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ABSTRACT

AN INVESTIGATION INTO THE INTERACTION
OF AUTOMEDIA, THE NEW ENGLISH AND
CREATIVITY IN THE UNIVERSE
OF DISCOURSE

By

Lyndon Brode Preston

Three basic concepts were united in the study--
Automedia, the New English and Creativity. Automedia
is a newly coined term. Automedia describes and names the
technological media used for self-expression. The New
English is a substantively new approach to English based
on an integrated program of full language usage, exper-
ience based and appropriate to the developing child.

Further, it should be the main focus of study
since language is fundamental to symbolization and think-
ing. Creativity is a controversial term among psycholo-
gists.

It was hypothesized in this study that students,
given freedom and encouragement to express themselves in
personally selected media (motion pictures, slide-film,
and audio tape), and given free range of ideas and
subject matter, with a modicum of teacher-instruction

would express themselves more creatively. Personal
freedom and appropriate goals would encourage better
communication. New insights into themselves, their
peers, and their environment would be gained.

The hypothesis was approached in two ways:
(1) by an exploration of the elements that made up the
hypothesis and by an experiment in which its elements
were put to task for better observation, and (2) the
collection of objective data for statistical evidence of
its implications.

A standard pretest-posttest design with randomi-
zation was used. Instruments used were the Torrance Tests
of Creative Thinking and two samples of creative writing
from each student--one written before the treatment, and
one afterward. A sample was drawn from all intact
classes at an inner-city school.

A multivariate analysis of covariance was per-
formed and the two variants in this case were the pretest
and the posttest with the pretest serving as the
covariable in each instance. Each test had two
dimensions--Verbal and Figural. The two groups did not
differ significantly on the Verbal dimension of the Tests.
However, the groups did differ on the Figural dimension
of the Torrance Tests of Creative Thinking. Moreover,
they differed significantly on the Elaboration Component
of the Figural dimension.

Conclusions from the Experiment suggest: <u>Auto-</u>
<u>media</u> augments student elaborative processes in the
Figural dimension.

Conclusions from the Literature suggest:
<u>Automedia</u>: (1) Figural elaboration of ideas in Automedia
encourages oral communications leading to written symbols;
(2) Effective receptive media programs are available for
English; (3) Electronic and photographic technology can
serve individual differences; (4) The New English-
Automedia-Creativity triad requires a multi-disciplinary
approach and is usable in most disciplines; and (5) Stu-
dent productions make excellent models for new classes.
<u>The New English</u>: (1) Creative writing increases student
interest, learning, involvement, and motivation; (2) Thought
and language and their various manifestations comprise the
universe of discourse. As such, it should be used as the
core of the curricula for most subjects; (3) Various
techniques to encourage student interaction should be
used; (4) Opportunities for creativity are increased in
small classes (no more than 25); (5) Technological com-
munication is a reality. There is no question of its
power and utility in education; (6) Freedom with disci-
pline is democratic; (7) Risk-taking is maximal in
creative performance; (8) Peer interaction is a variable
that correlates significantly with educational success;
(9) The experience-based curriculum appeals to students

and excites intrinsic motivation; and (10) Intrinsic
motivation results because the student has been partially
responsible for class goals and class conduct (freedom
with discipline) as well as subjects for his own work.
Creativity: (1) Play, humor, and "wild" ideas, products
of creative thinking, are part of human thought and con-
duct and deserve respect and suffrance in modern schools;
(2) The teacher must be willing to risk open, frank, and
fair exchange with students; (3) Risk-taking in creative
activity needs to be recognized and appreciated; (4) Con-
tinuing disapproval of unusual, silly, or divergent ideas
may drive a student to apathy or out of school. Such
persons are often hypothesizing and from their hunches,
new ideas or techniques emerge; (5) Individual differences
in learning styles, abilities, and talents as well as
personalities are best served in an atmosphere of freedom
with discipline. Mutual respect of student and teacher
is essential.

Recommendations from the Experiment: (1) A
wider population should be used to further test the
triadic concept—Automedia, the New English, and Crea-
tivity; (2) A study in which a larger population be used
to study the variables should be distributed as follows:
(a) Automedia-New English Creativity, (b) Automedia-
Traditional English-Creativity, (c) New English Written
Work-Creativity, (d) Traditional English Written Work-
Creativity; (3) An Automedia workshop in which each

teacher produces his own program should be made available. From the Literature: (1) Highly gifted and talented children need special programs; (2) Authoritarian measures taken in schools for the purpose of discipline too often result in student conformity. This has a deleterious effect on creativity and may lead to repressiveness. Generalizations: (1) Application of the hypothesis comprising the ideas of Automedia, the New English, and Creativity should span all school age populations in a further study; (2) Normally, convergent thinkers prefer closure and one "right answer." The divergent thinker may offer the "right answer" and several alternative solutions; (3) An experience-based curriculum is capable of exciting intellectual and aesthetic curiosity.

AN INVESTIGATION INTO THE INTERACTION

OF AUTOMEDIA, THE NEW ENGLISH AND

CREATIVITY IN THE UNIVERSE

OF DISCOURSE

By

Lyndon Brode Preston

A THESIS

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The fundamental concern of this investigation is the student. Indeed the concepts investigated in this paper are highly significant to him for they involve his language which identifies with his symbolization and ideational processes, his self-esteem, his productivity, and his creative abilities.

ACKNOWLEDGMENTS

To Dr. Elwood E. Miller and Dr. James H. Pickering,
co-chairmen of the doctoral committee is expressed here
sincere appreciation and thanks for the good humor,
excellent counsel, and firm support given this candidate.

Dr. Miller was especially helpful in his belief
that many approaches and alternatives are possible to
successful good teaching and was patient with this inves-
tigator while she experimented with some ideas that might
lead to such good ends.

Again, humor is a prerequisite to good human
relations and thus to good teaching--and Dr. Pickering
enjoys this characteristic. He was especially a valuable
adviser because he is a visualizer, a seer, and a canny
critic.

In addition, three others served on this committee
giving generously of their time and thought. Dr. J. Bruce
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especially helpful in his many suggestions regarding

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CHAPTER I

RATIONALE FOR THE INVESTIGATION

One Law for the Lion and Ox is
Oppression.
                    --William Blake[1]

Introduction

The purpose of this study is to explore some new
trends in English, student use of media for self-expression,
and curricula designed to encourage student creativity.
Much of the recent literature on the teaching of English
celebrates a much expanded English curriculum that would
teach the universe of discourse, expand the use of alter-
natives in media, wed itself to the humanities, and
encourage student creativity. These elements were pulled
together by the investigator to design a treatment which
was part of an experiment at Pattengill Junior High
School in Lansing, Michigan. It was conducted to ascer-
tain some of the outcomes resulting from their use. A
battery of tests designed to measure creative thinking
was administered as well as a simple creative writing
exercise.

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[1]William Blake, "The Marriage of Heaven and Hell,"
in The Complete Writings of William Blake: With Variant
Readings, ed. by Geoffry Keynes (London: Oxford University
Press, 1966), p. 158. All citations of Blake in this paper
are from this volume.

The Review of Literature is a reportage of the
three areas--media, English, and creativity in literature
specifically biased toward a new caste of current orien-
tation.

Instructional technology used in a different form
for instruction is termed Automedia in this paper and the
term is generally used throughout the paper. It was
coined to designate the difference of approach--a
creative mode of communication technology rather than
a purely receptive one. The student creates his own
films and tapes and video-tapes and other forms of media
in creative communication. Automedia is further defined
later in this chapter.

