

A STUDY OF THE EFFECT OF THE LENGTH OF THE ART PERIOD
ON THE ART PRODUCT PRODUCED BY THE CHILD

by

JOAN LILLY HAHN

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INTRODUCTION

The purpose of this research was to study how children of three different ages, eight, nine, and eleven, would react to different lengths of art periods and how this would show up in their art work. Is it better to have a long or a short art period or does it make any difference? This question is being asked not only by those setting up an art schedule, but also in a self-contained classroom where no set length of period has to be established.

In the art education world it is assumed that it is best that the child be allowed the time he needs to finish his art project once it is started when his interest is high, without having to fit himself to a schedule. Art instructors and supervisors feel that this is so, but have no evidence to prove this. It can not be shown by concrete evidence that a twenty or thirty minute period is not long enough, that if one must have a schedule, the time period should be adequate, or that it would be still better to let art go on naturally in a self contained classroom under an experience curriculum.

One of the first difficulties encountered in this study was the lack of a means of measuring or evaluating progress in art. Little or nothing has been done in this field.

This study was begun when the need for conclusive data to back up art philosophy was felt by this author. Several months later the NAEA came out with their 1954 Yearbook which was entirely devoted to research.

Marion Quin Dix, president of the NAEA in 1954, stated this problem in the preface (Barkan 1).

We, as art educators, have been so long concerned with "process" and "doing" that we have had neither time nor energy to contemplate and prove our thesis.

The time has come, however, when the interests and enthusiasms of non-art educators for art experience for all children demand that we find some answers to their important questions....This we must do on the basis of criteria tested by us and meaningful to them. To do this requires a program of research in which we shall all have to help.

This Fifth yearbook of the National Art Education Association is the first one devoted to research and represents a significant step in the early stages of a long and difficult process of developing an adequate program of research.

The introduction to the NAEA Yearbook goes on to state (1):

Art educators are in a very uncomfortable state of mind with respect to research. Out of repeated experience, they are convinced that no activities in education are more beneficent to the development of good personality or more contributive to the improvement of general cultural conditions than are the arts. They can state, with religious conviction, scores of desirable specific contributions of the arts to the making of good human beings. Not so long ago, I found myself reciting publically to a group of art educators some forty or fifty such contributions. I made these claims without hesitation, out of observation and experience, and they were accepted by the group without demur. If there had been time and need, I could have cited hundreds of case incidents which would have been entirely convincing to these teachers who had many similar incidents in their minds. If, however, there had been a single "hard boiled" scientific researcher in the group, who was not also an art educator, he would have had dozens of questions which could not have been answered, and cannot yet be answered in terms of respectable research standards. We also know that unless we can find ways to apply such standards, or to invent new research methods which will carry equal conviction, we shall fail in our efforts to persuade educational policy makers, budgeteers, and tax payers that our services are not only essential, but of unique value.... practically all we have of research in art education is pretty feeble stuff from the point of view of the advanced research technician.

In this study, only the children's art work was evaluated, but a method of evaluating the actual creative atmosphere during the art period would have been valuable. It is hoped that such a method will be developed.

One must also be prepared to find that all one practices and preaches is not right. Not only is research a tool for testing and verifying educational concepts and ideas; it is also the way toward the discovery of new knowledge and the clearer definition of the concepts and ideas we hold. In this way teaching can be continually improved.

LITERATURE SURVEY

Very little has been written about the amount of time allotted for art in books in the art education field. Mitchel (10) in 1937 stated that this problem is administrative and falls definitely outside the art field. She said it should be solved through cooperation of the principals and supervisors with the classroom teachers. In this paper it is recognized that the art supervisor definitely has this problem to solve.

Other art educators who mention time and art are Manfred Keiler, Sallie E. Tannahill, and Wilhelm Viols.

Keiler (8) suggested that a record be kept of the amount of time a child spent on his drawings. Comparing records should help to show how each child's interest span increased during a school year.

Tannahill (13), in 1932, directed her writing to the public school administrator.

To be in keeping with present-day tendencies, there should be a more generous time allotment for art than has been given it in the past. Since art is so often an important part of the general activity work in the grades, the periods devoted to it should be long enough to enable the work to be carried through in the desired length of time. It is difficult to accomplish creative work in short prescribed periods that occur with clock-like regularity.

She recommends two longer periods a week rather than several short ones.

In the periods often allowed for art there is hardly enough time to accomplish anything worthwhile after paints, brushes, and paper have been assembled and distributed....In school systems where art has proved to be a vital and necessary part of the lives of children, sufficient time will be given to it.

Viola (14) states that Cizech's juvenile art classes met two hours once a week. These children were five to fourteen years of age and divided into two groups according to development. Viola reported the children loved the two hours of uninterrupted work.

In the field of Elementary Education more was written about the time allotment for art.

Otto (11) designated two one hour art periods a week in the broad fields curriculum for intermediate grades. He emphasized that every school needs some sort of schedule to fit its conditions so that it may advance toward the educational goals sought for children.

Both Millard (9) and Elsbree (4) agreed with Otto and designated a one hour period each day for Creative Activities which included art, music, reading for pleasure etc.

Huggett (6) warned against the dangers of a special arts and crafts period. He felt that art may thus become isolated from the regular school program, and become a complete waste of time. Ideally art should be utilized in the classroom under centers of interest or units of experience and its influence felt at all times.

Peters (12), too, felt that there should be no regimented time schedule.

Dougherty, et al. (3) discussed the problem of time allotment as follows:

Art is an area that has a small time allotment: yet, by its very nature it is best suited to relatively long class periods....

....it is urged by some that the great length of time elapsing between class periods causes a break in the continuity of the lesson procedures, which, in turn, results in a loss of skill and interest. On the other hand it is generally conceded that short periods are not conducive to the stimulation of interest: In this situation the teacher is likely to use the total class period in assigning the lesson and checking the results. Short periods cause the activities to change so often that the pupils are kept in a state of quandary.

Brown (2) considered the daily program as a flexible guide. The time to be allowed for each subject should be guided by students needs which can be determined by testing and local, national and state norm guides.

Not one author backed up his statements by research or other scientific evidence in the opinions here summarized and quoted.

