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A Measure of the Creative Dimension of Administrative Leaders

Rod Buffington
Eastern Illinois University

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A MEASURE OF THE CREATIVE DIMENSION OF ADMINISTRATIVE LEADERS

(TITLE)

BY

Rodney H. Buffington
ROD BUFFINGTON

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
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INTRODUCTION

Since most studies relative to success indicate that the administration is a crucial factor, and since innovation is closely associated to creativity it is felt that it would be desirable to develope some measure of the creative thinking of a representative sample of area administrators; in order to provide some base lines relative to the potential design of experiences to develope the creative capacities of administrative personnel. In the field study experience the author used the Torrance Tests of Creative Thinking on a selected population, (i.e. educational adminstrators, and a group of art education students). Both the Figural and Verbal Test forms were used on the adult population. The forms are administered within this educational range as group tests. The types of tasks selected were those that have been most reliable and valid while at the same time sampling different kinds of manifestations of creative thinking. All parts of each form will not be used on the selected population. Scoring of the exam was done by professional scorers at the Personnel Press Scoring Service - Georgia Studies of Creative Behavior, 185 Riverhill Drive, Athens, Georgia 30601.

The Verbal Tests consist of seven parallel tasks. The writer has chosen two activities (i.e. Activity 5: Unusual Uses (Cardboard Boses), and Activity 6: Unusual Questions) from the verbal form. The Figural Tests consist of three activities. All activi-

ties was used from the Figural Test. The administration time of the five activities will be approximately forty-five minutes of testing time. Time would be allowed for stoppage between each task. In identifying briefly each of the five tasks below each task was selected on the idea that the relationship of the task would be suited to the group of people being tested. Several tasks in the Verbal Form, according to the writer, were trivial and simple-minded to the ability of the population.

Task I: Verbal. Activity 5: Most people throw their empty cardboard boxes away, but they have thousands of interesting and unusual uses. List as many of these interesting and unusual uses as you can think of. Do not limit yourself to any one size of box. You may use as many boxes as you like. Do not limit yourself to the uses you have seen or heard about; think about as many possible new uses as you can. Administration time: 10 minutes.

Task II: Verbal. Activity 6: In this activity, you are to think of as many questions as you can about cardboard boxes. These questions should lead to a variety of different answers and might arouse interest and curiosity in others concerning boxes. Try to think of questions about aspects of cardboard boxes which people do not usually think about. Administration time: 5 minutes.

Task III: Figural. Activity 1: The form of an oval geometric figure is being used. Used is a piece of green colored paper in the form of a curved shape. Think of a picture or an ob-

ject which you can draw with this piece of paper as a part. You take the thin layer of paper off the back of the form and use the form in your drawing. Then add lines with your pencil or crayon to make your picture.

Try to think of a picture that no one else will think of. Keep adding new ideas to your first idea to make it tell as interesting and as exciting a story as you can.

When you have completed your picture, think up a name or title for it and write it at the bottom of the page in the space provided. Make your title as clever and unusual as possible. Use it to help tell your story. Administration time: 10 minutes.

Task IV: Figural. Activity 2: By adding lines to the incomplete figures on this and the next page, you can sketch some interesting objects or pictures. Again, try to think of some picture or object that no one else will think of. Try to make it tell as complete and as interesting a story as you can by adding to and building up your first idea. Make up an interesting title for each of your drawings and write it at the bottom of each block next to the number of the figure. Administration time: 10 minutes.

Task V: Figural. Activity 3: In ten minutes see how many objects or pictures you can make from the pairs of straight lines below and on the next two pages. The pairs of straight lines should be the main part of whatever you make. With pencil or crayon add lines to the pairs of lines to complete your picture.

You can place marks between the lines, on the lines, and outside the lines--where-ever you want to in order to make you picture. Try to think of things that no one else will think of. Make as many different pictures or objects as you can and put as many ideas as you can in each one. Make them tell as complete and as interesting a story as you can. Add names or titles in the spaces provided.

In relationship to the instrument used in the administration personnel area a controlled population of student teachers in art will be used. The purpose behind this thinking would be that naturally one would believe that the art student would be trained to be a creative person. In comparison scores will be related to see if this comparison between the administration personnel and the art student is valid.

This project was funded through a Research Grant from the Council on Faculty Research, Eastern Illinois University, Charleston, Illinois.

RATIONALE

A definition of creativity must be forthcoming before the study can go any further. The measuring instrument is evaluated through this means and the results should be interpreted in terms of the definition. According to Torrance if creativity is to be viewed scientifically, "it must be defined in a way that permits objective observation and measurement and is compatible with common and historical usage."[1]

"Some definitions of creativity were formulated in terms of a product (invention and discovery, for example); others, in terms of a process, a kind of person, or a set of conditions. The production of something new (to the individual or to the culture) is included in almost all of these definitions. Some writers have defined creativity as being different from conformity and as requiring non-habitual rather than habitual behavior. Some scholars insist that the term 'creative' be reserved for some very rare and particularized kinds of ability, while others apply the term to a general creative ability possessed to some degree by all essentially healthy individuals."[2]

> On the basis of an analysis of the diverse ways of defining creativity and the requirements of a definition for keeping a program of research focused on factors affecting creative growth in context, Torrance defined Creativity as a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on: identifying the difficulty; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results.

