In the next three columns are given the number of times this object was modeled by all the deaf boys, by all the deaf girls, and the

total number of times it was modeled by all the deaf children. These figures are followed by three columns for the hearing children--the number of times the object was modeled by all the hearing boys, by all the hearing girls, and the total number of times it was modeled by all the hearing children.

C. Examination of the clay models by the judges:

The artists' statements of what they had modeled were rewritten by the author. All these rewritten statements for all the models were typed on separate slips of paper and given to an experienced teacher of the deaf to see whether or not a clue as to the identity of the artist could be obtained from the language used in the statements. The teacher in question was unable to separate the statements for the deaf children's models from those for the hearing children's models. The statements as rewritten by the author may therefore be considered sufficiently objective.

The six judges who classified the paintings also classified the clay models. The classification of stages of development in clay modeling as described by Mathias[62] was

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[62] Mathias, Margaret E., The Beginnings of Art in the Public Schools. Chicago: Charles Scribner's Sons, 1924, pp. 15-16.

used and enlarged upon:

1. Manipulative stage--corresponds to the scribbling stage in the development of ability to paint. The object modeled in no way resembles the object which the artist said it was.
2. Symbolic--the object made has definite form. It resembles the object which the artist said it was, but is crudely made.
3. Realistic stage--the object is well modeled, detailed, and easily identified.

A sample instruction sheet and score card for classifying the clay models are included in the Appendix. The clay models were listed on the score cards in the order of their creation:

Model 1 1

Model 2 2

etc.

After all the classifications had been made, the six score cards of each child were put in a pile, making a total of sixteen piles of six score cards each. Next, the six classifications for each model were listed

opposite the artist's symbol and the number representing that model. Third, an average of the six classifications for each model was obtained. These ten or more averages (depending upon the number of models made by each child) were listed and averaged. The numbers thus obtained represent the stages of development in clay modeling reached by both groups of children. The numbers are recorded in Table 10, below.

Table 10

Stages of Development in Ability to Model in Clay

Deaf		Hearing	
Boys	Score	Boys	Score
E	1.84	Q	1.43
L	2.39	W	2.18
V	2.04	O	2.47
S	2.14	P	2.38
A	1.34	X	2.83
J	1.69	M	2.14
H	1.83	N	2.89
T	2.05	I	2.56

H. <u>Observation of the activities of the deaf and hearing children during the experimental periods:</u>

During the first week of the experiment, the author unobtrusively made notes of all the activities of all the children. At the end of the first week's work, which covered one period of both painting and clay modeling with each child, these notes were made into a

list in order that the same activities could be checked for each child if they occurred or not checked if they did not occur during the experimental periods. The activities were checked for every painting and clay model, so that during one period of work there were, in some cases, two or three checks for different activities. On the following pages will be found a sample record sheet, an explanation of the terms used, and an evaluation of the sheet.

Table 11 will also be found in the Appendix. In this Table the activities are listed vertically and the symbols which represent the children, horizontally, at the top of the table. Since the activities were checked for every painting and every clay model, the first number directly below each symbol represents the number of paintings made by that child during the experiment, and the second, the number of clay models made by him. These numbers do <u>not</u> refer to the number of periods in which they worked. In every case the paintings are listed first in red type; the <u>clay models</u> are listed second in black type. In the squares below these numbers and opposite each activity are recorded first, the total number of times that activity was observed during the periods in which the child painted and second, the total

number of times it was observed during the periods in which the child modeled.

Sample Record of Observed Activities

Child_____ Sex: ____ Group: _____

Dates Observed

1. Painting
   a. Attitude
      Enthusiastic
      Cooperative
      Indifferent
      Ambivalent
   b. Attention
      Excellent
      Good
      Fair
      Poor
   c. Conversation
      About work
      Unrelated topics
   d. Self-criticism
      Incessant pleasure
      Incessant criticism
   e. Requests for suggestions or advice
2. Clay
   a. Attitude
      Enthusiastic
      Cooperative
      Indifferent
      Ambivalent

b. Attention

Excellent ______

Good ______

Fair ______

Poor ______

c. Conversation

About work ______

Unrelated topics ______

d. Technique

Rolled ______

Pounded ______

Molded from mass ______

Stuck pieces together ______

Used stick ______

e. Self-criticism

Expressed pleasure ______

Expressed criticism ______

f. Requests for suggestions or advice ______

EXPLANATION OF TERMS USED IN THE RECORD OF ACTIVITIES

The following explanation of the items included in the record will serve to clarify their meanings.

If any activity was observed during the experimental period, a check mark was placed in the blank opposite the activity under the date on which the activity occurred. If the activity did not occur during the period, the blank opposite the activity was not marked in any way. If any child painted two pictures, for example, the activities were marked twice under the same date if they occurred. Thus some of the blanks have more than one check for an activity under one date.

A. Attitude

Enthusiastic--a child's attitude was judged enthusiastic when he expressed pleasure by words--announcing what he would make, saying he enjoyed painting or modeling, or saying he liked to come to the experimental room,-- or by actions--laughing, jumping, or clapping his hands.

Cooperative--a child's attitude was judged cooperative when he came into the experimental room willingly, showed an interest in the room, asked questions about the experiment, talked with the examiner, and smiled.

Indifferent--a child's attitude was rated

indifferent when he came into the experimental room willingly but without any overt expression of pleasure such as smiling, or any display of interest in the room or the experiment, and conversed very little or not at all.

Antagonistic--a child's attitude was judged antagonistic when he came into the experimental room unwillingly, frowned or showed other overt expressions of displeasure, asked when he would be through, or worked hastily and carelessly.

B. Attention

Excellent--a child's attention was judged to be excellent when he did not leave his work for any reason and continued working while conversing or looking elsewhere.

Good--a child's attention was rated good when he left his work occasionally but infrequently, and returned to his work without reminders or urging to do so from the examiner.

Fair--a child's attention was judged fair when he left his work frequently and had to be reminded but not urged to return to it or when he interrupted his work to converse or look around the room.

Poor--a child's attention was judged poor when he left his work frequently and required urging to return

to it and interrupted his work to converse or look around the room.

C. Conversation

About work--a child's conversation was judged to be about his work if in painting, for example, he discussed his experiences with paint at school or at home, asked questions about the paint or brushes in the experiment, inquired as to when the experiment would be ended, asked questions about the other children in the experiment or about their work, and discussed the picture he was painting or the object he was modeling.

Unrelated topics--a conversation was judged to be about unrelated topics if it was about experiences in school or out other than those relative to painting and modeling, or when it had no conceivable relation to the objects being painted or modeled. If, for example, while modeling a boat, a child said "This boat is going to be big", or "My brother and I made a boat the other day", the comments were judged relative to his work, but if he talked about a movie he had seen, what he would do on his vacation, or a trip to the zoo, the comments were judged to be unrelated topics.