The New English is a substantively new tradition
in English which is experience based and in which, as
James Moffett believes, the study of English is engaging
in the universe of discourse. He says: " . . . All
discourse is our native language--any verbalization of
any phenomena, whether thought, spoken, or written;
whether literary or non-literary" is English.[1] Language
is both a public and a private experience. John Dixon
writes in his Dartmouth report that English " . . . stands
as a bridge between the two [experience and subject-based
curricula] whenever language is needed to penetrate and

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[1]James Moffett, Teaching the Universe of Discourse
(Boston: Houghton Mifflin Company, 1968), p. 9.

bring it into a new and satisfying order." But Professor

Dixon does not stop here, he foresees a greater integrity

to finally "redirect our attention to life as it really

is" rather than to a set of teacher-imposed exercises

"preformulated" from her text or from her own pen.[1]

The Need and the Challenge

In order to implement a design that encourages

creative thinking and productive activity that should

accompany it, freedom with discipline is implied. In

the interests of creativity and democracy, divergent

thinking and freedom are critical necessities.[2] However,

David Holbrook, author, poet, novelist, and teacher warns:

> . . . Since creativity is an uncertain and often dis-
> turbing activity, it can only be done in a school in
> which there is courageous and liberal-minded approval
> of its value and worth; there are important social
> problems here which I can only hint at. Is our
> society yet capable of tolerating the open sympathy
> creativity demands?[3]

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[1]John Dixon, Growth Through English (Reading,
England: National Association for the Teaching of English,
1967), p. 114.

[2]The two books listed here are suggested because
they clearly state the critical necessities. John Holt,
How Children Fail (New York: Dell Publishing Co., Inc.,
1964); A. S. Neill, Summerhill: A Radical Approach to
Child Rearing (New York: Hart Publishing Co., 1960).

[3]David Holbrook, "Creativity in the English Pro-
gramme," in The Dartmouth Seminar Papers: Creativity in
English, ed. by Geoffrey Summerfield (Champaign, Ill.:
National Council of Teachers of English, 1968), p. 14.

The challenge of rapid change and the need for new orientations to scientific and technological developments demand creative resourceful men and women to deal with them. What education measures are taken to deal with these exigencies and to what capacities future education addresses itself may well determine what man himself becomes.[1]

The average world citizen has little appreciation for the enormous increase in knowledge and technological skills. Creative thinkers are essential to future liberty because their insight and intuitive thinking transcend the barriers of the profane and present the hypotheses for new research and study.

While our specialists have the intellectual and technical know-how to bring about unprecedented and unlimited wealth for the entire world,[2] our present world citizenry, for the most part, is not able to comprehend, employ, or diffuse[3] this knowledge. In his

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[1]George B. Leonard, Education and Ecstasy (New York: Delacorte Press, 1968), p. 116.

[2]Henry Ehlers and Gordon C. Lee, Liberal Education for a Scientific Age (Chapter 4), in Crucial Issues in Education (3rd. ed.; New York: Holt, Rinehart and Winston, 1964), p. 211.

[3]Gerhard Eichholz and Everett M. Rogers, "Resistance to the Adoption of Audio-Visual Aids by Elementary School Teachers: Contrasts and Similarities to Agricultural Innovation," (Chapter 12) in Innovation in Education, ed. by Matthew B. Miles (New York: Teachers

book, <u>Ideas and Integrities</u>, Buckminster Fuller discusses

this dilemma and says:

> We find society unable to translate the scientific
> discoveries into realistic magnitudes of comprehensive
> commonwealth advantage. The macro- and micro-reaches
> of the physical universe, whose energy may neither be
> created nor lost, have been so successfully tapped by
> the scientists that the approximately unlimited ener-
> gies of a universe capable of doing realistically
> unlimited work, thus of producing realistically
> unlimited wealth, now need only their social com-
> prehension and orderly social initiatives for turning
> on the valves of unlimited wealth for all humanity.[1]

Fuller reminds us that fulfillment is delayed

basically by our deep and widespread ignorance.

> Only the profound inertia of ignorance, common to all
> of man's everyday preoccupations, and to all of his
> as-yet-known and employable means of solving problems
> by private or public enterprise (and by any and all
> of his political and cultural systems in existence
> around the world), now withholds the practical reali-
> zation of successful physical survival of all of
> humanity, all at higher standards of living than
> as yet been conceived by any man. It is indeed a
> comprehensive educational problem.[2]

College Press, Teachers College, Columbia University,
1967), p. 299. "Diffusion is the process by which an
innovation spreads. The diffusion process is the spread
of a new idea from its source of invention or creation to
its ultimate users or adopters. Thus diffusion entails
the communication or dissemination of an idea, and cul-
minates in its adoption by individuals."

[1]Buckminster Fuller, <u>Ideas and Integrities: A
Spontaneous Autobiographical Disclosure</u>, ed. by Robert
W. Marks (New York: Collier Books, The Macmillan Co.,
1969). Originally published in a hard-cover edition by
Prentice Hall, Inc., 1963, p. 73.

[2]<u>Ibid.</u>

Continuance of the world population growth with attendant problems of lack of food, water, housing, and other human necessities forecasts even wider consequences if not remedied. Both I. A. Richards, Professor Emeritus of Harvard, and Buckminster Fuller see education the greatest need. Richards believes that "the gravest of all threats is from the growing lack of effective capability and not least of effectively capable teaching." Dr. Richards also recognizes in technology, in this case mass media, the instrument of world education.[1] We greatly ignore the hydra-headed enemy within who should long since have impelled us to a united effort against his characteristic manifestations of ignorance, poverty, and disease that lead to the death of human kind. The need and the challenge are back to back--perhaps one and the same. Alerted educators and the thinking public are presently becoming aware of the overtones of our techno-scientific revolution and it is the purpose of this paper to explore some of the current thought regarding creative thinking, our language, and the media and in conjunction with this exploration, to conduct an appropriate classroom experiment.

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[1]I. A. Richards, Design for Escape: World Education Through Modern Media (New York: An Original Harvest Book, Harcourt, Brace & World, Inc., 1968), p. 5.

The Hypothesis

This paper is designed to explore the possible worth of incorporating within the English Department all communication modes as means of student expression where they would seem to fit comfortably into the "universe of discourse," and where they can serve as part of the totality of student experiential life--secondary experiences when the student is the receiver--primary experiences when the student is the author. The opportunities grow out of active production--the give and take of peers working together and the final reward is exhibiting or "publishing." Fresh, personal, and creative effort calls upon the abilities from three sources--the cognitive, the affective, and the psycho-motor domains. Real appreciation for those functioning in one or all of these domains is born of actual process of creative production. The talents representative of each domain are needed, recognized, appreciated, and rewarded. Further, creative effort calls for freedom to think and function. Student written, directed, and presented programs cannot succeed without this freedom.

In the light of these considerations and others that will be discussed in the ensuing chapters, the following hypothesis has been written:

> Hypothesis: Students, given the freedom and encouragement to express themselves in personally selected media (motion pictures,

slide-film, and audio tape), and given
free range of ideas and subject matter
in their performance, with a modicum of
teacher-instruction, will express them-
selves in ways that will better allow
the release of their creativity. With a
growing sense of both personal freedom
and appropriate goals, the students
should further their capabilities in
communication and gain new insights into
themselves, their peers, and their
environment.

The feasibility of this hypothesis is approached
in at least two ways in this study: (1) by an explor-
ation of the elements that make up the hypothesis and
by an experiment in which its elements are put to task
for better observation, and (2) the collection of objec-
tive data for statistical evidence of its implications
as a workable hypothesis.

The idea upon which this study is based lies in
what is hoped will be a fruitful combination of three
elements: (1) curriculum specifically, in this study,
the New English (though any subject taught can make use
of the skills learned as far as media-equipment--cameras,
tapes, and other devices--are concerned, and it would
be hoped that a fully planned program would be made part
of the curriculum, including the attributes of freedom,
experience based activity and the encouragement of
creative contributions), (2) media, used in the tra-
ditional manner among others as information inputs,
enrichment options, and especially in this study as

implements for self-expression and called in this study "Automedia," and (3) a condition in the classroom which encourages easy interpersonal relationships of students and teacher, that alike, they enjoy freedom in the democratic sense[1] and are enabled to pursue educational goals in the cognitive, psycho-motor, and affective domains. These goals are of paramount importance in that they underscore once again the needs and abilities of the individual student. What better way than to offer students an experiential program that permits individual and cooperative efforts in writing, producing, and criticizing a film, for example?