The definition describes a natural human process, according to Torrance. Tension is aroused if we sense some incompleteness or disharmony. Immediately tension is aroused through this incompleteness or disharmony and one seeks relief. "Since habitual ways of behaving are inadequate, we begin trying to avoid the commonplace and obvious (but incorrect) solutions by investigating, diagnosing, manipulating, and making guesses or estimates. Until the guesses or hypotheses have been tested, modified, and retested, we are still uncomfortable. The tension is unrelieved, however, until we tell somebody of our discovery."[3]

What are other reasons to favor this definition? "It enables one to begin defining operationally the kinds of abilities, mental functioning, and personality characteristics that facilitate or inhibit the process. It provides an approach for specifying the kinds of products that result from the process, the kinds of persons who can engage most successfully in the process, and the conditions that facilitate the process. The definition also seems to be in harmony with historical usage and equally applicable in scientific, artistic, literary, dramatic, and interpersonal creativity."[4] "Talks with creative artists and writers about what happens to them when they are engated in the creative process and how they guide the creative learning of their students makes it seem clear that the definition given by the author seems to fit their creativity as well as it does the creative scientist."[5]

"If one accepts the definition of creativity that Torrance has proposed, it becomes possible to recognize creative behavior, creative thinking abilities, and creative potential through both test and non-test procedures. From the standpoint of the teacher and conselor, it would seem important to recognize those kinds of potential that make a difference in the way persons should be taught and guided. A major reason for the author's interest in developing measures of creative thinking abilities is that he believes that such instruments can yield one useful basis for making instruction different for different students. Since abilities constitute, at least to some extent, the basis of needs and motivations, knowledge about a person's creative thinking abilities frequently provides clues about differential preferences for ways of learning."[6]

Torrance has "made deliberate attempts to construct test activities that are models of the creative process, each involving different kinds of thinking and each contributing something unique to the batteries under-development. Test tasks or activities are thus fairly complex and have features that make use of what we know about the nature of the creative thinking processes, the qualities of creative produces and creative personalities. An attempt is made, however, to assess the products that result from the administration of these test activities in terms of Guilford's divergent thinking factors (fluency, flexibility, originality, and elatoration)."[7]

"On the basis of the author's analysis of the thinking manifested by scientists, artists, writers, and others in making outstanding creative achievement, he has tried to assemble batteries of figural and verbal activities that require kinds of thinking analogous to the thinking involved in recognized creative achievements."[8] The following will attempt to sketch the rationale of the activities used in this writer's use of the Torrance testing material.

Task I: Verbal. Unusual Uses Activities. This activity is closely related to Guilford's Brick Uses Test. Torrance decided to substitute "cardboard boxes" for bricks. Torrance recognized at the outset that "cardboard boxes" create in many individuals "rigid sets that are difficult to overcome. It is easy to define a "cardboard box" as a "container" and then to think of all the different things that can be put into the cardboard box, making it difficult to produce other types of response. Thus, the task is in part a test of ability to free one's mind of a well-established set."[9]

"The number of relevant responses produced by a subject yields one measure of ideational fluency. The number of shifts in thinking or number of different categories of questions, causes, or consequence, gives one measure of flexibility. The statistical infrequency of these questions, causes, or consequences or the extent to which the response represents a mental leap or departure from the obvious and commonplace gives one measure of originality. The detail and specificity incorporated into the questions and hypotheses provide one measure of ability to elaborate."[10]

Task II: Verbal. Unusual Questions Activity. The Unusual Questions Activity was adapted from a technique devised by Robert C. Burkhart of Pennsylvania State University. Here one is looking for divergent answers among each of the questions being asked. Originality is the only area recorded, as one looks for the departure from the obvious and commonplace answer.

Task III: Figural. Picture Construction Activity. The Picture Construction Activity is an original one devised by Torrance. "Subjects are required to think of a picture in which the given shape made of colored paper with an adhesive backing (in Form A, a tear drop or pear shape) is an integral part. An effort is made to elicit an original response by asking subjects to try to think of something that no one else in the group will produce. Elaboration is encourage by the instructions to add ideas that will make the picture tell as complete and as interesting a story as possible. A limit of ten minutes has been found to be satisfactory and is more time than most adults will use. The product is evaluated only for originality and elaboration. The high elaborators and perfectionists do not have enough time and would spend several times, the alloted time, if permitted to do so. Some highly fluent individuals keep thinking of additional ideas to add, change completly their first idea, or write a story about the picture they draw."[11]

Task IV: Figural. Incomplete Figures Activity. The Incomplete Figures Activity is an Adaptation of the Drawing Completion Test, developed by Kate Franck. The incomplete figures used in Figural Form A were created by Torrance with the assistance of

Elizabeth Kennedy by selecting parts of pictures drawn by subjects in another study.