EXPERIMENTAL PROCEDURE

General Background of the Sample

The third, fourth and sixth grades were chosen for this study from Garfield and McKinley grade schools in Clay Center, Kansas, a city of about 5,000. The two schools have about equal economic and social backgrounds. The third, fourth and sixth grades at McKinley School were chosen as the experimental group with 80 minute art periods once a week. The control group with a 30 minute period three times a week was assigned to grades three, four and six at Garfield School. Making allowances for getting materials out and putting them away, both experimental and control groups spent approximately the same amount of time in art class each week.

Since the art instructor did not teach art below the third grade, grades three, four, five and six were chosen for this experiment so that teaching methods could be held constant. Grade five was eliminated because of personality problems in one of the classes which might have influenced the results.

Art Background of the Sample

Both third grades entered the experiment with good kindergarten art background. The third grade children in the 80 minute period had more creative art work in grades one and two than did the third grade children in the 30 minute period. The art instructor took over responsibility for teaching art at the third grade level.

The fourth grades both had doubtful kindergarten creative art background taught them by the same teacher. The fourth grade children in the 80 minute period had more creative art work in grades one and two than did the fourth grade children in the 30 minute period. During the third grade both groups

had 30 minute art periods, two each week one semester, three each week the other semester, under the present art instructor.

The sixth grades both had doubtful kindergarten creative art background under the same teacher. In the first grade the 80 minute period had an excellent creative art situation, while the 30 minute period had a poor one. Both had poor art background in second grade. In third grade both had 30 minute art periods, two each week one semester, three each week the other semester, under the previous art instructor which was good. In fourth, fifth and the present sixth grade the children of both groups have had art under the present instructor. The above described schedule was also used during their fourth and fifth year.

Composition of the Classes

Pictures were saved at the beginning and end of the experimental period from the constant group, that is, from the part of each class which remained in the same class at the same school. Table one compares the class size among the six groups. Transients, those who moved during the experimental period to or from another school or who were not in regular attendance at art classes were excluded from the study. Repeaters, those who had been retained in a class were also eliminated from the study.

Table 1. A comparison of class size among the six groups.

Grade	Period Min.	Regular Members	Transients	Repeaters
3	80	22	1	1
3	30	30	6	0
4	80	21	6	0
4	30	25	10	1
6	80	26	5	0
6	30	31	8	0

Classroom Procedure

A diary was kept of each class period during the experimental time which began in October, 1954 and ended the first part of March, 1955. From the diary it was possible to see how much time the different classes averaged in discussion and preparation, work, and clean up respectively.

Table 2. Average time (in minutes) distribution of art time each week.

Grade	Period	Preparation & Discussion	Work	Cleanup
3	80	17	53	10
3	30	41	37	12
4	80	17	53	10
4	30	25	50	15
6	80	20	52	8
6	30	30	45	15

The third grade, 80 minute period, came out way ahead in time spent actually working, averaging 16 more minutes working time per week than did the 30 minute period.

Fourth grade time averages were much more closely related with the 80 minute period averaging 53 minutes per week and the 30 minute period averaging 50.

Cleanup, discussion and preparation averaged considerably less time in the sixth grade, 80 minute period, which was only 28 minutes per week, than it did in the 30 minute period which averaged 45 minutes per week in cleanup. The average work time per week was: 30 minute period—45 minutes, 80 minute period—52 minutes.

The increase in interest span also showed up in the diary for the 80

minute periods. At the beginning of the year most third graders would finish their first pictures after about 30 to 40 minutes of work. A few spent as little time as 20 minutes on the first pictures. At the end of the testing period interest span had increased by as much as 20 to 30 minutes. In fact many children were not able to finish at the end of the 80 minute period and did not want to stop when it was time for the period to end.

Much complaining arose from the third graders in the 30 minute period when it was time to quit. They usually were just getting started and resented very much that they had to stop. This is understandable when it is noted that their working time averaged only 14 minutes per 30 minute period. While this may be ample time for crayon, the children did not consider it long enough for other medium according to the observations recorded in the diary. Third graders learn quickly, however, and they soon became resigned to the fact that they could seldom finish anything in one period even when they were highly interested. They did not seem to mind going back to their unfinished work two days later.

The third grade's reaction was similar to that of the fourth and sixth grade 30 minute period.

Because of unavoidable interruptions in schedule some classes had to be extended longer than others to have the same amount of time spent in art before taking the actual results. Thus each grade spent approximately the same amount of time in each medium indicated in the table during the experimental period.

Table 3. Time (in minutes) spent in the various medium during the experimental period.

Grade :	Period :	Water Color :	Crayon :	Craft and Other Medium
3	80	400	-	880*
3	30	390	-	870*
4	80	560	365	335
4	30	570	360	330
6	80	560	365	335
6	30	570	360	330

* Includes crayon.

Except for the differences in length of class period every effort was made to make the training period as similar as possible on each grade level. Described above is the amount of time spent in the various mediums. The category designated as crafts and other mediums include a vast variety of materials such as chalk, tempera paint, crayon and water color used together, mobiles, paper mache, puppetry, block printing, etc.

All classes were supplied with the best possible stimulation and creative art environment. Art lessons were begun with teacher-pupil planning about what the children were going to paint, draw, or make. These usually were lively accounts of the children's own experiences which they planned to paint or draw. The 80 minute period usually finished the lesson during the time while in the 30 minute period a lesson would often last an entire week. When a child's interest lagged, "I'm finished! See." a few leading questions such as, "Where is your clown? Are the children laughing at his funny tricks?" would be enough to encourage him to go on. At the climax of each lesson all the children's work would be displayed in their own classroom, with the exception of grade three, 80 minute period, whose work was displayed in the art room.

EXPERIMENTAL DESIGN

Description of the Sample

Since using all paintings from the entire group would have made a prohibitive number of pieces to evaluate in the time available, ten individuals from each class were chosen at random to represent their group. One painting was mounted from the beginning and one from the end of the experimental period for each of the ten students. This made 20 paintings from each of the six groups or 120 paintings in all. All of the pictures were 12x18 water color paintings edged with a half inch border of black construction paper and mounted on 18x24 tag board.

Judge Agreement

The four judges used in judging the paintings were art professors and instructors in the Department of Architecture and Allied Arts at Kansas State College.