Student filmmaking challenges talents and needs. Good filmmaking demands creative thought, creative writing, and artistic settings, and it demands many psychomotor skills. Interpersonal understanding and cooperation is essential. The total production calls for the talents and skills of actors, directors, artists, technicians, advertisers, writers, typists, costumers, applauders, and critics. The constellation of student interests and abilities builds an intrinsic excitement in the whole affair. The sweet taste of fulfillment is that of

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[1]Joseph Ratner, ed., Intelligence in the Modern World: John Dewey's Philosophy (New York: The Modern Library, 1939), p. 404. " . . . The basic freedom is that of freedom of mind and of whatever degree of freedom of action and experience is necessary to produce freedom of intelligence."

producing an original piece of work in freedom and with
difficulty and effort and disappointments and beauty.
There is joy in exhibiting or "publishing" it before
one's peers, family, friends, and teachers.

Procedures and Methodology

The efficacy of teaching creative writing under
the aegis of the New English was explored by offering
the students their choice of medium, subject matter,
and style of creative communication. Testing was used
to ascertain any change in student creative thinking and
writing that might occur.

A standard pretest-posttest design with randomi-
zation was planned. Instruments used were the Torrance
Tests of Creative Thinking[1] and two samples of creative
writing from each student--one written before the treat-
ment, and one afterward. A sample was drawn from all
intact classes at Pattengill Junior High School in
Lansing, Michigan. The demographic profile is typical
of an inner-city population with an ethnic mix of
blacks, whites, and Mexican-Americans. Collected data
were analyzed by computer at Michigan State University.
The program and results are reported in Chapter IV.

---

[1]A set of tests is to be found in Appendix E.

Definition of Terms

Following are some terms used in this paper:
Automedia, Creativity, and the New English. They are
new with the exception of Creativity. The first, Auto-
media, was coined for this paper and the work that ensued
during the time of its writing. The third term is the
highly controversial New English. Though it is probably
the target of bitter words it seems to be the spearhead
for a revitalization of the teaching of English. Its
advocates are exploring technological media, learning
theories, psychology, creativity, a humanities approach,
and other peripheral sources of knowledge that will help
them improve English teaching and student learning.

Automedia.--Technological media used by the stu-
dent for self-expression; self-regulating technology used
for communication; to auto-mediate--to initiate com-
munication through technological devices, e.g., photog-
raphy, radio, television, tape-recording. A creative
use of media initiated, designed, and performed by stu-
dents or other individuals. Use of media not in the
receptive mode.

(Media.--By definition, media includes all the
aids for transmitting information and learning via the
senses, such as printed materials including books and
programmed devices of instruction; the graphic arts
including transparent slides, pictures, charts,

filmstrips, and video tapes; audio materials including tapes, recorders, radio, and language laboratory equipment; and combination audio-visual materials including the sound motion pictures and television.)[1]

Creativity.--Ability to create. (Create: to bring into existence; to invest with a new form; to bring about through a course of action; cause, make; to produce through imaginative skill; design; invent.)[2]

This paper recognizes two different connotations:

(1) Creativity of the magnitude required for original, singular, and authoritative contributions;

(2) Creativity as awareness, sensitivity, originality in daily living; original and imaginative contributions in affairs of society; divergent thinking, problem solving.[3]

New English.--Substantively new approach to the discipline of English based on an integrated program of full

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[1]Frank E. Williams, "Creativity: Theoretical and Practical Considerations for Media," in Instructional Media and Creativity, ed. by Robert A. Weisgerber (New York: John Wiley and Sons, Inc., 1966), p. 64.

[2]Webster's Seventh New Collegiate Dictionary (Springfield, Mass.: G. & C. Merriam Company, Publishers, 1965), p. 195.

[3]David P. Ausubel, Educational Psychology: A Cognitive View (New York: Holt, Rinehart and Winston, Inc., 1968), p. 551.

language usage beginning in early schooling and pursued through college. Talking, personal writing, and drama are basic to the program. Learning is predicted on the importance of appropriate recognition of child growth and development.[1]

Scope of the Study

Current practices and techniques in schooling on both sides of the Atlantic summoned the attention of a few educators to the Anglo-American Conference on the Teaching of English in 1966.[2] Out of this has come the New English. The philosophy of the New English is a stunning departure from the traditional English and the Review of Literature in this paper will point up the wide divergency.

Again, a new curricular approach is discussed and is used in the experiment reported in this paper: the New English and Automedia combined. Receptive media

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[1]Dixon, Growth Through English; Herbert J. Muller, The Uses of English (New York: Holt, Rinehart and Winston, Inc., 1967).

[2]The Anglo-American Seminar on the Teaching of English co-sponsored by the National Association for the Teaching of English in the United Kingdom, the Modern Language Association of America, and the National Council of Teachers in the United States. Supported by funds from the Carnegie Corporation of New York. Meeting held August and September, 1966, at Dartmouth College in Hanover, New Hampshire. Conference referred to as Dartmouth Conference in literature.

which is the use of instructional technology now in the traditional manner is contrasted in the literature section with Automedia. Students in the passive role of viewers or programmed reactors are discussed and the implications of these techniques and those of the techniques of active student production are explored.[1]

In the literature regarding creativity, it is necessary to come to terms with the dire necessity of good and total education as demanded by Fuller, Maslow, Richards, and others in various disciplines.

While this paper is exploratory in nature, it contains an experiment within it. The meshing of the two investigative techniques--exploratory and experimental-- becomes complex at times because the explorative ranges fairly widely in scope of interest while the experiment is of modest proportions and limited in range. The experiment, originally designed for an eight-week interval, was extended to three months. Valuable time was lost with the interruptions common to volatile urban areas as well as to snow country. A larger population would, of course, have been of greater benefit in finding wider consequences.

Some subjects in both the experimental and control groups were unwilling to participate in the testing and,

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[1]B. F. Skinner, "Beyond Freedom and Dignity: A Technology of Behavior," Psychology Today, V, No. 2 (August, 1967), 33-80. This is an abridged version of the new book coming out in September.

of course, at times in class activities, therefore, all
students were not represented in the results of the
experiment, in the sense of direct personal evaluations.
After all, all students comprise the press and their
interaction with others is part of everyone's resultant
behavior.

"The constellation of abilities and personality
characteristics of the teacher also affects the way
predictors operate," according to E. Paul Torrance.[1]

Students were given a fairly wide range of alter-
natives and chose those finally used in the study: the
8mm film, 2 x 2 slides, audio-tapes, and photographs
(color and black and white). Time and expense made it
necessary to limit the variety of media used.

Organization of the Study

Literature pertinent to Creativity, Media, and
the New English is reviewed in the second chapter. The
nature of the ideas dealt with in this paper require they
be interlaced and interrelated in order to fully explicate
the whole schema. Therefore, Chapter II will contain the

---

[1]E. Paul Torrance, Torrance Tests of Creative
Thinking: Norms--Technical Manual (research ed.; Prince-
ton, N.J.: Personnel Press, Inc., 1966), p. 52. For
further discussion also see: John Curtis Gowan, George
D. Demos, and E. Paul Torrance, Creativity: Its Edu-
cational Implications (New York: John Wiley & Sons,
Inc., 1967). For further discussion of teacher role see
Chapter IV, "Can Creativity be Increased by Practice?"
pp. 150-73.

greatest amount of information concerning the rationale and the manner of implementation of the triad found among the authors concerned with the concepts.

Chapter III is devoted to an explication of methodology and procedures used in arriving at pertinent information related to the experiment. It gives the population, sample, treatment, instrumentation, test validity and reliability, statistical hypotheses, and the design and analysis of proceedings.

Chapter IV states the data and their analysis gained from the experiment at the Pattengill Junior High School, Lansing, Michigan, site of the investigation.