D. Self-criticism

The opinions expressed could be either about the end results of painting or modeling or about technique. For example, if a child remarked "That's a pretty good boat for me to make," he expressed pleasure in the end result. If he said "I can't make good boats," he expressed a critical opinion of his technical ability to model or paint.

E. A child asked for suggestions or advice if he asked such questions as "What shall I paint?", "How shall I paint the sky?", "Is it all right if I model a house?".

AN EVALUATION OF THE RECORD OF OBSERVED ACTIVITIES

The first and strongest criticism of the record is that it does not indicate the amount or kinds of conversation which took place between the examiner and the children during the experimental periods. This is regrettable because, as far as the author knows from observation, the difference in language ability is one of the greatest differences between deaf and hearing children of the same age level. A comparison of the actual conversations of deaf and hearing children would be extremely interesting, but would be primarily a study of expression in language and not of expressions in paint and clay. However, it is interesting to note that the youngest deaf child in this study

had a minimum speaking vocabulary of 300 words, while, according to Smith,[63] the average hearing child that age should have a speaking vocabulary of at least 2,562 words. Smith recorded the vocabularies of children by eliciting language responses through objects, pictures, actions, and questions. Her age table is given below.

Age	Number of Words
1 year	3
1½ years	22
2 "	272
2½ "	446
3 "	896
3½ "	1222
4 "	1540
4½ "	1870
5 "	2072
5½ "	2289
6 "	2562

It is obvious that the vocabulary of deaf children does not begin to reach that of hearing children at any of these age levels.

If a child made one comment relative to his work, the activity had to be checked on the record sheet, but if

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[63] Smith, M. E., An Investigation of the Development of the Sentence and the Extent of Vocabulary in Young Children. Univ. of Iowa Studies in Child Welfare, III: No. 5, 1926.

he made several comments, the activity could still be checked only once. If a child commented or conversed about unrelated topics, there was no way to indicate how much of that sort of conversation occurred or what proportion of the conversation was on unrelated topics. For this sort of observation a different type of record would have to be made. It was not possible for the examiner to record with pencil and paper every comment of each child.

A second criticism is that attitude and attention had to be measured in terms of overt behavior. This is true of record blanks in general, however, as no method has yet been found for observing or measuring acts which are not overt except in terms of overt behavior.

Except for these two difficulties, the record blank is adequate for the types of activity which were observed.

CHAPTER IV

RESULTS

A. Painting

1. Type I--Mere delineation

A certain trend in the painting of mere objects by the hearing children may be seen from Table 12, below. With the exception of the oldest hearing girl, the number of mere delineation pictures <u>decreases</u> as the artists' ages <u>increase</u>. This is also true for the deaf boys with the exception of the oldest. The deaf girls show no relationship between their ages and the number of pictures they painted in Type I.

Table 12

Number of Paintings by Each Child in Each Type

Deaf				Hearing			
Boys	Types			Boys	Types		
	I	II	III		I	II	III
B	10	0	1	Q	11	0	0
L	3	0	9	W	6	0	6
V	3	0	8	[illegible]	3	0	7
S	7	0	5	P	1	1	8
Girls				Girls			
A	8	4	0	X	10	0	0
J	6	0	6	M	7	0	4
R	9	0	2	N	4	0	7
Y	9	1	1	I	8	0	2

Legend:

I - Delineation
II - Design
III - Story or action

Table 13, below, shows the objects painted most frequently by the deaf boys, by the deaf girls, and by the deaf group as a whole. Table 14, on page 75, lists the objects most frequently painted by the hearing boys, by the hearing girls, and by the hearing group as a whole.

Table 13

Objects in Type I Most Frequently Painted by the Deaf Children

Boys		Girls		Group	
Object	Fr.	Object	Fr.	Object	Fr.
sun	7	house	14	house	18
house	4	tree	9	sun	15
furniture	3	grass	8	tree	13
tree	3	sun	8	grass	8
Christmas tree	3	sky	6	sky	8
church	2	flowers	5	flowers	7
clouds	2	church	4	church	6
flag	2	girl	3	furniture	5
flowers	2	night	3	clouds	4
Santa Claus	2	clouds	2	girl	4
sky	2	furniture	2	Christmas tree	4
girl	1	flag	1	flag	3
		Santa Claus	1	night	3
		Christmas tree	1	Santa Claus	3

Table 14

Objects in Type I Most Frequently Painted by the Hearing Children

Boys		Girls		Group	
Object	Fr.	Object	Fr.	Object	Fr.
Christmas tree	5	grass	14	grass	17
house	4	sky	13	sky	16
sun	4	Christmas tree	11	Christmas tree	16
buggy	3	girl	9	house	13
plane	3	house	8	girl	10
train	3	presents	7	presents	9
tree	3	flowers	5	flowers	8
sky	3	windows	4	sun	8
grass	3	cat	3	tree	6
presents	3	tree	3	buggy	5
elephant	1	buggy	2	windows	4
flowers	1	elephant	2	cat	3
girl	1	sun	2	elephant	3
				plane	3
				tree	3

Tables 13 and 14 show that the boys of both groups express approximately the same interests in their painting of objects, but that the girls of both groups express widely different interests. A comparison of the interests expressed by the deaf group as a whole with those expressed by the hearing group shows significant differences.

In order to compare more clearly the choice of objects painted by both groups, all the objects painted were grouped under six major headings, as follows:

1. Animals
2. Buildings and parts of buildings
3. Nature
4. People
5. Toys
6. Miscellaneous

These headings appear in the first column of Table 15, below. In the second column of that table appear the frequencies for the deaf boys, followed by those for the deaf girls and those for the deaf group. In the fifth column are the frequencies for the hearing boys, then those for the hearing girls, and lastly, those for the hearing group.

Table 15

Objects Painted in Type I Classified

	Deaf			Hearing		
Classification	Boys	Girls	Total	Boys	Girls	Total
Animals	4	2	6	2	12	14
Buildings	12	22	34	8	18	26
Nature	19	45	64	15	41	56
People	6	7	13	3	12	15
Toys	2	3	5	8	5	13
Miscellaneous	16	10	26	14	21	35

It will be seen from this table that some significant differences exist between interests expressed by the deaf and those expressed by the hearing in the painting of objects.

Again, no important differences are found between the boys, but the hearing girls show much more interest in animals, toys, and miscellaneous objects than their deaf partners. The totals for the two groups show that the deaf group in this study are much more interested in painting buildings and objects of nature than their hearing partners, while the latter display greater interest in animals, toys, and miscellaneous objects than the deaf.