"As is well-known from Gestalt psychology, an incomplete figure sets up in an individual tensions to complete it in the simplest and easiest way possible. Thus, to produce an original response, the subject usually has to control his tensions and delay gratification of this impulse to closure.

Each figure completed is scored for flexibility, originality, and elaboration. The titles are scored for originality and cleverness. A few will not use the entire ten minutes. A considerable number (about one-third) will complete all ten figures, so this activity provides a fluency score of only moderate usefulness."[12]

Task V: Figural. Repeated Figures Activity. The psychological rationale for Parallel Lines is to elicit the creative tendency to bring structure and completeness to whatever is incomplete. "In the Repeated Figures Activity a deliberate attempt is made to stimulate all four types of divergent thinking and to set up a conflict among the response tendencies represented by them. Fluency is stimulated by the instructions, 'see how many objects or pictures you can make'; flexibility, by 'make as many different pictures and objects as you can'; originality, by 'try to think of things that no one else will think of'; and elaboration, by 'put as many ideas as you can into each one and make them tell as complete and interesting a story as you can'. The time is not adequate to permit emphasis on all four kinds of thinking, thus, individual response tendencies come into play."[13] A general tendency is for high originality scores on the Parallel Lines Activity.

In the general scheme of Figural Activities the triad of test activities "represents three different aspects of creativity or three different creative tendencies. The Incomplete Figures Activity calls into play the tendency toward structuring and integrating. The Incomplete Figures create tension in the beholder who must control his tension long enough to make the mental leap necessary to get away from the obvious and commonplace. Failure to delay gratification usually results in the premature closure of the incomplete figures and an obvious or commonplace response. The invitation to 'make the drawing tell a story' is designed to motivate elaboration and further filling in of gaps. The repetition of a single stimulus in the Parallel Lines Activities requires an ability to return to the same stimulus again and again and perceive it in a different way. The Picture Construction Activity sets in motion the tendency toward finding a purpose for something that has no definite purpose and to elaborate it in such a way that the purpose is achieved. Discoveries and their applications may take place in two major ways: (1) there may be deliberate attempts to discover a creative solution to a problem or (2) some discovery may occur and the discoverer sets out to see what problems the discovery will solve. Theoretically, the Picture Construction Activity symbolizes the latter. These activities tend to discriminate between the good elaborators and the productive original thinkers. Some subjects produce a large number of very original ideas but fail to elaborate any of them very well; some produce very few ideas of any kind but make them very elaborate or 'fancy';

still others produce a large number of very commonplace ideas with little elaboration.

The complexity of the three figural tasks is varied through the instructions. In the first task, the primary motivation is for originality or unusualness and the secondary motivation is for elaboration, 'adding ideas to tell a more complete and exciting story'. In the second task, flexibility or variety or type of response is added to originality and elaboration, and fluency is a minor consideration. In the third task, fluency enters to compete with originality, elaboration, and flexibility."[14]

FINDINGS AND CONCLUSIONS

In writing the conclusions of this study, the writer found the results fascinating in relationship to hypothesizing the findings to ideas relating to creativity and administration. A summary of hypothesizing statements conclude this paper.

Population Characteristics: The population is broken down into three major groups of educators. The writer used 57 people in the study. The people were all students enrolled at Eastern Illinois University comprising (i.e. 22 students, studying school administration in Decatur; 16 students studying school administration in Salem; and 19 students studying art education at Eastern Illinois University) the total population of fifty seven. The population studying school administration ranged from building principals, guidance counslors, classroom teachers to college students. The art students were all student teachers in various schools throughout Illinois, with a small group of three in the affluent school district of Ladue, Missouri. The age range of the students was from 21 to 56. There were both male and female subjects included in the study.

The first figural study included a oval piece of colored paper, where the students thought of a picture or an object including the oval as a part. The students after adhering the oval shape to the drawing page were to draw or add lines with their pencil or crayon to make a picture. They named the picture after comple-

tion. The time limit was 10 minutes. A high score of 5 was recorded for originality. Interpretation of scoring will be done by the writer as the study continues. Further information on scoring and interpreting scores can be read in the Norms-Technical Manual*. The following chart shows the scores and percentages of each student as he related to the originality score for the test. See: Chart 1.

The chart shows each score scored by each student on the test with the percentage of each individual group relating to high score (5), to low score (0), with the totals for all three groups. It is interesting to note of the 27 people scoring 5 (i.e. top of range), 13 out of the 22 from the Decatur group scored that figure. The complete group equalled 48% in scoring the top range of 5. The mean score for the entire group was 3.3.