In Chapter V, an attempt will be made to interstice these findings with those of the exploratory part of the paper. Possible curriculum ideas, new designs in methods for the future will be discussed.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This is an exploratory study within which lies an experiment. Many of the principles discussed in this chapter were applied in the treatment segment of the experiment to the extent possible in the given situation. The experiment was conducted in an inner-city school. Social dynamics in such schools are often tense and dangerous, bringing about serious disruptions in school learning. The forces in these situations are both intrinsic and extrinsic to the school. Within the school are found the generic factors of social, economic, and political life. The struggle for existence is dynamic and dangerous and it involves not only the positions of the students but also those of the faculty and staff. What goes on outside the school in the community exerts its pressure on the inside, thereby increasing the opportunities for violence and repression. These conditions existed to some extent in the subject school.[1]

---

[1]Wallace Roberts, "The Battle for Urban Schools," Saturday Review, November 16, 1968, pp. 97-101 and following pages.

The school had its share of authoritarians, tra-
ditionalists, progressives, and innovators. Several pro-
grams were in progress aiming at upgrading curriculum,
methods, and environmental quality. However, the old
school building structure was an inhibitive factor to a
program that called for increased physical and mental
freedom. Some staff and faculty members voiced disapproval
of the freedom given students while others were restrictive
in their regular school duties toward those students par-
ticipating in some of the experimental programs.

> The nurturant environment both at home and in school
> is one which gives a free rein and a ready response
> to the explorations of the child. It is all the more
> unfortunate, then, that in five countries--the U.S.A.,
> Germany, India, the Philippines and Greece--Torrance
> (1965a) found strong disapproval of question asking,
> preoccupation with tasks having the courage of one's
> convictions, independence in judgment and thinking,
> willingness to take risks and unwillingness to accept
> authority's dicta.[1]

Creativity is a popular word in advertising and
education in the United States, yet Christie continues in
his writing to say:

> On the other hand, these cultures seem to lavish
> unduly great rewards for being courteous, doing one's

"What's Wrong with the High Schools?" Education Section,
Newsweek, February 16, 1970, pp. 65-69.

[1]T. Christie, "Environmental Factors in Crea-
tivity," The Journal of Creative Behavior, IV, No. 1
(Winter, 1970), 28.

work on time, being obedient and popular or well liked by one's peers and being willing to accept the judgments of authorities.[1]

The particular experimental study discussed in this paper was conducted in a Junior High School with two classes of seventh-grade students, one class designated Control, the other, Experimental.

Creative thinking as defined by Dr. E. Paul Torrance was measured with a battery of tests. In addition, simple creative writing tasks were used in the beginning and again at the end of the treatment.[2] Comparisons of pre- and post-tests were used in both the creative thinking tests and the writing activity to determine any change in student performances. While such matters as freedom, environment, motivations, and teachers were noted and sometimes further explored, these subjects were not subjected to empirical investigation.

Literature relevant to the specific testing battery used in this study will be reviewed under Creativity, one of the three sections that make up the main part of this chapter. The New English, a new tradition in Language Arts, is explored through a review of its literature and the simple writing activities

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[1]Ibid.

[2]Treatment Conditions are discussed in Chapter III under the heading, Treatment. Also, see Appendix A.

mentioned were used to measure progress that might have
occurred under the circumstances created for a new
approach in English. <u>Automedia</u>, on the other hand,
was a matter of actual production on the part of the
subjects and was not made the object of judgments which
require a priori standards which had not been formulated.
Such standards should be eventually investigated by stu-
dents and teachers and some criteria set. Each group of
students should set goals for themselves and with
teacher help arrive at some standards of aesthetic,
intellectual, and mechanical performance for their
visual and auditory programs.

  <u>Automedia</u>, the <u>New English</u>, and <u>Creativity</u>,
unified as a tentative curricular approach, are inter-
dependent as applied concepts in education and in this
study. Little evidence of an Automedia orientation is
found within the literature of instructional media.
Literature concerning the New English has grown pri-
marily out of the 1966 Anglo-American Conference.
Literature concerning Creativity has been generated
from empirical research accomplished mostly in the
last two decades.

Automedia

  Student use of communication technology for self-
expression, <u>Automedia</u>, actually exists in a few schools
but has not been widely reported nor, where introduced,

widely accepted by the various disciplines in education at any of its levels. Reports of film and tape making by children in exploring their environments, and use encouraged by teachers for purely motivational purposes do occur in the popular press and some educational journals;[1] however, Automedia use by students for original productions is not mentioned at all in the current chief omnibuses of the educational enterprise such as the Handbook of Research on Teaching[2] and the Encyclopedia of Educational Research,[3] probably because the technologies and methods are too new to have been subjected to empirical study.

However, there are educators who do recognize the potential. Such student-use has been suggested by members of the Dartmouth Conference and by teachers in public schools--elementary in particular, and by

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[1]Audiovisual Instruction, XIII, No. 1 (January, 1968), and XIV, No. 8 (October, 1969). Both issues have several articles pertinent to this subject.

[2]N. L. Gage, ed., Handbook of Research on Teaching, A Project of the American Educational Research Association (4th. ed.; Chicago: Rand McNally & Company, 1963), pp. 583-682.

[3]Robert L. Ebel, ed., Encyclopedia of Educational Research, A Project of the American Educational Research Association (4th. ed.; New York: The Macmillan Co., 1969), pp. 367-79.

proponents of Visual Literacy, although they are chiefly interested in the grammar and syntax of visuals.[1]

Technology has been used since the early days of education in America, for instance, the introduction of object teaching with the objects being used as visual aids (circa, 1866). It was attacked at once as "impractical":

> A practical objection will occur to everyone--the disqualification of the majority of teachers to use the system. It is above them. It is too high a kind of instruction. It requires more available knowledge, tact, and experience than most teachers can command.[2]

Even today, there is a lag of approximately twenty-five years in adopting new practices and innovations in the average school and Eichholz and Rogers cite three reasons:

1. The absence of scientific sources of innovation in education.
2. The lack of change agents to promote new educational ideas.
3. The lack of economic incentive to adopt.[3]

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[1]Visuals Are a Language, a monthly periodical published by the Motion Picture and Education Markets Division, Eastman Kodak Company, Rochester, New York. Standard ongoing reference source.

[2]"Opposition to Advancing Educational Technology," The American Education Monthly, III (January 1, 1866), 22.

[3]Gerhard Eichholz and Everett M. Rogers, Chapter XII, Innovation in Education, pp. 314-15.

However, times and teachers are changing, bringing more sophisticated equipment and better-educated teachers. The sophistication of modern equipment lies not only in its design and function but in its ease of operation. Motion picture projectors, 35 mm slide projectors, tape recorders, and other such equipment have become fairly common in education. Cameras are designed for easy usage. Student help in educational media centers and interested students within classes form competent cadres to be called upon by teachers in handling equipment as well as materials being made for use in the machines.[1]

The person in charge of the equipment must be a flexible person able to cope with new ideas and with new regimens. This kind of flexibility—willingness to change, to face new stratagems, and to trust students with expensive equipment—requires an able, imaginative staff. It is true that adoption of educational films has been slow and student film-making is a much more extensive use of this medium. All media modes should be considered, probed, and experimented with by teachers and students alike to discover new uses and applications of special use to their needs. In an audio-visual article, Anthony W. Hodgkinson writes:

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[1]The subjects used in this experimental group were taught to manipulate a simple and inexpensive super 8 mm motion picture camera and projector, a reel-to-reel tape recorder, a carousel projector, a copy camera with lights and copy stand.

Since the medium, as [Marshall McLulan] points out,
conditions both form and content, and indeed our
whole apperception of life, the study of the modern
media becomes an essential and inescapable require-
ment for modern education. If the traditional values
of Academe are not to be totally exposed and over-
whelmed by technology, it is vital that educators
grasp the challenging opportunities which fleetingly
offer themselves, but which, ignored now, may never
recur in the lifetime of our civilization.[1]

Commercial motion pictures, art films, edu-

cational films, Public Broadcasting Systems programs,

and commercial television offer models for not only

effective communication but also good literature.[2] Many

schools are equipped with closed-circuit television, some

with video-tape recorders--but unfortunately they often

sit idle while ignorance, laziness, unimaginativeness,

or perhaps fear wrests the opportunity away from students

and teachers for refreshing experimentation. Negative

attitudes toward student use bar the exciting possibili-

ties of discovery for all. Calling the roll on media's

availability and usage would indeed be a bitter exercise.