When the interests expressed by both sexes irrespective of hearing loss are compared some outstanding differences are found. The girls are significantly more interested in painting animals, buildings, nature, and people than the boys. The greatest difference occurs in the frequencies for nature—the combined group of girls painted subjects under this heading 86 times, and the combined group of boys, only 34 times.

2. Type II-Design

No deaf boy and no hearing girl made a design. Only one was made by a hearing boy. Of the five painted by the deaf girls, four were made by the youngest and one by the oldest.

3. Type III-Story or action

Referring again to Table 13, page 73, another

interesting trend is found. With the exception of the oldest hearing girl, the number of action pictures painted by the hearing children increases with the increase in the artists' ages. Excluding the youngest deaf boy, who painted one action picture, and the youngest deaf girl, who painted none, the quantity of pictures in Type III made by the deaf children decreases with the increase in artists' ages.

4. Stages of development in painting.

The stages of development in ability to paint are listed in Table 6, page 57. Another table, Table 16, page 72, lists each child, his age, his intelligence quotient as computed by the performance scale discussed in Chapter II, page 40, and the stage of development in which he was placed by the six judges.

Table 18

Comparison of the Ages, Intelligence, and Stages of Development in Painting of both the Deaf and Hearing Children

Deaf				Hearing			
Boys	Age	I.Q.	Score	Boys	Age	I.Q.	Score
B	5 yr. 11 mo.	138	1.55	Q	5 yr. 11 mo.	115	1.46
L	8 yr.	130	2.83	W	7 yr. 11 mo.	80	2.77
V	8 yr.	123	2.34	C	8 yr. 1 mo.	121	2.47
S	8 yr. 1 mo.	105	2.06	P	8 yr. 1 mo.	102	3.01
Girls				Girls			
A	6 yr. 8 mo.	116	2.52	X	6 yr. 7 mo.	115	2.71
J	6 yr. 8 mo.	143	1.58	M	6 yr. 8 mo.	100	2.26
K	7 yr. 5 mo.	111	1.70	N	7 yr. 6 mo.	153	3.57
Y	8 yr. 9 mo.	92	2.14	I	8 yr. 7 mo.	145	3.03

It can be seen from this table that marked differences exist between the deaf and hearing children in stages reached in painting ability. The deaf and hearing girls differ more than do the deaf and hearing boys.

The highest possible stage which could be reached was 4.00. The average stage reached by the deaf boys was 2.19, while that reached by the hearing boys was 2.59. A difference of .40 exists in favor of the hearing boys, and may be considered significant inasmuch as the steps between the stages of development were progressively difficult and not equally difficult. That is, it became harder to attain a level of development as the child approached it. Also, the progression from one stage to another became increasingly more difficult. It was harder to reach stage 3, for example,

from stage 2, than to reach stage 2 from stage 1. The deaf girls as a group were judged to have reached a level of only 1.73 out of a possible 4.00, while the hearing girls reached a level of 2.89. An important difference of 1.16, or more than one whole stage of development, exists in favor of the hearing girls.

It can also be seen from Table 16 that the differences between paired boys are not as great as those between paired girls. Small differences occur between deaf boys B, L and V and their hearing partners Q, W, and C. The only important difference lies in favor of hearing boy P, who exceeded his deaf partner S by .95, or almost a whole stage of development. No deaf girl exceeded her hearing partner. Although A and K, the youngest girls of both groups, reached approximately the same level, none of the other matched girls did. The difference between hearing girl M and deaf girl J is .68, between hearing girl N and deaf partner H is 1.97, and between hearing girl I and her deaf partner Y is .89.

B. Modeling

1. Type I--Objects merely modeled and named.

Table 17

Number of Clay Models Made by Each Child in Each Type

Deaf				Hearing			
Boys	Types			Boys	Types		
	I	II	III		I	II	III
S	10	0	0	Q	10	0	0
L	12	0	0	W	11	0	0
V	9	0	1	C	10	0	0
S	7	0	5	P	13	0	0
Girls				Girls			
A	16	0	0	L	10	0	0
J	10	0	1	M	11	0	0
H	11	0	0	N	13	0	0
T	11	0	0	I	10	0	0

Legend:

I - Objects merely modeled and named
II - Design
III - Story or action

From Table 17 we see that there are no particular differences between the quantities of models for this type made by both groups of children. There are only two differences between matched individuals which may be considered significant. Hearing boy P made 13 models as compared with 7 made by deaf boy S, and deaf girl A made 16 models as compared with her hearing partner L, who made only 10.

Table 18, page 62, lists the objects most frequently modeled in Type I by the deaf boys, by the deaf girls, and by the deaf group. In the same order, Table 19

lists the objects most frequently modeled by the hearing children.

Table 18

Objects in Type I Most Frequently Modeled by the Deaf Children

Boys		Girls		Group	
Object	Fr.	Object	Fr.	Object	Fr.
ball	3	house	4	ball	5
boy	2	ball	3	boy	4
basket	2	face	3	face	4
man	2	rabbit	3	house	4
snowman	2	snake	2	basket	3
face	1	basket	1	man	3
snake	1	boy	1	rabbit	3
		man	1	snake	3
		snowman	1	snowman	3

Table 19

Objects in Type I Most Frequently Modeled by the Hearing Children

Boys		Girls		Group	
Object	Fr.	Object	Fr.	Object	Fr.
bed	2	chair	4	bed	4
snowman	2	candle-holder	3	candleholder	4
candleholder	3	candle-stick	3	chair	4
		snowman	3	candlestick	3
		bed	2	snowman	3

Wide differences exist between the deaf and hearing children in the interests expressed by the objects chosen for modeling. One object only, snowman, was modeled by both groups.

In order to compare more clearly the choice of objects modeled by both groups, all the objects were classified under seven major headings, as follows:

1. Animals
2. Buildings and parts of buildings
3. Food
4. Nature
5. People
6. Toys
7. Miscellaneous

In Table 20 these headings are listed in the first column. Next are the frequencies for the deaf boys, the deaf girls, and the deaf group, followed by the frequencies for the hearing boys, for the hearing girls, and for the hearing group as a whole.

Table 20

Objects Modeled in Type I Classified

	Deaf			Hearing		
Classification	Boys	Girls	Total	Boys	Girls	Total
Animals	5	15	20	11	6	17
Buildings	0	6	6	3	14	17
Food	3	4	7	4	1	5
Nature	3	3	6	0	2	2
People	6	3	9	7	1	8
Toys	4	4	8	3	3	6
Miscellaneous	19	14	33	16	19	35

As with the paintings, greater differences exist between the deaf and hearing girls than between the deaf and hearing boys or between the two groups of deaf and hearing children. The hearing girls display more interest in modeling buildings and miscellaneous objects than their deaf partners, while the hearing boys express more interest in animals than the deaf boys. Of the two groups of children, the hearing are significantly more interested in modeling buildings.