A preliminary judging of the paintings proved that the first criteria set up for judging was too long and clumsy for judging these particular paintings (Appendix). Some questions could not be answered from the paintings of some of the children.

Consequently, a shorter list was made up which dealt only with the aesthetic quality of the paintings. The judges felt that all the pictures could be judged or evaluated on this criteria. The criteria or variables for evaluation included composition, color, technique, and texture. Each picture was rated on a scale of one, two or three with three being high in each of the four categories.

Care was taken that the judges did not know which were the initial and

final paintings or from which time period they were. They did, however, know the grade and the two paintings which belonged to an individual.

One major area of investigation is that of the degree of judge agreement. This was determined for each pair of judges on all four variables--composition, color, technique and texture. For purposes of determining whether or not each pair of judges agreed at better than a chance level the chi-square (χ^2) technique was used (Garrett 5). An example of a chi-square computation used in this study is included in the Appendix.

The degree of relationship between judges is given by the corrected coefficient of contingency (5), pp. 362-3. The coefficient of contingency is defined as $\frac{\chi^2}{\chi^2 + N}$ where N equals the total number of observations (120). Because this figure has an artificial "top" placed on it by the limited number of categories used, a corrected coefficient of contingency permits a more direct comparison with the correlation coefficient (the usual statistical method of expressing degree of relationship). In this case, the maximum value possible is .866. In order to get an estimate of the "true" correlation, each of the contingency coefficients has been divided by .866, giving the corrected contingency coefficient--the most meaningful index of degree of relationship.

Table 4. Corrected coefficients of contingency between pairs of judges.

Judge	Color	Composition	Texture	Technique
A & B	.296	.172	.283	.149
A & C	.343*	.314*	.431**	.203
A & D	.326*	.240	.254	.248
B & C	.416**	.195	.551**	.372**
B & D	.421**	.315*	.391**	.128
C & D	.597**	.137	.294	.401**

* P<.05

** P<.01

All coefficients were positive, but only twelve of twenty four were significantly different from zero at the .05 level. A word of explanation regarding the probability level: this figure represents the degree of confidence one can place in the statement, "There is better than a chance agreement between the two judges." Thus, if the probability level is less than .05 it means that there are less than five chances in 100 that one is wrong when one makes the statement (marked with one asterisk), and if the probability level is less than .01 it means that there is less than one chance in 100 that one is wrong when one makes this statement (designated by two asterisks). In other words, only 12 of 24 comparisons show a degree of agreement high enough to be very certain that the judges had about the same thing in mind when making their ratings.

The general interpretation of these data is that the judge agreement was remarkably low. Only on the variable of color was there consistent significance and even then the corrected contingency coefficients were far lower than those usually expected in studies of judge agreement. In fact, in order to feel very confident that the judges were using about the same frame of reference in making their ratings these coefficients should probably be .70 or higher.

In the study itself the measures that were used were the sum of the ratings of all four judges. The reliability of the sum was not ascertained. That is, the question, "Would the ratings for any given individual be about the same if the judges were to make their ratings again today?" is unanswered. In general one feels fairly certain that the reliability of a composite rating will be higher than the reliability for any two components of that rating. Thus, perhaps, one can feel somewhat justified in dealing with the sum of the ratings as the basic measure, although it is doubtful that this

index has sufficient reliability for ordinary statistical purposes.

Description of the Experimental Design

Two factors were evaluated for each of the four variables, color, composition, technique, and texture. They are length of class period and grade. In addition, the possibility of interaction between grade and period was investigated. To do this, a factorial design was used (Johnson 7). There were ten replications, or students, from each group whose work was evaluated.

Three hypotheses are made for each of the four variables as well as for the composite ratings of all four of these. The first hypothesis is that there is no difference between grades in final ratings received, when initial ratings are held constant. Hypothesis two is that there is no difference between periods in final ratings received, when initial ratings are held constant. The final hypothesis is that there is no significant interaction, or difference between the grades and periods, in final ratings received, with initial ratings held constant. If a significant interaction were found, it would mean that the results obtained for one grade and period were significantly different from those obtained for another grade and period.

EXPERIMENTAL RESULTS

The experimental design requires the use of the techniques of the analysis of variance and covariance. There are several statistical assumptions underlying these techniques. It is assumed that experimental errors are normally distributed around zero with the same variance and covariance. Final ratings on each of the variables for each of the six groups were tabulated and an inspection of these distributions led to the conclusion that

they were reasonably normal. Therefore it was assumed that the first assumption (normality of experimental errors) was fulfilled, although this was not rigidly tested. In testing the hypothesis of homogeneous variances, the null hypothesis is accepted in every instance. The calculations of L_1 are included in the Appendix. One can feel reasonably certain that the variances among the six groups (the degree of variability among class members) are not significantly different. The assumption of homogeneous covariance was not tested statistically, primarily because of the independence of original and final ratings.

The basic data for the calculations in this study are included in the Appendix. The first and most interesting conclusion from these data is that there is no significant relationship between first and second ratings. For example, the student who stands high in ratings on composition originally is just as likely to stand low in the final assessment as he is to stand high. The same is true for the other variables. This is a highly unusual finding since in general those who were originally low on an ability or an achievement are also low on this variable at the end of the training period. The result conceivably could be a function of art as a subject matter, or of the particular teaching approach used with the children, or of the unreliability of the judge ratings. The latter seems the most likely explanation although there is not enough information to be very certain of this. The product moment correlation between initial and final ratings for each of the variables are as follows: composition, $-.077$; technique, $-.098$; color, $-.077$; texture, $.039$; and composite, $-.138$.

The data in Tables 5 through 9 show the average ratings obtained in each of the variables for each of the six sections. The statistical significance of trends in these data has been tested by the data in Table 11 in the Appendix.

It is very probable that there would have been many more significant differences if original scores had been more closely related to final scores.

Table 5. Average ratings obtained in the variable composition.