John M. Culkin, S.J., says:

The fact that we haven't developed ways of dealing
with [this] speeded-up rate of change shouldn't be
either a surprise or a source of regret. There were
no precedents for the whole thing. Now is not a bad
time to begin. The media are not a bad place to begin.

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[1]Anthony W. Hodgkinson, "The Scope of Screen Edu-
cation," Audiovisual Instruction, XIII, No. 1 (January,
1968), 16-18.

[2]Susanne K. Langer, Feeling and Form: A Theory of
Art (New York: Charles Scribner's Sons, 1953), pp. 411-
15, passim.

The fact of the media is challenge enough. The
information levels are, for the first time in
history, higher outside the classroom than in it.
The student lives in both these worlds. What is
unified in his experience should also be unified in
his understanding. The general challenge can be
stated in two ways:
    1. To improve the student through the media.
    2. To improve the media through the student.
The first stresses the positive contribution of the
rich and varied experiences available to the student
through all the media. The second underscored the
fact that the media, especially the commercially
exploited ones, respond to the demands of their
audiences; improve the audiences and you improve
the medium.[1]

An excellent approach to this upgrading of the
media is through the study of our language, our universe
of discourse in schools from the beginning of school days.
Whether the future finds us in structures as we now know
them or whether we adopt new ways of learning in new and
different environments, still the language we use--our
chief manner and method of communication--makes an excel-
lent source for improvement of communications technology.
Modern communication and art forms expressed through
electronic media seem appropriate studies for today's
English departments--as do drama, speech, and journalism.[2]
The very nature of multi-imagery or single image and

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[1] John M. Culkin, S.J., "Toward Mediacy: An
Extension of Film and Television Study," in Audiovisual
Instruction, XIV, No. 1 (January, 1969), 11-13.

[2] Moffett, Teaching the Universe of Discourse,
p. 47.

sound image essays requires that education become inter-

disciplinary in viewpoint.

Displaying the availability and means of mixed

media and the use of interdisciplinary subjects, Irving

Kolodin in Saturday Review writes:

> Long restricted by its structure and perception
> to immobile things through the media of print, or
> reproduced through laborious film techniques, the
> eye has never enjoyed the ear's privilege of servic-
> ing and educating itself instantly with whatever
> could be heard. The inert it commanded at once.
> But for the moving and the evanescent it was
> dependent on means it could not enjoy when and
> as wanted.
> All that is, technologically at least, as close
> to realization in the 1970s as the long-playing
> record was in the 1940s.[1]

From time to time articles by teachers appear in Audio-

visual Instruction reporting the successful making of

films by children. A humanities approach is therefore

called upon because the films often include music, art,

and drama.[2] Recognizing the changes brought about by

visuals added to the language in television, film, and

other media sources, John Dixon is prompted to say:

> Can we English teachers, just as we are beginning to
> see all that is implied by a clearer definition of

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[1]Irving Kolodin, "Multi Media," Saturday Review,
January 30, 1971, p. 41.

[2]Audiovisual Instruction, January, 1968, see
especially Kay Vandergrift, "Film Program at Agnes Russell
School," pp. 21-23; Della Jo Burnes, "Using Audiovisual
Materials for Teaching Children to Communicate." Also,
October, 1969, James L. Evers, "Mediacy Understanding
Metaphor," pp. 34-36.

our subject, face the prospect of further complication
to our work? In the long term I believe we will.

Dixon reminds teachers that an inter-disciplinary format
in teaching is an approach well known to the English
department in play production.[1]

Automedia, as all media, are ways or means, not
ends. The ends are the messages that have been transferred
from the sender to the receiver. While it is true that
the form of the medium itself shapes to some extent, the
message by its framing context, this has always been true
whether it has been the stone tablet, papyrus, illustrated
manuscript, print, or electronic media. The very nature
of the medium, its stability, say, renders some of its
apprehension, meaning, and credibility. That is to say,
for instance, the mythic stone tablet of Moses [mys-
terious, unreadable to the illiterate multitude, cos-
mological, omnipotent, and threatening--] gained its
character, charge, and implacability in some measure
from the nature of stone itself, the medium of communi-
cation. Organic and Cosmic, the medium and control, the
stone tablet and God's Laws were made manifest. On the
other hand, television broadcasts sequential messages
(though mosaic in effect) of physically remote human
events in instantaneous coverage, yet it is ephemeral--
a presence in auditory and visual images. Again, the

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[1]Dixon, Growth Through English, p. 112.

"readability" of the message depends on the literacy of
the receiver. Proponents of "Visual Literacy" cite the
needs to learn the vocabulary and syntax of visuals.
It is defined by John L. Debes as follows:

> Visual literacy refers to a group of vision-
> competencies a human being can develop by seeing
> and at the same time having and integrating other
> sensory experiences. The developments of these
> competencies is fundamental to normal human learn-
> ing. When developed they enable a visually literate
> person to discriminate and interpret the visible
> actions, objects, and symbols natural or man-made
> that he encounters in his environment. Through
> the creative use of these competencies he is able
> to communicate with others. Through the apprecia-
> tive use of these competencies he is able to compre-
> hend and enjoy the masterworks of visual communi-
> cations.[1]

Experiencing the televising currency with one's own con-
current living with frequent assaults of other media,
for example, telephone, newspaper, radio, intercom, and
closed circuit television system, creates demands on
intellectual and aesthetic integrative powers, and a
rather high ambiguity tolerance. Thus the mythic remains
in the electronics age, as in the stone tablet age.
Electronics stage the creative act.

Scholars and poets alike abhorred Gutenberg's
printed word in its utilitarian and common projection.
Preference for the aesthetic and intellectual exclu-
siveness of the illuminated manuscript typifies

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[1]John L. Debes, "The Loom of Visual Literacy:
An Overview," Audiovisual Instruction, XIV, No. 8
(October, 1969), 25-27.

resistance to change and compares with current reluctance to accept photographic and electronic communication with its implications for utilitarian and common use.

The printed word has long been common. Beauty and integrity in print reflect the author's requirements. Similarly, the common literature of electronics reflects the taste of its authors. What is offered is accepted or rejected by the individual. Education should upgrade both audience and author in print, photographic, and electronic media. Herbert J. Muller of Indiana University and author of the American report on the Dartmouth Conference, The Uses of English, hails the inclusion of mass media in the English classroom.[1] And of course, fellow conferee, John Dixon, noted the agreement among the members of the Conference on the need for exploration of the new media.[2] An article in Audiovisual Instruction discussing student use of media declared: "Film-making provides an important esthetic experience and prepares the student to be an intelligent

[1]Muller, The Uses of English, p. 137.

[2]Dixon, Growth Through English, p. 112.

consumer of movies, the national folk art and of visually transmitted information in general.[1]

Learning systems designers, subject specialists, and behavioral psychologists develop materials to be used with the various media. Some of the alternatives are: books, programmed books, audio-tutorial carrel programs, instructional filmstrips with or without tapes, films, slide-tape programs, radio, and television instruction. However, virtually all these instructional packages are set in the receptive mode with but minor kinds of student-initiated involvement. That is, the lessons are meant to be listened to, to be looked at, "to be received." Of course, some minimal opportunities for direct student participation are provided by the programmer in answer sheets and the like.

Still another education system using mixed media is the sophisticated basically audio-tutorial model. The botany class designed and taught by Dr. Samuel N. Postlethwait of Purdue University attracts many visitors as well as students to the laboratory and class sessions. The appropriateness of his use of media in an audio-tutorial model gives testimony to his sensitive understanding of its effectiveness in learning. Dr. Postlethwait has found that "individuals differ in their

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[1]Don D. Bushnell, "The Educational Advantages of the Poor," <u>Audio-visual Instruction</u>, January, 1968, p. 24.

responsiveness to different kinds of communication

devices." Flora and fauna easily brought into the

laboratory in their natural state live in the terrariums,

tanks, pots, and kettles. Those phenomena better left

in their natural habitats are photographed there.