Marked differences in interests are found between the sexes irrespective of hearing loss. Both hearing and deaf girls are more interested in animals and buildings than the boys, while the latter prefer to model people more frequently than the combined group of girls.

2. Type II--Design

No child in either the deaf or hearing group made a design in clay.

3. Type III--Action or story.

Oddly enough, all the models in this grouping were made by the deaf. Five of the seven made were executed by one deaf boy, S. Another boy V, and a girl J, accounted for the other two.

4. Stages of development in modeling.

The stages of development in ability to model are

listed in Table 10, page 62. Table 21, below, lists each child, his age, his intelligence quotient as computed by the performance scale discussed in Chapter III, page 40, and the stage of development in which he was placed by the six judges.

Table 21

Comparison of the Ages, Intelligence and Stages of Development in Modeling of both the Deaf and Hearing Children

Deaf				Hearing			
Boys	Age	I.Q.	Score	Boys	Age	I.Q.	Score
B	5 yr. 11 mo.	136	1.84	Q	5 yr. 11 mo.	115	1.43
L	6 yr.	130	2.29	W	7 yr. 11 mo.	80	2.16
V	6 yr.	123	2.04	C	6 yr. 1 mo.	121	2.47
S	6 yr. 1 mo.	105	2.14	P	6 yr. 1 mo.	102	2.35
Girls				Girls			
A	6 yr. 8 mo.	116	1.34	T	6 yr. 7 mo.	115	2.33
J	6 yr. 8 mo.	143	1.89	M	6 yr. 8 mo.	100	2.14
H	7 yr. 5 mo.	111	1.65	F	7 yr. 6 mo.	155	2.69
K	8 yr. 9 mo.	92	2.05	I	6 yr. 7 mo.	145	2.56

This Table shows that the deaf boys were judged to have reached approximately the same stage of development in clay modeling as the hearing boys. Out of a possible 3.00, the highest level to be reached in clay modeling, the deaf boys averaged 2.07 and the hearing boys, 2.10. The girls show greater differences than the boys. The average stage reached by the deaf girls is only 1.78, while the hearing girls' average is 2.43. A difference of .65 exists between the two groups of girls, and is significant.

Deaf boy B exceeded his hearing partner Q by .41, and hearing boy C exceeded his deaf partner V by .43. No deaf girl reached a stage beyond her hearing partner, but one of the differences in scores between paired girls is not significant--that between M and J. However, hearing girl I exceeded deaf girl A by .99, almost a whole stage of development, hearing girl N exceeded deaf girl H by .84, and the difference in favor of I over Y is .51.

C. Comparison of the activities during the experimental periods.

The frequencies of activities for each child during the experimental periods are recorded in Table 11, in the Appendix. Table 22, also in the Appendix, gives the total frequencies of each activity during the painting period only, and Table 23, in the Appendix, gives the total frequencies of each activity during the modeling periods only. For both tables, the activities are listed in the first column, followed by the number of times the activity was indulged in by the deaf boys, by the deaf girls, and by the deaf group, by the hearing boys, by the hearing girls, and by the hearing group.

1. Comparison of activities between the deaf and hearing children

a. Attitude

The hearing group was more enthusiastic

about painting than the deaf. No particular differences existed between the groups in their attitude toward modeling, but among the deaf children, the girls were far more enthusiastic than the boys. The deaf boys' attitude was defined as more cooperative for both painting and clay work than the attitude of any of the other groups of children.

b. Attention

Of all the children, in both clay modeling and painting, the deaf boys were the least distracted. The deaf girls were most easily distracted during the painting periods, while this was true for the hearing boys during the clay periods.

c. Conversation

For both the painting and modeling periods the hearing children conversed far more frequently than the deaf. The hearing girls talked the most, and the deaf boys the least.

d. Technique used in modeling

The hearing children molded objects from the mass significantly more often than did the deaf. The hearing girls showed the greatest difference in the technique they employed. They pounded the clay

and used a stick much less often than any other groups, and molded from the mass much more frequently.

e. Self-criticism

A comparison of Tables 22 and 23 shows that the deaf girls expressed pleasure in their creative productions to a much greater extent than did any other group. No deaf child expressed any criticism of either his paintings or models, while the hearing girls were much more critical than the hearing boys.

f. Requests for suggestions or advice

At no time during the experiment did the deaf girls ask for suggestions or advice for either painting or modeling. Although the hearing group did so frequently, the hearing girls asked for help almost twice as often as the hearing boys.

2. Comparison of activities between the groups irrespective of hearing loss

Interesting sex differences were found in the frequencies for these same six activities. These differences were compiled in Table 24, which is in the Appendix. That table shows that the girls were much more enthusiastic over both painting and modeling than the boys, while the attitude of the boys was judged co-operative. The attention of the girls was not so good

as the boys, but the difference is negligible. The girls talked a great deal more than the boys. They also expressed pleasure and criticism and asked for suggestions or advice more frequently. With regard to technique used in modeling, the boys pounded almost twice as much as the girls, while the latter molded from the mass over twice as often as the boys.

D. Interpretation of data.

The author considered only three possible causes of whatever differences exist between the deaf and hearing children in interests and stages of development in painting and clay modeling. These three were age, intelligence, and hearing loss.

The term hearing loss needs further explanation. Obviously, a hearing loss per se cannot be called a factor. By the general heading "hearing loss", the author means such resulting factors as differences in language usage—both spoken and written—, in language comprehension, and in reading ability of the deaf. These factors were not measured in this study, but undoubtedly differences are present between the deaf and hearing children in each of these three factors. Throughout this section devoted to interpretation of the data, the term hearing loss is used

to cover these factors of language and reading ability.

The author found no correlation between age and any of the differences between the deaf and hearing children or intelligence and any of the differences. Therefore, those differences which occur must be due to the factors caused by hearing loss, as already mentioned, or factors of general intelligence other than motor ability.

1. Paintings

The widely differing interests expressed by the two groups of children, both in types of paintings made and in the objects chosen for painting in Type I, are probably caused by the factors of hearing loss. The fact that the hearing children tend to paint fewer more delineation pictures and more action pictures as they grow older, while the deaf children show no such tendency, may be quite closely correlated with ability to think sequentially concerning related ideas.

The difference was greater between the deaf and hearing girls than between the deaf and hearing boys in both expression of interest and stages of development in painting. It may be assumed that the cause for this is more than just factors of hearing loss, but what other causes may exist for these differences are not known.