Period Min.	<u>Grade 3</u>		<u>Grade 4</u>		<u>Grade 6</u>		<u>Total</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
30	8.5	9.6	9.5	8.7	9.6	8.4	9.20	8.90
80	8.5	8.7	6.9	8.4	8.1	9.1	7.63	8.73
Total	8.50	9.15	8.20	8.55	8.85	8.75		

On the variable "composition" there were no significant differences between the periods, between groups and no significant interaction between the two. The trend shown by initial and final ratings was toward a gain for the 80 minute periods for fourth and sixth grades and a loss for the 30 minute periods in fourth and sixth grades. Both periods in grade three gain, but the 30 minute period gains more.

Table 6. Average ratings obtained in the variable color.

Period Min	<u>Grade 3</u>		<u>Grade 4</u>		<u>Grade 6</u>		<u>Total</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
30	8.1	8.5	9.1	7.0	10.6	7.2	9.27	7.57
80	9.2	8.1	6.9	8.3	9.4	8.0	8.50	8.13
Total	8.65	8.30	8.00	7.65	10.00	7.60		

The variable "color" likewise shows no significant differences between the grades, the periods, and no significant interaction between the two. However, a comparison between initial and final ratings did show a trend toward a loss in both the 80 minute period and the 30 minute period in sixth

grade; in fourth grade a loss in the 30 minute period and a gain in the 80 minute period; and in grade three a gain in the 30 minute period and a loss in the 80 minute period.

Table 7. Average ratings obtained in the variable technique.

Period Min.	Grade 3		Grade 4		Grade 6		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
30	8.1	9.0	8.3	7.7	9.6	7.1	8.67	7.93
80	8.6	8.8	6.6	8.0	7.9	8.6	7.70	8.47
Total	8.35	8.90	7.45	7.85	8.75	7.85		

A significant F value occurred on the variable "technique," where there was a significant difference between groups. The third graders were rated significantly higher on technique than were fourth or sixth graders. There were no significant differences in technique shown between periods or in the interaction between groups and periods. The trend shown by initial and final ratings was toward a gain in fourth and sixth grades for the 80 minute period and a loss for the 30 minute period. Both third grades gain, but the 30 minute period gains more.

Table 8. Average ratings obtained in the variable texture.

Period Min.	Grade 3		Grade 4		Grade 6		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
30	7.3	7.4	7.9	6.7	7.8	6.3	7.67	6.80
80	8.2	7.3	5.9	7.7	7.2	8.2	7.10	7.73
Total	7.75	7.35	6.90	7.20	7.50	7.25		

A significant F value also occurred on the variable "texture" where there was a significant difference between periods. The students who participated in the 80 minute period made significantly higher scores than did those participating in the shorter periods. No difference was found between grades under texture. A small difference was shown in the interaction between grades and periods. Noted here was a trend in fourth and sixth grades toward a gain by the 80 minute period and a loss by the 30 minute period. In third grade the 30 minute period showed very little gain and 80 minute period a loss.

Table 9. Composite of the ratings in all four variables.

Period Min.	<u>Grade 3</u>		<u>Grade 4</u>		<u>Grade 6</u>		<u>Total</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
30	32.0	34.5	34.8	30.1	37.6	29.0	34.8	31.2
80	34.5	32.9	26.2	32.7	32.5	33.9	31.1	33.2
Total	33.3	33.7	30.5	31.4	35.5	31.5		

Composite tabulations did not show any significant difference between grades, periods, or in the interaction between the two. Here, the trend shown by comparison of initial and final ratings in fourth and sixth grades indicated a loss in the 30 minute periods and a gain in the 80 minute periods. In third grade the 30 minute period showed a gain and the 80 minute period a loss.

Above it is shown that the third graders rated higher on technique than the fourth and sixth grades. In texture the students who participated in the 80 minute period made significantly higher scores than did those participating in the shorter period. The overall trend favored 80 minute periods in grades four and six while it was toward 30 minute periods at the third grade level, however, this trend was not statistically significant since original and final

ratings were, in each case, relatively independent.

DISCUSSION

In general the results showed that there was some indication that longer periods were best in fourth and sixth grades while a shorter period was favored in third grade. This, however, is not very strongly supported by the statistical analysis. Had there been a significant relationship between initial and final scores it is very probable that this trend would have been substantiated and that other significant differences would have been found.

Several reasons are set forth for the lack of significant relationships between first and second scores. The first is that it could be a function of art as a subject matter, the second that it might be the teaching approach, and the third that of the unreliability of the judge ratings.

Since the latter is considered the most likely reason because of the poor judge agreement, consideration should be given to some possible reasons why agreement was so low. First of all it might have been possible to have better judge agreement had there been more samples of each student's work from both the beginning and end of the experimental period. Color ratings might have been influenced by the fact that the first paintings were done on white paper while the last ones were painted on manila paper which would tend to gray the color. Some of the paintings were designs and some were about the children's experiences. If they had been all of one category or the other it might have made for better judge agreement. Perhaps each of the four variables, composition, color, technique, and texture, which were judged should have been more definitely defined so that the judges would be more apt to use the same frame of reference. Finally, in judging art work, the judge's personal likes and dislikes are bound to influence his rating. It may be that there is no

general agreement on what "good use of color" or "good technique," and so forth, mean.

While it could be possible that the teaching approach used influenced the lack of relationship between initial and final ratings, we have no evidence to explore this possibility. It is probably the least likely reason of the three set forth since up-to-date art philosophy was practiced at all times.

There is some reason to believe that the lack of relationship between initial and final ratings might be a function of art. In the art education field most educators are aware of a decline in the ability to create as the child grows older because of adverse influences from his environment. In other words he becomes self-conscious and critical of his work and an effort must be made by the art instructor to prevent this from happening. This could have something to do with the reason the second ratings were just as likely to be low as high at the end of the experimental period, even though the student rated high initially and vice versa. If this study were repeated many times with the addition of the refinements suggested above and there was still no relationship between initial and final ratings there would be a good reason to believe that this lack of relationship between initial and final scores is a function of art.

The indication in this study that the longer periods were best in fourth and sixth grades coincides with present art educational support of the longer art period. It also coincides with interest span which becomes longer as the child develops. This also offers an explanation of why the shorter period was indicated as better for third grade where the interest span would be shorter.

It was shown in the results that the third grades rated higher on technique than did fourth and sixth grades. This coincides with the assumption that creative ability declines as critical awareness develops in the older child. In other words, technique comes naturally for the third graders, while it is more of an effort for fourth and sixth graders.