While the Decatur group scored high on originality, the group's elaboration score (i.e. originality and elaboration was the only two items scored on Figural Activity 1) was low compared to the other two groups. This score reflects the subject's ability to develop, embroider, embellish, carry out, or other wise elaborate his idea in the picture composition. The art student's group mean score on elaboration was 16.5, with a high score of 44, a low score of 3; while the Salem group had a mean of 11.8, with a range of 29 high to a low of 3; while the Decatur group's mean score was 11.6,

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*Torrance, E. Paul. Torrance Tests of Creative Thinking, Norms-Technical Manual. Princeton: (Personnel Press, Inc.), pp. 71 - 75.

CHART NO. 1

ORIGINALITY SCORES
FIGURAL ACTIVITY NO. 1

Group	Score	Number	Percentage
Decatur	5	13	59%
	4	3	13%
	3	2	9%
	2	2	9%
	0	2	9%
Salem	5	6	37%
	4	2	12%
	3	1	6%
	2	1	6%
	0	6	37%
Art Group	5	8	42%
	4	2	10%
	3	2	10%
	2	3	15%
	0	4	21%
TOTAL	5	27	47%
	4	7	12%
	3	5	8%
	2	6	10%
	0	12	21%

with a range of 22 high to a low score of 3. The art students training certainly relates that the art person draws upon his visual training to elaborate and draw more additive relationships to design his original drawing concept.

In Figural Activity Two, the subjects worked with ten different forms. By adding lines to the incomplete figures the students made a picture or object for each figure. Each student was to name his completed figure. This activity was scored for fluency, flexibility, originality and elaboration. The range of completed figures was where students completed all ten figures to students who completed only three. The completed mean was very high in the Decatur group being 9.3, whereby the Salem group completed mean score was 8.3, while the Art group completed mean was 7.6. The average mean for the entire group was completion mean 8.5. The number of completed figures by each student made up the fluency score for the groups.

The flexibility score related how many different categories (pre-determined) into which the responses fell. A repeated category was not counted, therefore a student could have a fluency score of ten, however the student may have repeated the same response to three of his figural forms, consequently only receiving a flexibility score of seven. The following chart shows flexibility in relationship to fluency to the number of people who scored in each of the different relationships. (Example: Fluency 10; Flexibility 10; No. of students falling into this category 5) See: Chart 2.

CHART NO. 2

FLEXIBILITY SCORES
FIGURAL ACTIVITY NO. 2

Decatur Group			Salem Group			Art Student Group		
Flu.	Flex.	No. of Students	Flu.	Flex.	No. of Students	Flu.	Flex.	No. of Students
10	9	6	10	9	1	10	8	1
10	8	6	10	8	3	10	7	4
10	7	3	10	7	1	10	5	1
9	9	1	9	9	1	10	3	1
9	8	1	9	8	2	9	4	1
9	7	1	9	7	1	8	8	1
8	6	2	8	7	2	8	7	2
7	5	1	7	6	2	7	7	1
6	5	1	7	5	1	7	6	1
			6	5	1	6	6	1
			5	5	1	6	5	1
						6	3	1
						5	5	1
						3	3	2

The interpretation of the Figural Flexibility score is where a person might be quite flexible in viewing, manipulating, and otherwise using figural elements and at the same time be quite restricted in shifting his approaches in dealing with words. A subject may be able to work with high fluency, however he may not score high in flexibility; while another student may score a lower number in fluency, however obtain the same ratio in flexibility. An example of this would be where one of the art subjects completed all ten figures, however only received a 3 in flexibility. Another art student scored 5 in fluency, however this same student scored five in flexibility. Most of the people who fail to complete the ten figures are high elaborators and high elaborators are characterized by their anxiety over not being able to meet what they perceive as high expectations of them by others.

In Figural Activity 2, the reader can associate the number of responses for the originality category by associating the scores in the following chart. See: Chart 3. The subject could receive a high score of two, a middle score of one, or no score to the originality category. The score represents the subject's ability to produce ideas that are away from the obvious, commonplace, banal, or establish. Originality high scoring may mean the subject is able to make big mental leaps, or "cut corners" in obtaining solutions, but this does not mean he is erratic or impulsive in his behavior. In fact, the making of original responses requires the ability to delay immediate gratification or reduction of tension in

CHART NO. 3

ORIGINALITY SCORES
FIGURAL ACTIVITY NO. 2

Group:	Decatur			Salem			Art		
Weight Score:	2	1	0	2	1	0	2	1	0
Figure									
#1	5	5	12	5	3	8	10	5	4
#2	13	5	4	4	4	7	10	5	3
#3	18	0	4	9	3	1	14	3	1
#4	15	2	4	10	5	1	8	6	3
#5	9	5	7	7	5	2	8	1	5
#6	13	3	4	5	1	4	5	4	4
#7	8	7	5	4	3	5	9	2	1
#8	7	4	6	3	2	6	6	3	2
#9	6	3	12	3	2	8	3	0	8
#10	5	6	7	5	2	6	4	2	6

order to get away from the obvious, easy, but low quality response. The mean score for the three different groups were: Decatur 10.9; Salem 8.8; and the Art Group 9.7. The highest individual score on originality was 17 points.