2. Modeling

The differences between the deaf and hearing children in interests and stages of development in modeling are also probably due to the factors of hearing loss. Apparently, the clay was a more difficult medium for the execution of designs and action than paint. It is not known why the deaf attempted action in clay while the hearing children did not, unless the deaf have fewer misgivings than the hearing about their ability to model. This might be the case in view of the fact that the deaf expressed no criticism of any of their creative productions, but did express pleasure.

Again, greater differences exist between the deaf and hearing girls than between the deaf and hearing boys in interest and stages of development in modeling. The exact cause of this difference between the deaf girls and the deaf boys is not known.

3. Activities

The deaf children were more attentive to their work than the hearing. This is probably directly correlated with their hearing loss, since they could not hear any distracting sounds. The fact that the

hearing children conversed much more frequently than the deaf is also due to a factor of hearing loss,--language usage. Hearing children have far more words and sentences at their command than the deaf, at practically all age levels. One reason for this is that it takes a longer time to teach a deaf child words and language than a hearing child--it is necessary to give the deaf many more repetitions of a word before it is learned because teachers of the deaf can appeal only to the senses of sight and touch.

Why the hearing children should be more enthusiastic about painting than the deaf, or why they should model from the mass in clay more often, is not known. These differences may be due to factors other than those of hearing loss, since the deaf girls were far more enthusiastic about painting than the deaf boys and the hearing girls molded from the mass more frequently than the hearing boys as well as more frequently than both sexes of the deaf children.

There is an association between the opinions expressed and the requests for suggestions or advice. The children who were satisfied with their ability to paint and model felt no need for either suggestions or advice, and consequently asked for none. Those who were satisfied with their ability and requested no help were the deaf group. The cause for this may be due to factors of hearing loss other

than those mentioned. In school, the deaf children are encouraged in, and continually praised for, their efforts in all lines of endeavor, and are seldom criticized. Since they have experienced only pleasure in the expression of their abilities, it is natural that they in turn should express only pleasure.

CHAPTER V

CONCLUSIONS

In the author's opinion, deaf children need greater opportunities for free expression in art media. This study was made in order to discover something about the way in which deaf children do express themselves through the media of paint and clay, and to compare such expressions with those of hearing children. The purpose of the study was four-fold:

1. To obtain a representative sampling of the spontaneous and creative work in paint and clay of a group of eight deaf and eight hearing children, matched as to sex, age, and intelligence.
2. To compare the paintings and modelings done by each deaf child with those of his hearing partner to determine how the deaf child differed from the hearing in interests as expressed by the paintings and modelings.
3. To classify the paintings and modelings of each child to determine whether each deaf child had reached the same level of

development in ability to paint and model as his hearing partner.

4. To compare the activities of the deaf and hearing children during their creative moments by means of recorded observations obtained in the individual periods of work.

The conclusions of this study are based upon comparisons of the paintings and clay modelings made by a group of sixteen children. Eight of these were deaf and eight hearing. They were matched as to age, sex, and intelligence. A minimum of ten paintings and ten models was executed by each child during individual periods. The children were permitted to choose the medium in which they wanted to work first, and were permitted to talk and move about freely. All the work was entirely the artist's own expression, and was not in any way directed by the author.

Some interesting differences were found between the particular groups of deaf and hearing children in this study in the expression of their creative abilities through the media of paint and clay. In brief, these differences were as follows:

1. The hearing children tended to paint fewer pictures of unrelated objects and more pictures of stories or action as they grew

older. The deaf showed no such tendency.

2. With regard to the delineation pictures, the deaf preferred to paint buildings and objects of nature, while the hearing children chose animals, toys, and miscellaneous objects most frequently for painting.

3. The average stage of development which the whole group of hearing children was judged to have reached in ability to express themselves in paint was .57, or over half a stage of development, beyond the average stage in which the deaf group was placed.

4. Clay seemed to be a more difficult medium for expression than paint. No child made a design in clay, and only three children, all of them deaf, attempted action or story models. The deaf children apparently felt confident they could model action in clay, while the hearing children did not.

5. The hearing group's average stage of development in modeling was .27 over the average stage in modeling of the deaf.

6. During the experimental periods, the deaf

children were more attentive to their work than the hearing, expressed pleasure in, but no criticism of, their creative expressions, and did not ask for suggestions or advice. The hearing children conversed much oftener than did the deaf, molded from the mass in clay work more frequently, expressed criticism of their work, and asked for suggestions and advice.

7. Greater differences were found between the deaf and hearing girls than between the deaf and hearing boys in the stages of development reached in both painting and modeling.

It cannot be said that these differences will be found to occur between deaf and hearing children in general because the number of children used in this study was too small to warrant any such conclusion. However, certain interesting questions arise from this study--questions which might profitably be investigated since a study of deaf children's creative expressions in paint and clay has not been previously undertaken.

1. What is the relationship between the creative expressions of deaf children in art and their language ability? A hint that a relationship

may exist is brought out by the fact that the deaf continued to paint unrelated objects while their hearing partners evidenced an increasing interest in action pictures. Deaf children express themselves verbally in words or phrases much longer than hearing children do, while the latter speak in sentences not only much more frequently but sooner than do the deaf.

2. Are the findings of this study true of deaf and hearing children in general?

3. What are the implications for teachers of the deaf? Would a program of free expression show a positive relation to reading ability and interest; to personality development? Further studies would be needed to answer such questions.

As stated elsewhere, this study is limited, but two points are clearly brought out by it. First, there is a need for much more research in the field of creative expression of both deaf and hearing children, and second, this research should be related to the actual problems of education which now confront teachers of the deaf.

APPENDIX

Table 4

Paintings in Type I Listed According to Artist

Deaf			Hearing		
Boys	Object	No. times painted	Boys	Object	No. times painted
B	Christmas tree	3	Q	Christmas tree	5
	boat	2		house	4
	camel	2		buggy	3
	Santa Claus	2		train	3
	sun	2		grass	2
	apple	1		sun	2
	water	1		presents	2
	bike	1		tree	1
	carpenter's work bench	1		slide	1
				flowers	1
	sleigh	1		man	1
	wise man	1		sky	1
	mushroom	1		yard	1
	church	1		floor	1
	tree	1		jack-in-box	1
	flowers	1		furniture	1
	jar	1			
L	sun	2	W	plane	3
	clouds	2		sun	2
	fish bowl	1		car	1
	tree	1		sky	1
	flowers	1		tree	1
	flag	1		girl	1
				fireplace	1
				fat woman	1
				dirigible	1
V	sky	1	C	elephant	1
	sun	1		camel	1
	wash cloth	1		sunset	1
	towel	1			
	church	1			
	moon	1			
S	house	4	P	apartment house	1
	furniture	3		sky	1
	boy	2		tree	1
	sun	2		grass	1
	dog house	2		sidewalk	1
	dogs	1			
	pigmas	1			
	flag	1			
	car	1			
	elephant	1			
	girl	1			
	fish bowl	1			
	trees	1			
	sky	1			
	moon	1			

Table 4 Cont'd.