The data from the diary indicates that more time was used in discussion, preparation, and cleanup each week by the 30 minute period than by the 80 minute period. Thirty minute periods did not make as efficient use of time as did the 80 minute periods. This backs up statements made by Tannahill (13) and Dougherty, et al. (3) about efficient use of time which were cited in the literature survey.

Comparing reactions of the two third grade classes to the length of their class period as taken from the diary, leads one to believe that possibly a period somewhere between 30 and 80 minutes would be more satisfactory. Although no evidence is given in this study to support this view, perhaps two, one-hour periods, a week as Otto (11), Millard and Huggett (9), and Elsbree, et al. (4) suggest would be best. This suggests another phase of experimentation which could be continued from this study.

It would be interesting to see this study continued in various localities, using the refinements in technique which have been suggested above.

SUMMARY AND CONCLUSIONS

The purpose of this research was to study how children of three different ages, eight, nine, and eleven, would react to different lengths of art periods and how this would show up in their art work.

The third, fourth, and sixth grades were chosen for this study from

Garfield and McKinley grade schools in Clay Center, Kansas, a city of about 5,000. The two schools have about equal economic and social backgrounds. The grades at McKinley School were chosen as the experimental group with 80 minute art periods once a week. The control group with a 30 minute period three times a week was assigned to the grades at Garfield. A diary was kept of each class period during the experimental period. A sampling of ten individuals from each class were chosen at random to represent their group in the final evaluation. One painting from the beginning and one from the end of the experimental period was mounted for each of the ten students. Four judges evaluated the paintings on composition, color, technique and texture.

1. The study indicated that the longer period (80 minutes) worked best in grades four and six. However, this was significant only in the variable, texture. Only trends, which were statistically not significant, favored the 80 minute period for grades four and six.
2. The shorter period (30 minutes) was indicated better for third grade by trends in each of the variables, but was statistically significant only in the variable texture.
3. The third grades rated significantly higher in technique than did the fourth and sixth grades.
4. The diary indicated that more time was spent in discussion, preparation, and cleanup in the 30 minute period which met three times a week than in the 80 minute period which met once a week. Thus, the 80 minute period had more time to spend in actual work.

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APPENDIX

Table 10. Basic Data.

G : P : I	: <u>Composition</u> :		: <u>Color</u> :		: <u>Technique</u> :		: <u>Texture</u> :		: <u>Composite</u>	
	: X :	: Y :	: X :	: Y :	: X :	: Y :	: X :	: Y :	: X :	: Y :
1 1 1	7	9	8	7	7	9	7	5	29	30
1 1 2	5	10	7	8	5	10	6	7	23	35
1 1 3	7	9	6	8	6	10	4	7	23	34
1 1 4	10	9	8	8	11	8	8	7	37	32
1 1 5	9	12	5	8	8	9	8	8	30	37
1 1 6	5	11	6	9	7	10	5	10	23	40
1 1 7	12	11	11	12	10	9	10	9	43	41
1 1 8	10	8	10	7	8	7	8	7	36	29
1 1 9	10	10	8	10	8	11	7	8	33	39
1 1 10	10	7	12	8	11	7	10	6	43	28
2 1 1	10	7	12	6	10	6	9	4	41	23
2 1 2	9	9	8	7	9	6	7	9	33	31
2 1 3	12	10	11	8	10	8	12	8	45	34
2 1 4	10	8	7	6	6	6	6	5	29	25
2 1 5	8	8	6	7	5	8	7	9	26	32
2 1 6	9	8	9	8	9	8	9	8	36	32
2 1 7	11	9	9	7	10	10	8	5	38	31
2 1 8	9	9	10	7	7	9	8	7	34	32
2 1 9	6	9	8	6	6	6	4	4	24	25
2 1 10	11	10	11	8	11	10	9	8	42	36
3 1 1	10	8	12	8	11	6	11	8	44	30
3 1 2	11	8	12	6	12	7	10	4	45	25
3 1 3	7	10	10	11	10	9	5	6	32	36
3 1 4	10	8	11	6	10	8	7	8	38	30
3 1 5	11	10	12	6	10	7	11	6	44	29
3 1 6	6	9	8	9	6	7	4	7	24	32
3 1 7	10	8	9	7	7	7	7	4	33	26
3 1 8	12	7	11	5	11	5	9	6	43	23
3 1 9	10	6	12	4	11	6	10	5	43	21
3 1 10	9	10	9	10	8	9	4	9	30	38
1 2 1	10	10	11	9	9	10	10	7	40	36
1 2 2	10	9	9	9	10	9	9	8	33	35
1 2 3	7	7	6	8	6	8	4	5	23	28
1 2 4	11	11	11	9	9	10	9	9	40	39
1 2 5	6	8	7	8	6	8	5	6	24	30
1 2 6	10	9	11	9	10	8	7	7	38	33
1 2 7	7	6	9	5	9	8	8	6	33	25
1 2 8	8	8	8	7	9	9	9	7	34	31
1 2 9	7	10	10	9	8	9	10	9	35	37
1 2 10	9	9	10	8	10	9	11	9	40	35
2 2 1	7	8	9	10	7	7	7	8	30	33
2 2 2	6	7	5	6	8	9	5	5	24	27
2 2 3	6	11	7	11	8	11	5	11	26	44
2 2 4	10	8	8	7	6	7	9	8	33	31

Table 10. (concluded)

G : P : I	Composition		Color		Technique		Texture		Composite	
	X	Y	X	Y	X	Y	X	Y	X	Y
2 2 5	8	10	7	10	7	10	7	9	29	39
2 2 6	5	8	5	5	5	5	5	6	20	24
2 2 7	5	9	7	10	6	9	4	7	22	35
2 2 8	9	7	8	9	7	8	8	7	32	31
2 2 9	7	7	6	6	6	7	5	7	23	29
2 2 10	6	9	7	9	6	7	4	9	23	34
3 2 1	8	7	9	5	7	9	4	7	28	28
3 2 2	9	9	10	8	8	7	7	7	34	31
3 2 3	8	9	10	7	10	9	9	9	36	34
3 2 4	7	10	7	9	6	9	6	6	26	34
3 2 5	8	10	10	10	8	11	8	8	34	39
3 2 6	9	7	10	8	6	7	6	7	31	29
3 2 7	8	11	10	11	7	10	8	11	33	43
3 2 8	11	8	12	5	11	6	11	7	45	26
3 2 9	5	11	7	8	7	11	6	11	25	41
3 2 10	8	9	9	9	9	7	7	9	33	34

G = Grade

1 = 3 rd grade

2 = 4 th grade

3 = 6 th grade

P = Period

1 = 30 min.