For the ten figural items in relationship to elaboration on Figural Activity 2 the range for the Decatur group was a score of 41 high to 8 low; the Salem group with a score of 50 high to 9 low; and the Art Student group with a score of 46 high to 13 low. The mean score for elaboration for both the Decatur and Art Student group was 24.0; while the Salem group had a mean score of 20.5. High score in elaboration seem among other things, to be associated with keenness or sensitivity in observation.

The third major figural area on the test had the students working with parallel lines. In a ten minute time period the students were to make as many pictures or objects from pairs of straight vertical parallel lines which appeared 30 times. They could place marks between the lines, on the lines, and outside the lines, wherever the subject's wanted in order to make their picture. In the following chart one can see a comparison between the three groups in relationship to the range and the mean score. See; Chart No. 4.

It was interesting to see that the Decatur group had higher flexibility, however the Art group definitely showed more originality and higher elaboration. Figural Flexibility in the Parallel Lines activity is clearly manifested in that the subject must return to the same stimulus and each time perceive it in a different way.

CHART NO. 4

PARALLEL LINE SCORES
FIGURAL ACTIVITY NO. 3

Group	Decatur		Salem		Art Group	
	Range	Mean	Range	Mean	Range	Mean
Fluency	30-11	18.6	30 -7	15.6	29 -7	17.6
Flexibility	21--6	13.0	20 -6	11.1	23 -1	11.1
Originality	55 -7	25.5	43 -2	23.3	66 -7	28.3
Elaboration	62 -5	30.8	57 -8	23.8	56-10	35.8

The individual with the highest originality and elaboration scores in the Decatur group majored in art education as an undergraduate student. This re-emphasizes the important aspect of visual art training in relationship to creativity. If one would relate creativity as part of the ability of an administrative student, then one can see through the scores of this test the importance of visual art education.

Comparison Group Norm are shown in Chart No. 5. This comparable data shows the total scores for all three figural tasks. A standard deviation was figured for each of the tasks. Appendix A will show individual scores and totals for each of the figural and verbal tasks.

Within the Decatur and Salem administrative students, sixteen of the subjects have had experience as a principal within a school system. For a comparable rating, the writer's administrative professors ranked each of the 16 people on a scale ranging to above average to below average before seeing the scoring data from the Torrance Test. Chart No. 7 shows the comparable rating to the scoring on the Figural battery. A $\pm$, plus, rating meant the administrator was ranked above average, while a $-$, minus, meant the administrator was below average. One person was given an average rating marked by a $\cdot$, period, on the chart. These rankings were done by the educational administrative professor through experiences and observation of the subject, either within a class, or in the field experience. As can be seen in the statistics, one

CHART NO. 5

COMPARISON GROUP NORMS
FIGURAL FORM A

Group	Fluency		Flexibility		Originality		Elaboration	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Decatur	28.0	6.15	18.8	5.24	40.4	12.5	66.5	21.4
Salem	24.0	7.57	18.2	4.85	34.9	12.4	56.1	23.0
Art	25.3	7.79	16.8	6.15	41.2	15.2	76.4	26.5

CHART NO. 6

COMPARISON SCORES FOR STUDENTS WITH EXPERIENCE IN ADMINISTRATION
FIGURAL FORM A

Subject	No.	R°	Act. I		Activity II				Activity III				Total			
			Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab
Decatur	1	+	5	14	10	9	15	33	24	15	36	29	34	24	56	76
Decatur	2	+	4	13	10	9	15	27	24	19	27	24	34	28	46	64
Decatur	3	+	5	13	7	5	8	15	17	12	29	24	24	17	42	52
Decatur	4	+	5	15	9	9	9	41	12	10	15	22	21	19	29	78
Salem	5	+	5	6	5	5	5	12	8	8	15	16	13	13	25	34
Salem	6	+	5	4	9	8	13	15	14	10	14	15	23	18	32	34
Salem	7	+	3	13	10	8	11	15	24	14	34	29	34	22	48	57
Salem	8	+	0	16	9	8	12	50	21	14	32	57	30	22	44	123
Decatur	1	•	5	21	10	7	10	23	16	10	21	27	26	17	36	71
Salem	1	-	5	11	8	7	5	14	9	8	20	15	17	15	30	40
Salem	2	-	0	11	6	5	8	28	11	9	16	24	17	14	24	63
Salem	3	-	2	16	10	7	10	17	19	12	25	19	29	19	37	52
Decatur	4	-	5	6	10	8	12	10	20	18	34	27	30	26	51	43
Decatur	5	-	5	22	10	8	17	39	17	9	20	24	27	17	42	85
Decatur	6	-	5	7	10	7	16	22	23	15	40	23	33	22	61	52
Decatur	7	-	0	8	10	9	17	28	21	16	24	30	31	25	41	66