Deaf			Hearing		
Girls	Object	No. times painted	Girls	Object	No. times painted
A	house	3	X	grass	10
	church	2		sky	7
	girl	1		girl	5
	sun	1		flowers	4
	plane	1		cat	3
	snow	1		house	3
	grass	1		sun	2
	Christmas tree	1		buggy	2
				balloons	1
				Christmas tree	1
				apple tree	1
				apartment house	1
				milk	1
				balls	1
J	man	2	M	Christmas tree	6
	Santa Claus	1		house	3
	doll	1		presents	3
	night	1		Santa Claus	1
	mother	1		fence	2
	girl	1		sky	2
	snowman	1		grass	1
	snow woman	1		girl	1
	house	1		dog house	1
	tree	1			
	sun	1			
H	sky	4	W	elephant	2
	grass	3		clown	1
	tree	3		garden	1
	house	3		girl	1
	sun	3		tree	1
	furniture	2		swing	1
	church	1		grass	1
	girl	1		sky	1
	door	1		giraffe	1
	night	1		deer	1
	present	1		ducks	1
	"surprise"	1		chickens	1
	cake	1		mouse	1
	candles	1		dogs	1
	pig	1		rooster	1
	ladder	1		rainbow	1
	fish	1			
	flag	1			
	flowers	1			

Table 4 Cont'd.

Deaf			Hearing		
Girls	Object	No. times pointed	Girls	Object	No. times pointed
7	house	7	1	window	4
	tree	5		Christmas tree	4
	flowers	4		presents	4
	grass	4		house	3
	sun	3		sky	3
	clouds	3		grass	3
	hill	2		girls	2
	sky	2		furniture	2
	balls	2		store	1
	snow	1		snow	1
	wigwam	1		floor	1
	church	1		clouds	1
	night	1		flowers	1
				tree	1

Table 5

Paintings in Type I Listed According to Objects Painted

	Deaf			Hearing		
Objects	Boys	Girls	Total	Boys	Girls	Total
apartment house	0	0	0	1	1	2
apple	1	0	1	0	0	0
balloons	0	0	0	0	1	1
balls	0	2	2	0	1	1
bike	1	0	1	0	0	0
boat	2	0	2	0	0	0
boy	2	0	2	0	0	0
buggy	0	0	0	3	2	5
cake	0	1	1	0	0	0
camel	2	0	2	1	0	1
candles	0	1	1	0	0	0
car	1	0	1	1	0	1
carpenter's work bench	1	0	1	0	0	0
cat	0	0	0	0	3	3
chickens	0	0	0	0	1	1
church	2	4	6	0	0	0
clouds	2	2	4	0	1	1
clown	0	0	0	0	1	1
deer	0	0	0	0	1	1
dirigible	0	0	0	1	0	1
dog house	2	0	2	0	1	1
dogs	1	0	1	0	1	1
doll	0	1	1	0	0	0
door	0	1	1	0	0	0
ducks	0	0	0	0	1	1
elephant	1	0	1	1	2	3
fat woman	0	0	0	1	0	1
fence	0	0	0	0	2	2
fireplace	0	0	0	1	0	1
fish	0	1	1	0	0	0
fish bowl	2	0	2	0	0	0
flag	2	1	3	0	0	0
floor	0	0	0	1	1	2
flowers	2	5	7	1	5	6
furniture	3	2	5	1	0	1
garden	0	0	0	0	1	1
giraffe	0	0	0	0	1	1
girl	1	3	4	1	9	10
grass	0	8	8	3	14	17

Table 5 Cont'd.

Paintings in Type I Listed According to Objects Painted

Objects	Deaf			Hearing		
	Boys	Girls	Total	Boys	Girls	Total
hill	0	2	2	0	0	0
house	4	14	18	4	8	12
jack-in-the-box	0	0	0	1	0	1
jar	1	0	1	0	0	0
ladder	0	1	1	0	0	0
man	0	2	2	1	0	1
milk	0	0	0	0	1	1
moon	2	0	2	0	0	0
mother	0	1	1	0	0	0
mouse	0	0	0	0	1	1
mushroom	1	0	1	0	0	0
night	0	3	3	0	0	0
pig	0	1	1	0	0	0
plane	0	1	1	3	0	3
presents	0	1	1	2	7	9
rainbow	0	0	0	0	1	1
rooster	0	0	0	0	1	1
Santa Claus	2	1	2	0	2	2
sidewalk	0	0	0	1	0	1
sky	2	6	8	3	13	16
sleigh	1	0	1	0	0	0
slide	0	0	0	1	0	1
snow	0	2	2	0	1	1
snow man	0	1	1	0	0	0
snow woman	0	1	1	0	0	0
store	0	0	0	0	1	1
sun	7	8	15	4	2	6
sunset	0	0	0	1	0	1
"surprise"	0	1	1	0	0	0
swing	0	0	0	0	1	1
towel	1	0	1	0	0	0
train	0	0	0	3	0	3
tree	3	9	12	3	3	6
wash cloth	1	0	1	0	0	0
water	1	0	1	0	0	0
wigwams	1	1	2	0	0	0
windows	0	0	0	0	4	4
wise man	1	0	1	0	0	0
Christmas tree	3	1	4	5	11	16
yard	0	0	0	1	0	1

Table 8

Objects Modeled in Type I Listed According to Artist

Deaf			Hearing		
Boys	Object	No. times modeled	Boys	Object	No. times modeled
B	flower	1	C	snowman	2
	pipe	1		frying pan	2
	giraffe	1		girl	1
	rolling pin	1		boy	1
	tambourine and beater	1		man	1
				rattlesnake	1
	dumbbell	1		monster	1
	boy	1		man with bullet holes	1
	face	1			
	baseball bat	1			
	basket	1			
L	ball	2	W	elephant	1
	boy	1		rattlesnake	1
	snake	1		colt with saddle	1
	apple	1		airplane	1
	airplane	1		seal	1
	basket	1		Tarzan	1
	Nazi insignia	1		hot dog	1
	tree	1		shell	1
	implement used by Indian chiefs	1		bed	1
	basket of apples	1		snail	1
	grapes	1		man	1
V	airplane	1	C	slide	1
	picture	1		fish	1
	Christmas tree	1		birdhouse	1
	fish bowl	1		Christmas tree	1
	Santa Claus and pack	1		train	1
				horse	1
	boy	1		carrot	1
	star	1		wagon	1
	train	1		spinach	1
	plaque	1		giraffe	1

Table 8 Cont'd.