Postlethwait's beliefs are further revealed in his

Pacific speech in which he said:

> Some people learn well through reading, some can
> learn best by auditory communication, and others
> can learn best by literally handling specimens and
> performing experiments. The audio-tutorial system
> thus provides an opportunity for subject matter
> to be covered in a great variety of ways with the
> student exploiting the medium which communicates
> most directly and effectively for him.[1]

Media coordinators in colleges and school systems

can be instrumental as change agents and instructors as

well as administrators in making Automedia and the equip-

ment needed available and workable for faculty and stu-

dents. Faculty inflexibility on the part of any of these

functionaries destroys opportunities for progress.

A Faculty Workshop to introduce Automedia might

be most effective if production were its chief goal.

Actually, producing a "paper," poem or idea in visual

and sound images in one of the many media alternatives

gives the teacher a stake in the process of recognizing,

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[1]S. N. Postlethwait, "Teaching Tools and Techniques: An Audio-Tutorial," reprint from Pacific Speech, I, No. 4 (January 24, 1967), p. 61. This version was edited by Richard A. Sanderson, Director, Communication Service Center, University of Hawaii. (Distributed at MSU upon Dr. Postlethwait's visit to the Title VIB Media Institute.)

accepting, and then implementing a new idea. To those uninterested in personal expression, the opportunity to produce instructional materials is also an alternative in media, though realistically, to gain better comprehension of what the student will be doing, a faculty member should complete an assignment himself that he intends to require of his students. Not only will he thereby check the propriety of his assignment but he acquaints himself with time, cost, and personal risk (a creative factor). He can better estimate the learning opportunities, advantages, and motivation. The motivation is intrinsic because the student is making an investment not only in time, energy, and perhaps cost but his risk-taking is maximal and personal. When he writes a theme in his English class usually only his English teacher reads it unless the teacher "publishes" regularly, that is, mimeographs and distributes student work or implements some like method of publication; similarly, in producing a "theme" in a photographic or an electronic medium, "publishing" becomes a visual and auditory experience. In addition, it occurs in a darkened room with an audience with whom the author-producer shares the burden of his thought and expression. Indeed, this is true risk-taking.

An enterprise involving many students such as motion picture making provides opportunities for group

interaction and inter-personal relationships. In education one " . . . essential problem is to know how to promote the true activity of 'ontological investigation'-- that is, the genuine exploration of the nature of the self in the world."[1] The student can work with his peers in relative safety on a project in which he can become deeply interested and share that interest with his peers; all can make personal gains in self-identification, by better relating themselves to each other and to "reality."

Dr. Rollo May says that " . . . the experience of one's own identity, or becoming a person, is the simplest experience in life even though at the same time the most profound."[2] This search for self and its relation to reality is intimately concerned with one's language. Early childhood finds . . . " . . . children [making] transitions between the inner and outer world easily and intuitively [using] symbolism in the pursuit of inward strength and an adequate sense of reality."[3]

An understanding of the apprehension and accommodation by the human mind of the "inner-outer" character

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[1]Holbrook, "Creativity in the English Programme," p. 11.

[2]Rollo May, Man's Search for Himself (New York: A Signet Book, published by the New American Library, 1953), p. 80.

[3]Ibid., p. 10.

of human experience is prerequisite to an understanding
of this design for the teaching of English.

The language is that of Lawrence S. Kubie, M.D.,
psychoanalyst, who asks the pertinent question: " . . .
What is the effective value of knowledge of externals in
the absence of equally deep personal insight?"[1] Dr. Kubie
charges not only our education but our culture with neglect
in overlooking the need for self-knowledge. He acknowl-
edges that there is more to the achievement of wisdom
and maturity than knowing oneself, but he says self-
knowledge " . . . is an essential ingredient which
makes maturity at least possible."[2]

The opportunity for students to use media for
imaginative self-expression as well as receptive learning
seems in itself to be significant. It bears witness to
progressive attitudes in recognizing the need for human
development. Citing two different scholars' points of
view perhaps will bring this into further cogency.
English Professor and writer, Northrop Frye says, "The
imagination belongs in the scheme of human affairs. It's
the power of constructing possible models of human

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[1] Lawrence S. Kubie, M.D., Neurotic Distortion of
the Creative Process, Porter Lectures Series 22 (Lawrence,
Kansas: University of Kansas Press, 1958), p. 132.

[2] Ibid., p. 134. Also Clark E. Moustakes, Creativity
and Conformity (Princeton, N.J.: An Insight Book, D. Van
Nostrand Company, Inc., 1967); a summary list of principles
concerning the " . . . recognition of uniqueness and indi-
viduality," p. 10; Holbrook, "Creativity in the English
Programme," p. 2.

experience."[1] John N. Culkin, S.J., contributed an

article to Audiovisual Instruction in which he says:

> Learning by Doing: Dewey and Montessori never
> sounded more contemporary than today. Apart from
> any vocational or professional interest, students
> should get involved in trying to communicate through
> media. Some beautiful, but all too infrequent
> examples exist of what they can do when given the
> chance to express themselves through film, tape,
> photography, paint, other media. Some claim that
> such active work in the creative end of media may
> be the valid route for training intelligent con-
> sumers of the media. One thing is certain--there
> are no unmotivated students when it comes to making
> a movie.[2]

In summary, John Dixon finds three "likely factors" that

concern growth in language, and at the same time, he

warns that like most other human learning behaviors,

there is much to be learned: Language experienced in

the home, experiences in daily living in school, and

the opportunity to discuss them, and self-expression,

in different ways.[3] Benjamin Lee Whorf discusses

"language, mind and reality" in his book and remarks

on the casual acceptance of man's ability in language

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[1]Northrop Frye, The Educated Imagination, The
Massey Lectures--Second Series (CBC-Toronto: CBC Publi-
cations, 1963), p. 5.

[2]Culkin, "Toward Mediacy: An Extension of Film
and Television Study," p. 19.

[3]Dixon, Growth Through Language, p. 15.

learning and the lack of full understanding and respect for its remarkableness.[1]

Exercise of self-expression is encouraged in classrooms that are open and free with underlying discipline based on the mutual respect and understanding of teacher and students. Further, individual differences of students can better be served by offering a variety of communication devices for different interests and styles.

Automedia, if adopted as a concept for better teaching of language and self-expression, builds not only better communicators--speakers and writers--but better critics of all kinds of modern communication media. Inherent in this upgrading of personal and public evaluative capacity is the general improvement of the quality of life.

The New English

> The tygers of wrath are wiser than the
> horses of instruction.[2]
>   --William Blake

Literature representative of the New English point of view and particularly those books and articles

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[1] Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf, Introduction by John B. Carroll, ed., Foreward by Stuart Chase (Cambridge, Mass.: The MIT Press, 1964), p. 250.

[2] Blake, "The Marriage of Heaven and Hell," p. 152.

that discuss creative writing are the backbone of this portion of the literature review. Growth Through English by John Dixon, Senior Lecturer in English, Bretton Hall College of Education in Yorkshire, is one of two major contributions to the literature. His is the English report of the Anglo-American Seminar on the Teaching of English (Dartmouth Conference). The second book, The Uses of English, was written by Herbert J. Muller, Distinguished Service Professor of English and Government, Indiana University, who, of course, wrote the American version. The points of view that best explain the new tradition in English that is currently emerging is the basis of the selection of books for this paper.

The opposing terms "new" and "tradition," if at first confusing, are somehow necessary terms for today's evolving language use, communication, and literature.[1] In the Traditional Curriculum discreet sets such as grammar, composition and literature are taught with prescribed study, drills and tests. On the other hand, the New English views the whole universe of discourse as the domain of study and views learning as an ongoing process.[2]

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[1]John Dixon uses the term "new tradition" in the title of his article quoted elsewhere in this paper: "A New Tradition in the Teaching of English" (see page 50 of this study).