2 = 80 min.

I = Individual

1 to 10

X = Initial rating

Y = Final rating

Table 11. Analysis of variance and covariance.

	df	Σx^2	Σxy	Σy^2	df	Adjusted or reduced Σy^2	MS	F
<u>Composition</u>								
Error	54	179.7000	-12.1000	100.3000	53	99.4853	1.8771	....
GP	2	17.0500	-4.7666	6.5334	2	5.9022	2.9511	1.572 NS
G	2	4.2333	1.1333	3.7333	2	3.8941	1.9471	1.037 NS
P	1	28.0167	3.4166	.4166	1	.8683	.8683	....
Total	59	229.0000	-12.3167	110.9833	58	110.1499	No Sum	No Sum
<u>Color</u>								
Error	54	163.1000	9.4000	161.1000	53	160.5582	3.0294	....
GP	2	28.6334	-14.7833	7.6333	2	8.0240	4.0120	1.324 NS
G	2	41.6333	-4.1500	6.1000	2	6.5072	3.2536	1.074 NS
P	1	8.8166	-6.5167	4.8167	1	5.3101	5.3101	1.753 NS
Total	59	242.1833	-16.0500	179.6500	58	180.3995	No Sum	No Sum
<u>Technique</u>								
Error	54	165.1000	-4.9000	117.0000	53	116.8546	2.2048	....
GP	2	16.1299	-8.0667	7.6333	2	6.8510	3.4255	1.554 NS
G	2	17.7334	3.5000	14.7000	2	14.8347	7.4175	3.364 NS
P	1	14.0201	-7.7333	4.2667	1	3.5211	3.5211	1.597 NS
Total	59	212.9834	-17.2000	143.6000	58	142.0614	No Sum	No Sum
<u>Texture</u>								
Error	54	251.0000	24.8000	152.4000	53	149.1528	2.8142	....
GP	2	21.0334	-8.2167	10.0334	2	12.1697	6.0849	2.162
G	2	7.6333	1.2167	.2333	1	.8634	.8634	....
P	1	4.8166	-7.9333	13.0666	1	15.2017	15.2017	5.402
Total	59	284.4833	9.8667	175.7333	58	177.3866	No Sum	No Sum
<u>Composite</u>								
Error	54	2306.6000	-75.2000	1392.0000	53	1389.5483	26.2179	....
GP	2	322.0334	-115.5500	107.9334	2	96.5431	48.2716	1.841 NS
G	2	210.0333	16.6833	69.0333	2	70.1244	35.0622	1.337 NS
P	1	209.0666	-141.2000	58.0166	1	34.2643	34.2643	1.307 NS
Total	59	3047.7333	-315.2667	1626.9833	58	1590.4801	No Sum	No Sum

Table 12. L_1 calculations.

f	n_s	$\log n_s$	$n \log n$	Θ_s^n	$\log \Theta_s^n$	$n \log \Theta_s^n$
<u>Composition</u>						
8	10	1.000000	10.000000	20.4	1.30963	13.0963
8	10	1.000000	10.000000	8.1	.90849	9.0849
8	10	1.000000	10.000000	16.4	1.21482	12.1484
8	10	1.000000	10.000000	20.1	1.30320	13.0320
8	10	1.000000	10.000000	16.4	1.21484	12.1484
8	10	1.000000	10.000000	18.9	1.27646	12.7646
48	60	$\sum n \log n =$	60.0000	100.3	$\sum n_s \log \Theta_s^n =$	72.2746
$L_1 = .958$ $k = 6$ $f = 8$ Accept $P > .05$						
<u>Color</u>						
8	10	1.000000	10.000000	20.5	1.31175	13.1175
8	10	1.000000	10.000000	6.0	.77815	7.7815
8	10	1.000000	10.000000	45.6	1.65321	16.5321
8	10	1.000000	10.000000	14.9	1.17319	11.7319
8	10	1.000000	10.000000	40.1	1.60314	16.0314
8	10	1.000000	10.000000	34.0	1.53148	15.3148
48	60	$\sum n \log n =$	60.0000	161.1	$\sum n_s \log \Theta_s^n =$	80.5092
$L_1 = .818$ $k = 6$ $f = 8$ Accept $P > .05$						
<u>Technique</u>						
8	10	1.000000	10.000000	16.0	1.20412	12.0412
8	10	1.000000	10.000000	24.1	1.38202	13.8202
8	10	1.000000	10.000000	14.9	1.17319	11.7319
8	10	1.000000	10.000000	5.6	.74819	7.4819
8	10	1.000000	10.000000	28.0	1.44716	14.4716
8	10	1.000000	10.000000	28.4	1.45332	14.5332
48	60	$\sum n \log n =$	60.0000	117.0	$\sum n_s \log \Theta_s^n =$	74.0800
$L_1 = .880$ $k = 6$ $f = 8$ Accept $P > .05$						
<u>Texture</u>						
8	10	1.000000	10.000000	18.4	1.26482	12.6482
8	10	1.000000	10.000000	36.1	1.55751	15.5751
8	10	1.000000	10.000000	26.1	1.41664	14.1664
8	10	1.000000	10.000000	18.1	1.25768	12.5768
8	10	1.000000	10.000000	26.1	1.41664	14.1664
8	10	1.000000	10.000000	27.6	1.44091	14.4091
48	60	$\sum n \log n =$	60.0000	152.4	$\sum n_s \log \Theta_s^n =$	83.5420
$L_1 = .972$ $k = 6$ $f = 8$ Accept $P > .05$						