R° - ranking by professional educational administration staff
+ above average
• average
- below average

Orig - originality
Elab - elaboration

subject given a +, plus rating ranked lower in each total score than all the subjects receiving a -, minus rating, except one, that in originality score. The person receiving an average ., shown by a period, rating scored higher in many category scores in relationship to those receiving above average ratings. Other than these two examples the ranking of the subjects related closely to the scores received on the figural test battery.

The writer did use part of the Thinking Creatively with Words Test created by Torrance. Since the writer used only two verbal tasks in relationship to the verbal test booklet, only comparable mean score and standard deviation can be given for the tasks completed by the three groups under study. No comparable data is available in relationship to broken down data for each category. The writer chose only the two tasks reasoning that the other activities were trival in relationship to school administrators.

Verbal Activity 5 asked the subjects to identify unusual uses for cardboard boxes. The students were to list as many interesting and unusual uses as they could think of without limiting themselves to any size of box. Chart No. 7 shows comparable scores for the three groups.

Verbal Flexibility score represents a person's ability to produce a variety of kinds of ideas, to shift from one approach to another, or to use a variety of strategies. Verbal Originality score represents the subject's ability to produce ideas that are away from the obvious, commonplace, banal, or established. The

CHART NO. 7

UNUSUAL USES CARDBOARD BOXES
VERBAL ACTIVITY NO. 5 AND 6

Group	Fluency		Flexibility		Originality		Elaboration	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Decatur	41.1	15.1	10.3	2.69	10.5	3.25	No Score	
Salem	41.8	11.9	13.1	3.14	14.4	10.1		
Art	38.0	11.6	8.26	2.08	17.1	9.97		

persons who scored on these activities scored mainly because they projected themselves into an object by use of the word "you". On Activity 6, Unusual Questions a high point total originality score of four was acheived only by four subjects of the fifty-seven tested. Examples of questions receiving four points on Activity Six were:

"How can a cardboard box be used as a sidewalk?"
"What kind of glue is used?"
"Do you want it?"

Very few of the subjects as indicated above could write a factual or personal divergent question worth high point value of four.

HYPOTHESY

The writer is of the opinion his work was exciting, however at this point the writer would evaluate the total project as one which should involve deeper study.

The complete verbal test should be used to gain comparable data with other groups. An observational study of a number of the participants would prove significant as the selected number of subjects studied as to their work experience, especially experienced administrators. Such a study would prove beneficial for the purpose of rating administrators to test scores.

In studying the different groups in relationship to their individual scores as seen in Appendix A, one can hypothsize different relationships of the three groups.

In the Art Group as shown in the summary of the figural tests, that group shows the highest mean score in originality and elaboration. From this writer's viewpoint, (i.e. being an art educator, as well as being a student of administration) more work needs to be done through creative thought projects within general education. The trained student in art has visual awareness showing strength in originality, as well as strength in elaboration. The elaboration score could tell the reader that a person would have in-depth reasoning into problems one would have to cope with in administration. It was also interesting to note as stated that the highest score in the Decatur Group was also acheived by an art

student.

The writer feels that the originality score reflects ability for an administrator to be creative in making decision within his specific task assignments. Through the originality score a relationship can be seen to possible adjustment to certain situations. Different kinds of mental functioning can be related to high originality - low elaboration, high originality - high elaboration, low originality - high elaboration, low originality - low elaboration. It would be an interesting follow-up study to observe atypical/typical subjects in relationship to the above four categories.

The writer did a comparison study of the subjects in Figural Activity 2, Picture Completion to see the types of repeated drawings done by the different subjects for each figure. Especially Figure 1, where the pre-form indicates a bird, or a body part, a large percentage totaling 68, (i.e. 39 out of 57 related to these two ideas) received low or no originality scores. In the comparison the art group had the highest varience of originality in doing the drawing. Figure 9, resembling a mountain peak, had a high completion ratio among the subjects, equally 62 per cent, completing a mountain scene, therefore receiving low originality scores.

Being an art eductor and relating how coloring books stiffles creativity, (Lowenfeld: Creative and Mental Growth) the writer hypothesizes that many of the pre-form shapes in Figural Activity 2 relate to activities the subjects see in visual stereotyped

workbooks, coloring books, etc., therefore the subjects related to these forms in their drawings. The visual art training of the art group showed strongest in these figural drawings.

It was in amazement that the subjects could not identify to divergent type questions in the verbal test forms. This shows lack of work in the educational background of the subject in this area.