[2]Dixon, Growth Through English, pp. 1-13, passim; see also: Muller, The Uses of English, pp. 3-19, passim.

was reflected in illustrated manuscripts and later,
illustrated books. Still another style of literature
was the integrated poetical works of artist-poets who
contributed two or perhaps three modes of communication
simultaneously. In this latter category William Blake
must be mentioned.[1] His poetry and painted engravings
integrated in several of his works are unique in
literature. The literature-language, music, and liturgy
of the cathedral of the Middle Ages combined with the
visual media--statuary, paintings, carvings, and stained
glass windows to tell the religious story to the unlet-
tered congregations. Architectural design raised the
simple meanings to mystical beliefs through the suggestion
of mystery in remote and shadowy recesses in the ceilings.
The tradition of mixed media in the arts has been long
accepted.[2]

Today's extravagant display of multi-media
alternatives offers the artist many facets for self-
expression. Film, television, and slide-tape programs
will most likely become part of this century's body of
literature in the true sense of the word. Some cannot
accept the new media because these media are not "the
written word"; they do not appear in book or journal;

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[1]William Blake's poetry and paintings were taped
and photographed and presented as a program at Michigan
State University (see Appendix A).

[2]"Art and Architecture: Chartres Cathredral"
(Lesson 3 - Middle Ages), The Humanities Course (Chicago:
Encyclopedia Britannica [color] 16mm Film, No. 47563).

they are not written "literature." Light, sound, and color communication vehicles, can be used effectively to describe the human state. The effectiveness depends on the artist-designer-writer.

The best of man's thought and expression is recorded in various media. Artists, musicians, writers, and poets have proven this. Scientific genius and technological advances, basically born of this genius, created modern electronic media--excellent means of communication. It is up to the artists, musicians, poets, and writers again to provide the best in man's thought and expression in the Twentieth Century Man's style of communication. It is not difficult to understand the reticence of today's timid scholar for his predecessors found movable print when new, precedent-shattering, and disturbing to the status quo. A new "critic" was born, the public--the reading public--and the exclusiveness of literacy no longer belonged to but a few educated men. It took probably fifty years or so for the new presses to be accepted by the elite and even longer for the average man to recognize the birth of a new phenomenon.

In addition to the books of Dixon and Muller are six monographs, one of which is germane to this study: Creativity in English edited by Geoffrey Summerfield, Lecturer in Education and English at the University of

York. It contains four papers, two by Summerfield and one each by David Holbrook and Reed Whittemore.

Three more books of importance are listed here because they offer theoretical and practical understanding of English discourse. These are Drama: What is Happening,[1] Teaching the Universe of Discourse, previously cited, and A Student-Centered Language Arts Curriculum, Grades K-13: A Handbook for Teachers by James Moffett.[2] These books articulate the chief components of the new thrust in English--the "New English."

Many of the recommendations of these scholars and teachers are revolutionary in attitudes and projected practices. And, in the face of societal needs, new concepts are required in administration and teaching. Common use and interpretation of intelligence testing batteries achieved research quantification norms but proved near disastrous to the minority groups in our countries where testing "proved" the culturally and economically disadvantaged to be of inferior intellectual ability. The crux of most of this lay, of course, in

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[1]James Moffett, Drama: What Is Happening: The Use of Dramatic Activities in the Teaching of English (Champaign, Ill.: National Council of Teachers of English, 1967). Included as Chapter III in Teaching the Universe of Discourse.

[2]James Moffett, A Student-Centered Language Arts Curriculum, Grades K-13: A Handbook for Teachers (Boston: Houghton Mifflin Company, 1968).

the testing content and language used because the language
used was that of standard speech (a misnomer) and the
children tested were living in cultures with different
dialects and different sets of experiences. Recognition
finally of this disparity in language and experience
opened the eyes of educators to the many different dia-
lectical changes and accommodations children must make
completely within the English language and within their
everyday experiences. The change over to standard
English necessary for reading and for ease and under-
standing as well as successful communication in the
general community is desirable. This can be accomplished
while at the same time maintaining a sound understanding
of the basic integrity of the child in his own cultural
background and dialect. John Dixon lists four "stages"
the child should experience in leaping the "linguistic
barrier":

> (a) Much enjoyable listening to standard English--
>   assimilating it with satisfaction through
>   stories told by the teacher and later through
>   her reading stories too;
> (b) Reading aloud by teacher and child of the child's
>   own stories, told in his own language and pre-
>   served in that form by the teacher who wrote
>   them down;
> (c) Reading stories in standard with accompanying
>   talk;
> (d) Reading standard on his own.[1]

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[1]Dixon, Growth Through English, p. 16.

Here, there seems to be justification for the use of _Automedia_, wherein the child should make use of his drawings, stories, perhaps clay work or other art work to make an original book with photographs made with a simple box camera or the school copy camera,[1] or perhaps other media alternatives.

Communications technology has been of little interest to most English departments in the schools and colleges though members of the Dartmouth Conference gave impetus to a growing faction of English educators who recognize that film, radio, and television are part of the literature and should be so recognized.[2] In addition to these media, filmstrip, 35 mm slide-film, photographs, sound tapes, super 8 mm film, and other media alternatives open new avenues of expression for students and in this paper are called _Automedia_.

Basic communication was a major concern of the Dartmouth Seminar. How best to teach and to encourage communication became a mandate to educators on both sides of the Atlantic; how to bring all their people into the mainstream of society. In England, the English language is a great discriminator.[3] In a self-conscious America

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[1]Copy Camera: Camera with lens capable of photographing small objects or pictures at close range.

[2]Muller, _The Uses of English_, p. 137.

[3]_Ibid._, p. 65.

a new awareness of societal needs demands recognition of
diverse dialects within the general language. Such
recognition and respect would do much to combat insti-
tutional and individual racism according to the United
States Commission on Civil Rights (Kerner Report).[1] Lin-
guists have fought a long battle for such recognition
based on their research of language history, structure,
and usage.[2]

Of great concern, also, is the change brought
about in our lives by technology that affects our use of
the language arts. The casual use of the telephone makes
written communication practically obsolete in our social
lives and in business. On a different level, Dixon
remarks that among disadvantages in this phenomenon are
" . . . the limits to exact thought and the difficulty
of sustaining elaborate rational analysis."[3] The neces-
sity for preserving text for governance alone makes the
feasibility of Dixon's argument clear and convincing.

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[1]Racism in America and How to Combat It, The
United States Commission on Civil Rights, Urban Series
No. 1, Superintendent of Documents (Washington, D.C.:
Government Printing Office, Clearinghouse Publication,
January, 1970), passim. See also Armando Rendon and
Domingo Nick Reyes, Chicanos and the Mass Media, Brown
Position Paper No. 1 (The National Mexican American Anti-
Defamation Committee, Inc., 1971), passim.

[2]Ken Macrorie, Telling Writing (New York: Hayden
Book Company, 1970), p. vii.

[3]Dixon, Growth Through English, p. 111.

Easy access to information and entertainment challenges
the need for literacy among many and it is the teacher's
task to convince the immature and the unlearned of the
need for the written word. However, Moffett says of
reading:

> Reading is a very potent source of contents and
> forms which a student stores and may later utilize
> in soliloquy. But I am going to claim that conver-
> sational dialogue exerts the most powerful and
> direct influence on the content and forms of
> soliloquy. That is, interaction, whatever the
> age of the learner.[1]

However, future extensions even on today's
technology augur well for world-wide education, for
example, a few excellent systems of automated audio-
visual and dial access libraries are already in oper-
ation. Yale University Library is one such facility.
The cost is prohibitive for more of these libraries at
this time, but the technology is operational. Television,
satellite-distributed and computer controlled awaits the
two-thirds of the world's peoples who need to be educated
and their instruction needs to be designed.[2] I. A.
Richards, University Professor Emeritus at Harvard,
addresses himself to world education brushing aside the
terms "talent" and "intelligence" as prerequisites for
successful learning and writes:

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[1]Moffett, _Drama: What Is Happening?_, p. 10.

[2]Richards, _Design for Escape_, p. 94.

Capability I think of as something that can be cul-
tivated and developed--given the right opportunities
and incentive. Effective is added to imply that
the learner not only CAN, but in fact, WILL, do
what is needed. Too many able enough people find
nothing useful to do.[1]

Dr. Richards further says,

Ideally the structuring of language in a learner's
mind and the structuring of his world grow together.
It is through this co-variance in structure that
language learning, rightly sequenced, can become
the supreme instrument in developing effective
capability.[2]

The paucity of effective people is the concern

of Buckminster Fuller as well as Dr. Richards. Both

men recognize the need for new educative measures, bold

and imaginative.