Table 12. (concluded)

f	n_s	$\log n_s$	$n \log n$	Θ_s^n	$\log \Theta_s^n$	$n \log \Theta_s^n$
<u>Composite</u>						
8	10	1.000000	10.000000	198.4	2.29754	22.9754
8	10	1.000000	10.000000	164.9	2.21722	22.1722
8	10	1.000000	10.000000	266.0	2.42488	24.2488
8	10	1.000000	10.000000	170.9	2.23274	22.3274
8	10	1.000000	10.000000	302.1	2.48014	24.8014
8	10	1.000000	10.000000	288.9	2.46075	24.6075
48	60	$\Sigma n \log n =$	60.0000	1391.2	$\Sigma n_s \log \Theta_s^n =$	141.1327
$L_1 =$	.971	$k =$	6	$f =$	8	Accept $P > .05$

An Example of a Chi-square Computation Used in this Study

Chi-square is defined by the equation $\chi^2 = \frac{(O-T)^2}{T}$ where O is the observed frequency and T the theoretical frequency. The observed frequency is obtained by determining the number of tallies in each separate cell. The theoretical frequency is given by the equation $\frac{R_i \times C_j}{GT}$ where R_i is the total number observed in the i^{th} row, C_j is the total number observed in the j^{th} column, and GT is the grand total of all observations. Thus, using the sample table below for Judge A and B on the variable composition, the theoretical frequency for the first cell (cell 1-1) is: $\frac{33 \times 23}{120} = 6.3$. For cell 1-2 the theoretical frequency would be $\frac{23 \times 60}{120} = 11.5$. Cell 1-3 can be obtained by subtracting ($6.3 \neq 11.5$) from 23 or by computing $\frac{27 \times 23}{120} = 5.2$

Table 13 Judge A and B, composition.

	Ratings	Judge A			Total
		1	2	3	
J	1	9 (6.3)	15 (16.2)	9 (10.5)	33
u	2	11 (11.5)	30 (29.5)	19 (19.0)	60
d	3	3 (5.2)	14 (13.3)	10 (8.5)	27
g	Total	23	59	38	120
e					
B					

JUDGES' INSTRUCTIONS (For preliminary evaluation schedule which was discarded.)

1. A rating sheet is provided for each picture. Each is titled according to the grade group it represents. Place the number of the picture and your initials in the upper right hand corner.
2. The pictures are numbered and hung in numerical order. The first number represents the grade, the second is the picture number.
3. The pictures are hung in three groups according to the grades they represent--3, 4, and 6. The rating sheets are different for each group.
4. Try to get the whole group in mind before rating each picture of the group individually.
5. Rate each picture 1 to 5 with 5 superior and 1 low.
6. The distribution should be approximately 10% 1, 20% 2, 40% 3, 20% 4, and 10% 5 in each grade group as far as possible. It does not have to be rigid.
7. Please rate the pictures independently without influence from the other judges.
8. If you feel that the picture does not contain sufficient evidence to judge on a certain question, rate it and add the initials "NSE".

(Preliminary evaluation schedule which was discarded.)

EVALUATION SCHEDULE FOR THIRD GRADE

AESTHETIC GROWTH:

1. Is there repetition in color, lines, or shapes which aid the design?
2. Does the child think in terms of the whole drawing—not in terms of single details only?
3. Does the child use decorative pattern?
4. Does the child fill all the paper with color?
5. Is there a dominate theme or center of interest?
6. Has the child filled the space or paper so it is well balanced?
7. Does the picture hold together, have unity?
8. Is there variety in the picture?

CREATIVE GROWTH:

1. Does the child create his own concepts—or do they look adult copied and influenced?
2. Does he vary these concepts?

TECHNICAL GROWTH:

1. Does the child apply paint smoothly?
2. Is the child able to control liquid paint, keep it from running?
3. Has the child discovered how to mix paints?

PERCEPTUAL GROWTH:

1. Are the lines strong and continuous—or weak and halting?
2. Does the child indicate differences in texture?
3. Are objects drawn smaller to indicate distance?
4. Does the child use variety of color, such as different greens for grass and trees?

5. Has the child discovered the horizon line?
6. Has he discovered that he can overlap, that is, put things in front of other things in his picture?

PHYSICAL GROWTH:

1. Does the child show action in the human figure?
2. Does the child keep his color within the determined space?

EMOTIONAL GROWTH:

1. Is there a lack of "folding over"?
2. Does the child use his scheme for drawing people and other objects flexibly?
3. Does the child vary the size according to the importance of what he is representing?
4. Does the child use bold lines or brush strokes?
5. Does the child omit, exaggerate or change meaningful parts of the picture?
6. Is there a lack of continued over-exaggeration?
7. Does the child draw large—or does he draw small, timid figures, objects and shapes?

INTELLECTUAL GROWTH:

1. Has the child developed representational ideas or shemata for the things familiar to him?
2. Are these clearly expressed?
3. Does he show details?
4. Does he relate color to objects realistically?

SOCIAL GROWTH:

1. Does the child see and show (put) himself in his picture?
2. Does he show the things in his environment in comparative size and perspective?
3. Does he use base lines?

4. Does the child draw about his environment?
5. Is there anything to indicate that the child sees himself in relation to other people?

EVALUATION SCHEDULE FOR FOURTH GRADE

AESTHETIC GROWTH:

1. Does the child relate colors to each other in an over-all color scheme?
2. Does the child use decorative pattern and texture?
3. Do details successfully become part of the total picture—or does he overdo detail to the neglect of the picture as a whole?
4. Does the picture have rhythm - gained by repeating colors, shapes, lines?
5. Does the picture hold together, have unity?
6. Is there variety in the picture?
7. Has the child filled the paper or space so it is well balanced?
8. Is there a dominate theme or center of interest?
9. Does the child fill all the paper with color?

CREATIVE GROWTH:

1. Does the child create his own ways of representing things from his own experience—or do they look adult copied and influenced?
2. Does he vary these concepts?

TECHNICAL GROWTH:

1. Does the child apply paint smoothly?
2. Is the child able to control liquid paint, keep it from running?
3. Has the child discovered how to mix paints?

PERCEPTUAL GROWTH:

1. Has the child discovered the horizon line?

2. Has he discovered that he can overlap, that is, put things in front of other things in his picture?
3. Are some objects drawn smaller to indicate distance?
4. Does the child indicate what effects light and motion have on the objects in his picture?
5. Does the child indicate differences in texture?
6. Does the child use variety in color, such as different greens for grass and trees?