This writer feels that through a deeper study, trends that could identify creative school administrators could be accomplished within the confines of the test.

TABLE NO. 1

INDIVIDUAL COMPARISON SCORES FOR DECATUR GROUP
FIGURAL FORM A, TORRANCE TESTS OF CREATIVE THINKING

Subject	Act. I		Activity II				Activity III				Total			
	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab
A	5	14	10	9	15	33	24	15	36	29	34	24	56	76
B	5	6	10	8	12	10	20	18	34	27	30	26	51	43
C	4	13	10	9	15	27	24	19	27	24	34	28	46	64
D	0	12	10	8	7	39	30	20	55	62	40	28	62	113
E	5	9	9	8	12	22	21	16	33	49	30	24	50	80
F	5	5	10	8	7	14	18	13	14	20	28	21	26	39
G	4	8	10	9	13	23	25	21	39	55	35	30	56	86
H	2	13	10	7	9	32	24	13	21	50	34	20	32	95
I	5	14	10	7	15	36	13	12	19	38	23	19	39	88
J	5	22	10	8	17	39	17	9	20	24	27	17	42	85
K	5	7	10	7	16	22	23	15	40	23	33	22	61	52
L	5	13	7	5	8	15	17	12	29	24	24	17	42	52
M	3	8	10	9	13	20	12	10	20	34	22	19	36	62
N	0	8	10	9	17	28	21	16	24	30	31	25	41	66
O	3	8	8	6	6	20	11	7	9	21	19	13	18	49
P	2	7	8	6	2	8	11	8	7	5	19	14	11	20
Q	4	23	10	9	9	9	27	16	30	21	37	25	43	33
R	5	11	9	7	11	21	19	12	22	37	28	19	38	69
S	5	15	9	9	9	41	12	10	15	22	21	19	29	78
T	5	22	10	8	13	27	12	10	18	30	22	18	36	79
U	5	17	6	5	5	21	13	6	29	26	19	11	39	64
V	5	21	10	7	10	23	16	10	21	27	26	17	36	71
MEAN	3.9	11.6	9.3	7.6	10.9	24.0	18.6	13.0	25.5	30.8	28.	18.8	40.4	66.5
STANDARD DEVIATION											6.15	5.24	12.5	21.4

TABLE NO. 2

INDIVIDUAL COMPARISON SCORES FOR SALEM GROUP
FIGURAL FORM A, TORRANCE TESTS OF CREATIVE THINKING

Subject	Act. I		Activity II				Activity III				Total			
	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab
A	5	6	5	5	5	12	8	8	15	16	13	13	25	34
B	0	3	7	6	3	9	7	7	2	8	14	13	5	20
C	5	4	9	8	13	15	14	10	14	15	23	18	32	34
D	5	11	8	7	5	14	9	8	20	15	17	15	30	40
E	3	13	10	8	11	15	24	14	34	29	34	22	48	57
F	0	29	7	6	12	17	7	6	17	17	14	12	29	63
G	0	17	10	8	7	17	11	6	5	11	21	14	12	45
H	0	16	9	8	12	50	21	14	32	57	30	22	44	123
I	5	23	10	8	13	25	20	16	36	27	30	24	54	75
J	5	4	9	7	9	13	14	7	22	18	23	14	36	35
K	0	7	7	5	9	29	18	16	29	31	25	21	38	67
L	0	11	6	5	8	28	11	9	16	24	17	14	24	63
M	2	16	10	7	10	17	19	12	25	19	29	19	37	52
N	4	11	9	9	8	18	30	20	43	34	39	29	55	63
O	4	11	10	9	10	21	22	15	36	24	32	24	50	56
P	5	7	8	7	7	28	16	11	28	37	24	18	40	72
MEAN	2.6	11.8	8.3	7.0	8.8	20.5	15.6	11.1	23.3	23.8	24.0	18.2	34.9	56.1
STANDARD DEVIATION											7.5	4.8	12.4	23.0