Objects Modeled in Type I Listed According to Artist

Deaf			Hearing		
Boys	Object	No. times modeled	Boys	Object	No. times modeled
S	snowman	2	P	ball	2
	man	2		skeleton	2
	monkey	2		alligator	1
	dog	1		snake	1
	swing	1		pie	1
	boat	1		candleholder	1
				bed	1
				basket	1
				boat	1
				stretcher	1
				mirror	1
Girls			Girls		
A	house	4	X	churn	2
	rabbit	3		ladder	2
	ball	2		chair	1
	bird	1		bathtub	1
	dog	1		meat dish	1
	horse	1		bracelet	1
	towel	1		ring	1
	pipe	1		sun	1
	cooky	1			
	ice cream cone	1			
J	face	3	M	chair	3
	man	1		turkey	1
	father	1		pig pen	1
	candy bar	1		candlestick	1
	cow	1		candleholder	1
	snow man	1		table	1
	boy	1		girl	1
	hat	1		bed	1

Table 8 Cont'd.

Objects Modeled in Type I Listed According to Artist

Deaf			Hearing		
Girls	Object	No. times modeled	Girls	Object	No. times modeled
H	mouse	2	N	rabbit	1
	cat	1		giraffe	1
	cup and saucer	1		elephant	1
	plate	1		cup and saucer	1
	pig	1		bed	1
	doll	1		candleholder	1
	chain for Christmas tree	1		lamp	1
				birthday cake	1
	chair	1		snail	1
	ball	1		buggy	1
	basket	1		picture	1
Y	snake	2	L	ash tray	1
	worm	1		Christmas tree	1
	cake	1		Christmas package	1
	plate	1		star	1
	fish	1		candlestick	1
	tree	1		candleholder	1
	needle and thread	1		school seat	1
	necklace	1		couch	1
	star	1		table	1
	sun	1		snowman	1

Table 9

Objects Modeled in Type I Listed According to Subject

Objects	Deaf			Hearing		
	Boys	Girls	Total	Boys	Girls	Total
airplane	3	0	3	1	0	1
alligator	0	0	0	1	0	1
apple	1	0	1	0	0	0
ash tray	0	0	0	0	1	1
ball	2	3	5	2	0	2
baseball bat	1	0	1	0	0	0
basket	2	1	3	1	0	1
basket of apples	1	0	1	0	0	0
bathtub	0	0	0	0	1	1
bed	0	0	0	2	2	4
bird	0	1	1	0	0	0
birdhouse	0	0	0	1	0	1
birthday cake	0	1	1	0	1	1
boat	1	0	1	1	0	1
book	0	0	0	0	1	1
boy	3	1	4	1	0	1
bracelet	0	0	0	0	1	1
buggy	0	0	0	0	1	1
candleholder	0	0	0	1	3	4
candlestick	0	0	0	0	3	3
candy bar	0	1	1	0	0	0
carrot	0	0	0	1	0	1
cat	0	1	1	0	0	0
chain for Christmas	0	1	1	0	0	0
chair	0	1	1	0	4	4
churn	0	0	0	0	2	2
colt with saddle	0	0	0	1	0	1
cooky	0	1	1	0	0	0
couch	0	0	0	0	1	1
cow	0	1	1	0	0	0
cup and saucer	0	1	1	0	1	1
dog	1	1	2	0	0	0
doll	0	1	1	0	1	1
dumbbell	1	0	1	0	0	0
elephant	0	0	0	1	1	2
face	1	3	4	0	0	0
father	0	1	1	0	0	0
fish	0	1	1	1	0	1
fish bowl	1	0	1	0	0	0
flower	1	0	1	0	0	0

Table 9 Cont'd.

Objects Modeled in Type I Listed According to Subject

Objects	Deaf			Hearing		
	Boys	Girls	Total	Boys	Girls	Total
frying pan	0	0	0	2	0	2
giraffe	1	0	1	1	1	2
girl	0	0	0	1	1	2
grapes	1	0	1	0	0	0
hat	0	1	1	0	0	0
horse	0	1	1	1	0	1
hot dog	0	0	0	1	0	1
house	0	4	4	0	0	0
ice cream cone	0	1	1	0	0	0
Indian implement	1	0	1	0	0	0
ladder	0	0	0	0	2	2
lamp	0	0	0	0	1	1
log cabin	0	0	0	0	1	1
man	2	1	3	2	0	2
man with bullet holes	0	0	0	1	0	1
meat dish	0	0	0	0	1	1
mirror	0	0	0	1	0	1
monkey	2	0	2	0	0	0
monster	0	0	0	1	0	1
mouse	0	2	2	0	0	0
Nazi insignia	1	0	1	0	0	0
necklace	0	1	1	0	0	0
needle and thread	0	1	1	0	0	0
picture	1	0	1	0	1	1
pie	0	0	0	1	0	1
pig	0	1	1	0	0	0
pig pen	0	0	0	0	1	1
pipe	1	1	2	0	0	0
plaque	1	0	1	0	0	0
plate	0	2	2	0	0	0
rabbit	0	3	3	0	2	2
rattlesnake	0	0	0	2	0	2
ring	0	0	0	0	1	1
rolling pin	1	0	1	0	0	0
Santa Claus	1	0	1	0	0	0
school seat	0	0	0	0	1	1
seal	0	0	0	1	0	1
shell	0	0	0	1	0	1
skull	0	0	0	2	0	2
slide	0	0	0	1	0	1

Table 9 Cont'd.

Objects Modeled in Type I Listed According to Subject

Objects	Deaf			Hearing		
	Boys	Girls	Total	Boys	Girls	Total
snail	0	0	0	1	1	2
snake	1	2	3	1	0	1
snowman	2	1	3	2	1	3
spinach	0	0	0	1	0	1
star	1	1	2	0	1	1
stretcher	0	0	0	1	0	1
sun	0	1	1	0	1	1
swing	1	0	1	0	0	0
table	0	0	0	0	2	2
tambourine and beater	1	0	1	0	0	0
Tarzan	0	0	0	1	0	1
train	1	0	1	1	0	1
tree	1	1	2	0	0	0
towel	0	1	1	0	0	0
turkey	0	0	0	0	1	1
wagon	0	0	0	1	0	1
worm	0	1	1	0	0	0
Christmas package	0	0	0	0	1	1
Christmas tree	1	0	1	1	1	2

Table 32

Comparison of the Activities of the Deaf and Hearing Children During the Painting Periods

Activities	Deaf			Hearing		
	Boys	Girls	Group	Boys	Girls	Group
Attitude						
Enthusiastic	8	30	38	21	23	44
Cooperative	26	10	36	17	13	30
Indifferent	7	6	13	5	6	11
Antagonistic	4	0	4	0	0	0
Attention						
Excellent	42	28	70	33	30	63
Good	3	15	18	7	12	19
Fair	0	2	2	2	0	2
Poor	0	1	1	2	0	2
Conversation						
About work	5	31	36	27	32	59
Unrelated topics	1	30	31	23	26	49
Self-criticism						
Expressed pleasure	2	11	13	1	0	1
Expressed criticism	0	0	0	4	9	13
Requests for suggestions or advice	1	0	1	5	9	14