PHYSICAL GROWTH:

1. Is the sex of the people drawn evident?
2. Does the child show moustache, hair style, and other secondary sex characteristics?
3. Does the child show action in the human figure?
4. Does he keep his color within the determined space?

EMOTIONAL GROWTH:

1. Does the child draw large--or does he draw timid figures, objects and shapes?
2. Does the child use bold lines or brush strokes?
3. Are the parts which might be most important to the child emotionally, the most detailed?
4. Does the child see himself in the drawing?
5. Does the child show any exaggerations?

INTELLECTUAL GROWTH:

1. Does the child put aside his schemata for representing things to any extent?
2. Does he show details?
3. Can you recognize details when they are separated from the whole?
4. Does the child show perspective or distance in the picture?
5. Does he indicate the sex of the people drawn in the picture?

SOCIAL GROWTH:

1. Is there a relation in size and perspective between the people in the picture and the background pictured?
2. Are the people pictured in proportion to each other?
3. Is it evident that the child feels that he is a part of the group by anything pictured?
4. Is there anything to indicate that the child notices social differences in people and where they live?

EVALUATION SCHEDULE FOR SIXTH GRADE**AESTHETIC GROWTH:**

1. Does the child relate colors to each other in an over-all color scheme?
2. Does the child use decorative pattern and texture?
3. Do details successfully become part of the total picture—or does he overdo detail to the neglect of the picture as a whole?
4. Does the picture have rhythm - gained by repeating colors, lines, shapes?
5. Does the picture hold together, have unity?
6. Is there variety in the picture?
7. Has the child filled the paper or space so it is well balanced?
8. Is there a dominate theme or center of interest?
9. Does the child fill all the paper with color?

CREATIVE GROWTH:

1. Even though he is becoming critical of his work does the child still manage to do a free, creative painting?
2. Does the child show originality?

TECHNICAL GROWTH:

1. Does the child apply paint smoothly?

2. Is the child able to control liquid paint, keep it from running?
3. Has the child discovered how to mix paints?

PERCEPTUAL GROWTH..... Is the child aware of the following:

1. Visual environment
2. Depth
3. Horizon
4. Light and shadow
5. Wrinkles and folds in clothing, etc.
6. Differences in line and color intensity in distant and close-up objects.
7. Texture
8. Emotions in people.

PHYSICAL GROWTH:

1. Are differences in girls and boys made clear?
2. Are joints used in the human figure?
3. Are differences in size and age of people shown?
4. Does he keep his color within the determined space?

EMOTIONAL GROWTH:

1. Does the child see himself in the drawing and in the action he depicts?
2. Are the figures relaxed and at ease?
3. Does he depict his environment and emotions in the picture?
4. Is color used either to symbolize or to create a mood?
5. Does the child draw large—or does he draw timid figures, objects and shapes?

INTELLECTUAL GROWTH:

1. Does the child completely put aside his schemata for representing things?

2. Does he show details, especially to show differences?
3. Does the child show a more conscious approach to his subject?

SOCIAL GROWTH:

1. Are the relative sizes of things obtained?
2. Is it evident that the child feels that he is a part of the group by anything pictured?
3. Is there anything to indicate that the child notices social differences in people and where they live?

A STUDY ON THE EFFECT OF THE LENGTH OF THE ART PERIOD
ON THE ART PRODUCT PRODUCED BY THE CHILD

by

JOAN LILLY HAHN

B. A., Bethany College, 1952

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Architecture and Allied Arts

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1955

The purpose of this thesis was to study how children of three different ages, eight, nine, and eleven would react to different lengths of art periods and how this would show up in their art work. In the art education world it is assumed that it is best that the child be allowed the time he needs to finish his art project once it is started when his interest is high. Art instructors and supervisors feel that this is so, but have no evidence to prove this. This study was begun when the author felt the need for conclusive data to back up art philosophy.

Few authors have dealt with the problem of time and art in the literature of art education. Those who did, did not back up their statements by research or other scientific evidence.

The third, fourth, and sixth grades were chosen for this study from Garfield and McKinley grade schools in Clay Center, Kansas, a city of about 5,000. The two schools have about equal economic and social backgrounds. The grades at McKinley School were chosen as the experimental group with 80 minute art periods once a week. The control group with a 30 minute period three times a week was assigned to the grades at Garfield. Both groups spent approximately the same amount of time in art class each week. A diary was kept of each class period during the experimental period.

All classes were supplied with the best possible stimulation and creative art environment. Art lessons were begun with teacher-pupil planning, individual encouragement and help was given, and the children's work was displayed regularly.

A sampling of ten individuals from each class were chosen at random to represent their group in the final evaluation. One painting from beginning and one from the end of the experimental period was mounted for each of the ten students.

Four judges evaluated the paintings on composition, color, technique, and texture, rating each picture on a scale of one, two, or three in each of the four categories with three being high. They did not know which were the initial and final paintings or from which time period they were from.

For purposes of determining whether or not each pair of judges agreed at better than a chance level, the chi-square technique was used. The general interpretation of these data was that the judge agreement was remarkably low, far lower than those usually expected in studies of judge agreement.

Two factors, length of class period and grade, were evaluated for each of the four variables, color, composition, technique and texture. In addition, the possibility of interaction between grade and period was investigated. To do this, a factorial design was used.

The first conclusion from the basic data was that there was no significant relationship between first and second ratings. The student who stands high in ratings originally is just as likely to stand low in the final assessment as he is to stand high. The result could be a function of art, the teaching approach, or of the unreliability of the judge ratings.

The study indicated that the longer period, 80 minutes, worked best in grades four and six. However, this was significant only in the variable, texture. Only trends, which were statistically not significant, favored the 80 minute period for grades four and six.

The shorter period (30 minutes) was indicated as better for third grade by trends in each of the variables, but was statistically significant only in the variable texture.

The third grades rated significantly higher in technique than did the fourth and sixth grades.

The diary indicated that more time was spent in discussion, preparation, and cleanup in the 30 minute period which met three times a week than in the 80 minute period which met once a week. Thus, the 80 minute period had more time to spend in actual work.