TABLE NO. 3

INDIVIDUAL COMPARISON SCORES FOR ART GROUP
FIGURAL FORM A, TORRANCE TESTS OF CREATIVE THINKING

ubject	Act. I		Activity II				Activity III				Total			
	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab	Flu	Flex	Orig	Elab
A	5	24	6	3	11	25	14	13	25	33	20	16	41	82
B	5	44	7	6	9	42	9	7	11	56	16	13	25	142
C	0	12	10	7	9	26	26	15	36	43	36	22	45	81
D	2	36	10	7	10	46	25	18	48	55	35	25	60	137
E	5	8	8	7	14	20	18	12	38	30	26	19	57	58
F	5	15	10	3	15	25	18	11	24	41	28	14	44	81
G	4	4	10	7	8	21	15	3	30	10	25	10	42	35
H	4	3	6	5	7	13	10	8	19	25	16	13	30	41
I	5	21	7	7	8	30	21	15	36	46	28	22	49	97
J	0	12	10	7	11	21	22	16	33	33	32	23	44	66
K	3	19	6	6	10	17	13	10	21	34	19	16	34	70
L	2	25	8	7	10	28	18	17	35	46	26	24	47	99
M	0	26	10	5	16	17	19	1	13	30	29	6	29	73
N	2	14	9	4	2	16	25	10	40	29	34	14	44	59
O	5	7	3	3	6	23	7	6	7	39	10	9	18	69
P	0	5	3	3	5	29	11	7	16	23	14	10	21	57
Q	5	16	10	8	15	16	29	23	66	42	39	31	86	74
R	5	8	5	5	9	16	20	10	21	38	25	15	35	62
S	3	15	8	8	11	26	15	10	19	29	23	18	33	70
EAN	3.1	15.8	7.6	5.6	9.7	24.0	17.6	11.1	28.3	35.8	25.3	16.8	41.2	76.4
TANDARD DEVIATION											7.7	6.1	15.2	26.5

TABLE NO. 4

INDIVIDUAL COMPARISON SCORES FOR DECATUR GROUP
VERBAL FORM A, TORRANCE TEST OF CREATIVE THINKING

Subject	Activity 5			Act. 6		Total		
	Flu	Flex	Orig	Flu	Orig	Flu	Flex	Orig
A	23	13	8	7	0	30	13	8
B	23	9	5	11	1	34	9	6
C	20	11	8	15	24	35	11	32
D	43	14	12	29	6	72	14	18
E	44	13	6	27	6	71	13	12
F	20	8	3	20	0	40	8	3
G	22	12	5	10	0	32	12	5
H	35	10	5	25	10	60	10	15
I	6	4	2	13	6	19	4	8
J	31	10	3	19	12	50	10	15
K	32	14	14	23	1	55	14	15
L	21	9	3	7	2	28	9	5
M	42	9	6	17	6	59	9	12
N	30	14	10	13	4	43	14	14
O	11	8	2	14	4	25	8	6
P	6	4	1	5	0	11	4	1
Q	20	9	6	16	6	36	9	12
R	25	11	9	22	2	47	11	11
S	25	13	6	8	0	33	13	6
T	26	11	8	12	0	38	11	8
U	27	10	6	22	4	49	10	10
V	28	12	9	10	0	38	12	9
MEAN						41.1	10.3	10.5
STANDARD DEVIATION						15.2	2.6	3.2

TABLE NO. 5

INDIVIDUAL COMPARISON SCORES FOR SALEM GROUP
VERBAL FORM A, TORRANCE TESTS OF CREATIVE THINKING

Subject	Activity 5			Act. 6		Total		
	Flu	Flex	Orig	Flu	Orig	Flu	Flex	Orig
A	31	15	15	9	0	40	15	15
B	11	8	3	5	0	16	8	3
C	17	5	2	11	0	28	5	2
D	23	10	17	8	0	31	10	17
E	41	14	14	9	2	50	14	16
F	34	13	20	13	0	47	13	20
G	31	13	11	16	4	47	13	15
H	33	10	11	24	8	57	10	19
I	30	12	8	14	0	44	12	8
J	50	16	9	11	0	61	16	9
K	35	14	10	12	8	47	14	18
L	20	14	8	20	0	40	14	8
M	31	13	10	19	38	50	13	48
N	30	13	10	28	4	58	13	14
O	35	10	8	10	0	45	10	8
P	41	18	11	14	0	55	18	11
MEAN						41.8	13.1	14.4
STANDARD DEVIATION						11.9	3.1	10.1

TABLE NO. 6

INDIVIDUAL COMPARISON SCORES FOR ART GROUP
VERBAL FORM A, TORRANCE TEST OF CREATIVE THINKING

Subject	Activity 5			Act. 6		Total		
	Flu.	Flex	Orig	Flu	Orig	Flu	Flex	Orig
A	32	12	9	16	0	48	12	9
B	35	11	17	12	4	47	11	21
C	19	7	8	9	0	28	7	8
D	26	8	18	23	0	49	8	18
E	25	11	6	8	0	33	11	6
F	25	8	18	22	6	47	8	24
G	12	5	10	10	0	22	5	10
H	15	6	10	11	3	26	6	13
I	26	8	13	19	26	45	8	39
J	33	10	9	24	0	57	10	9
K	12	5	10	9	0	21	5	10
L	26	10	12	22	14	48	10	26
M	19	8	5	15	0	34	8	5
N	23	8	15	15	4	38	8	19
O	20	7	9	15	4	35	7	13
P	34	10	8	7	12	41	10	20
Q	30	10	12	15	30	45	10	42
R	25	8	14	15	0	40	8	14
S	13	5	12	5	8	18	5	20
MEAN						38.0	8.2	17.1
STANDARD DEVIATION						11.6	2.0	9.9

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