Table 23

Comparison of the Activities of the Deaf and Hearing Children During the Modeling Periods

Activities	Deaf			Hearing		
	Boys	Girls	Group	Boys	Girls	Group
Attitude						
Enthusiastic	6	30	36	16	21	39
Cooperative	26	14	40	21	19	40
Indifferent	9	5	14	5	6	11
Antagonistic	4	0	4	0	0	0
Attention						
Excellent	40	35	75	32	36	68
Good	5	13	18	7	10	17
Fair	0	1	1	3	0	3
Poor	0	0	0	2	0	2
Conversation						
About work	5	15	20	34	33	67
Unrelated topics	4	10	14	25	25	50
Technique						
Rolled	43	47	90	43	43	84
Rounded	18	14	32	14	4	18
Molded from mass	2	1	3	2	10	12
Stuck pieces together	34	38	72	32	34	66
Used stick	21	24	45	24	15	39
Self-criticism						
Expressed pleasure	0	8	8	2	1	3
Expressed criticism	0	0	0	2	13	15
Requests for suggestions or advice	1	0	1	3	6	9

Table 24

Comparison of the Activities of the Boys and Girls During the Experimental Periods

Activities	Painting		Modeling	
	Boys	Girls	Boys	Girls
Attitude				
Enthusiastic	39	53	24	54
Cooperative	43	33	47	33
Indifferent	13	13	14	11
Antagonistic	4	0	4	0
Attention				
Excellent	74	58	64	71
Good	10	37	13	23
Fair	2	2	3	1
Poor	2	1	2	0
Conversation				
About work	32	53	37	48
Unrelated topics	24	40	29	35
Technique in modeling				
Rolled			89	89
Pounded			32	18
Molded from mass			4	11
Stuck pieces together			66	70
Used stick			45	30
Self-criticism				
Expressed pleasure	3	11	2	9
Expressed criticism	4	9	2	13
Requests for suggestions or advice	6	9	4	6

Table 11

A Comparison of the Activities of the Deaf and Hearing Children During the Experimental Period

Activities	B 11-11	Q 11-10	L 12-12	V 12-11	F 10-10	C 10-10	S 12-12	P 10-13	A 12-16	M 10-10	J 12-11	N 11-13	H 11-11	E 11-13	Y 11-11	I 10-10
a. Attitude																
Enthusiastic	8-6	6-4		11-10		1-1		3-3	10-13		12-11	8-4	8-6	9-11		6-6
Cooperative	3-3	5-6	9-8	1-1	10-10	4-4	4-4	7-10	2-3	4-5		3-9	3-5	2-2	5-6	4-3
Indifferent	1		3-3			5-5	4-4			6-5					6-5	
Antagonistic							4-4									
b. Attention																
Excellent	8-10	10-6	12-11	11-10	10-8	9-10	12-11	2-6	7-14	10-10	8-6	7-12	2-4	5-5	11-11	8-9
Good	3-1	1-4	1	1-1	2	1	1	4-2	5-2		3-5	4-1	7-6	6-6		2-1
Fair								2-3					2-1			
Poor								2-2			1					
c. Conversation																
About work	3-3	10-10		10-10	2-2	1-4		6-10	4-1	4-1	8-4	10-12	9-10	10-12		8-8
Unrelated topics	1	4-6	1	11-10	2	1-1	1	7-8	4	2-1	1-1	8-7	9-9	10-10		6-7
d. Technique used in modeling																
Rolled	11	10	12	11	8	10	12	11	16	10	10	13	10	11	11	8
Pounded	3	5	4	3	6	2	4	4	3	8	7		2		2	2
Molded from mass	2			1				1		3			1	5		2
Stuck pieces together	6	10	8	9	9	9	11	4	11	7	9	13	9	7	9	7
Used stick	5	8	3	6	7	1	6	9	9		9	2	3	10	3	3
e. Self-criticism																
Expressed pleasure	2	1				2			8		1-4	1	1-1		1-3	
Expressed criticism				2-2		2				2-3				6-6		1-4
f. Request for suggestions or advice		1-3		1	1	1	1				1			6-4		2-2

INSTRUCTIONS TO THE JUDGES FOR THE CLASSIFICATION OF THE PAINTINGS

Take one folder at a time. Examine all the paintings in that folder one at a time. Read the classification given below and decide in which classification the painting you are examining belongs.

1. Scribbling--no meaning can be interpreted.
2. Scribbling with meaning--some resemblance to known objects can be seen.
3. The objects painted can readily be identified, and may or may not possess some detail. No perspective, depth, or light and shade are present. No attempt at aesthetic interpretation can be seen.
4. The objects are not only readily identified, but the picture contains perspective, and/or light and shade, and is detailed.

After you have decided whether the painting should be classified as belonging in stage 1, 2, 3, or 4, turn the painting over and note the symbols written on the back. Among the cards which you have been given you will find one which is marked with symbols representing each painting contained in the folder which you have at present. Look down the list

of symbols under the column marked "Paintings" until you find those symbols which correspond to the symbols on the back of the painting you have just examined. Put the number of the stage of development (1, 2, 3, or 4) in which you have decided this painting belongs in the column marked "Classification", directly opposite the symbols for this painting. Please remember to look at the symbols on the back of every painting, and to classify every painting in all sixteen folders.

Thank you very much.

SCORE CARD FOR THE CLASSIFICATION OF THE PAINTINGS

Child: _____ Judge: _____

Paintings	Classification

INSTRUCTIONS FOR CLASSIFICATION OF CLAY MODELS

On the large tables in this room you will find clay models separated into groups. Under each model is a slip of paper on which are recorded a symbol and a number. Please look at the first model carefully but do not touch it. Decide in which of the classifications given below the model belongs.

1. Manipulative--the object modeled cannot be recognized.
2. Schematic--the object modeled is recognizable but is not finally modeled or detailed.
3. Representative--the object modeled is readily recognized, is finely modeled and detailed.

On the score card which you have been given you will find a symbol and a number which correspond to the symbol and the number of the model you have just examined. Write the number of the classification in which you decided the model belongs opposite its symbol and number and in the column marked "Classification". When you have classified all the models in one group, return the score card to the examiner who will give you another score card for the next group.

Thank you very much.

SCORE CARD FOR THE CLASSIFICATION OF THE CLAY MODELS

Child: _____ Judge: _____

Clay models	Classification

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