Many disciplines were represented in the member-

ship of the Dartmouth Conference. Participants and

consultants included men and women from all levels of

schooling--elementary through graduate education--and

from three countries--Canada, Great Britain, and the

United States. In addition to English, the fields of

study represented were Linguistics, Government, Phil-

osophy, Humanities, Speech and Theater, Education, Psy-

chology, and Social Science. This commingling of rep-

resentatives from different disciplines was actually

symbolic of the approach taken by the participants who

recommended an experiential curriculum:--to the child

an opportunity to explore his universe, to expand and

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[1]Ibid., p. 9.   [2]Ibid., p. 13.

deepen his understandings as well as to reach for newer regions of knowledge. This eclectic approach would involve the use of many resources--teachers, various professionals, community citizens, libraries and media-- mass media and individual media both receptive and Automedia--and any other sources available to the student.

In this section on the New English several things will be discussed with supportive authority from fields other than English. A further discussion of the New English will hopefully better define its attributes.

1. The Universe of Discourse will be defined and discussed.

2. Following this section is a discussion of writing in the light of the New English.

3. The concluding part of the New English section explores the interaction of the New English and Automedia.

Universe of Discourse

The Universe of Discourse describes all the functions of man and his language. It includes not only the overt characteristics of language--the written word, the spoken word, the words heard and read, but also the covert language activities of apprehension of under- standing--of thinking. Professor Moffett defines

discourse as " . . . any piece of verbalization complete for its original purpose."[1] "What creates different kinds of discourse are shifts in the relations among persons-- increasing rhetorical distance between speaker and listener, and increasing abstractive attitude between the raw matter of some subject and the speaker's symbolization of it."[2]

The totality of language usage is the Universe of Discourse. Discourse is divided into four main catagories by Moffett based on an order of "increasing distance between speaker and audience, between first and second person."

> Reflection--Intrapersonal communication between two parts of one nervous system.
> Conversation--Interpersonal communication between two people in vocal range.
> Correspondence--Interpersonal communication between remote individuals or small groups with some personal knowledge of each other.
> Publication--Impersonal communication to a large anonymous group extended over space and/or time.[3]

In this study, from interpersonal communication to publication, the student is encouraged to commit himself intellectually, emotionally, and physically in

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[1]See Appendix A. Professor Moffett's "Spectrum of Discourse" is helpful in better understanding his concepts.

[2]Moffett, <u>Teaching the Universe of Discourse</u>, p. 10.

[3]<u>Ibid</u>., p. 33.

creative communications. Automedia seems especially
appropriate to this kind of approach.

The give and take of productive activity
experienced in motion-picture making or video-taping
makes verbal language and other bodily forms of communi-
cation (facial grimaces and attitudes of bodily appen-
dages) natural to participators. The chief communi-
cation, of course, is language and here Moffett's
hypothesis that " . . . dialogue is the major means of
developing thought and language . . . " appears self-
evident. During the activity, the students' intense
involvement coincidentally frees them from self-
consciousness by demanding concentrated effort and
instantaneous and continuing discourse.[1] Exigencies
in any creative venture that is both original and evolv-
ing demands continuous accommodation, revision, and
interpretation as well as the heuristics discovered
in its eventual successful production. In his discussion,
Moffett says, "Again, discourse does not just convey
thought, it also forges it."[2]

Bearing out his avowed disapproval of work and
drill imposed on the student with little or no apparent
relation to student experience, Moffett is intent on
student authenticity of purpose and performance:

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[1]Moffett, Drama: What Is Happening?, p. 12.

[2]Ibid., p. 15.

The learner expends most of his intelligence coping
with the demands of arbitrary contents and arbitrary
schedules instead of using his native apparatus to
build his own knowledge structures from what he and
others have abstracted. Since the latter is what he
will spend the rest of his life doing, whatever
the future, this primary activity, I submit, should
gain priority over all else in education.[1]

Writing

Noted in the Encyclopedia of Educational Research
are the following remarks on English Composition:

Reflecting changes in curricula since the seventeenth
century and disagreement over objectives in the first
half of the twentieth century, the terminology of the
field of English is confused. . . . Some distinguish
between "creative writing" (meaning for the most part
the writing of stories and poems) and "practical writ-
ing" (meaning the writing of reports, explanations,
analysis, argument, letters, and the like), while
others typically label as "creative writing" almost
anything original which is longer than a sentence.[2]

Here, the issue of creative writing is side-stepped by
calling anything that is not actually plagiarized
creative. All kinds of excuses are offered for
exclusion of creative writing from school curricula.
Even in the university, students are discouraged from
taking work in creative writing. In a Canadian Broad-
casting Corporation series during which Professor Eric
Birney discussed The Creative Writer,[3] he reported that

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[1] Moffett, Teaching the Universe of Discourse,
p. 215.

[2] Ebel, The Encyclopedia of Educational
Research, p. 443.

[3] Earle Birney, The Creative Writer (Toronto: CBC
Publications, Canadian Broadcasting Corporation, 1966).

writers were more likely to be available to students in a coffee house or a quiet bar than in creative writing classes. In fact he stated:

> What keeps college students out of creative writing classes in Canada is largely that most of our universities are still too hidebound to offer such disciplines; or if they do, they hedge them around with so many restrictions they are available only to a few senior students in English, who may, in any case, be cautioned by their professors to avoid them as a waste of their academic time.[1]

In the writing discipline of traditional English, John Dixon lists the following objectives:

> planning an organized pattern for your ideas, inventing felicities and embellishments to attract readers (opening and concluding paragraphs), maintaining a skillful flow or continuity, correctness of register, usage, punctuation, and spelling (in declining order of sophistication).[2]

The objectives suggest artifice and this alone is unattractive to those whose philosophy lies in the humanistic vein. Dixon says, in fact that " . . . if English is to be a humanism, the writer's focus must shift to experience." And, of course, this is a restatement of the values found in the major reports by Dixon and Muller.

These are texts of seven half-hour talks. CBC Dept. Public Affairs, broadcast during November and December, 1965, in "The Best Ideas You'll Hear Tonight"--a program series arranged for CBC by Phyllis Webb and William Young and produced by Janet Somerville.

[1] Ibid., p. 53.

[2] John Dixon, "A New Tradition in the Teaching of English," English in Education, III, No. 2, p. 51.

Dixon's italicized works (underlined portions) in this next statement reveal his sensitivity to the felt need of the modern for self-expression and self-identity: "[Students] were expected to <u>reproduce ideas and not to comment on them.</u>"[1] In this context Marshall McLuhan's comment on man's need for assertion of the self above artificial or mechanical impersonations of men is meaningful:

> The mark of our time is its revulsion against
> imposed patterns. We are suddenly eager to have
> things and people declare their beings totally.
> There is a deep faith to be found in this new atti-
> tude--a faith that concerns the ultimate harmony
> of all being.[2]

However, creative writing and personal writing have become paramount in the curricula of some of the schools and universities in England, Canada, and the United States. Such opportunities are assured through the vigorous leadership of men and women on both sides of the Atlantic. Holbrook, Summerfield, Dixon, Moffett, and others work for greater emphasis on the student and his needs. Among these men "the argument is that creative or personal writing is an excellent way, perhaps the best way, to improve the basic skills of writing and achieve

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[1]<u>Ibid.</u>, p. 52.

[2]Marshall McLuhan, <u>Understanding Media: The Extensions of Man</u>, A Signet Book (2nd ed.; New York: The New American Library, 1964), p. 21.

a mastery of language."[1] The writing is encouraged and
is born of the child's own experience, particularly in
the lower grades. The result of their efforts are
shared with their peers. Moffett suggests no grades be
given on the child's offerings and only when demanded to
fulfill administrative needs should the teacher grade
the work. He suggests that in this case the teacher
make a summary mark of several writings of each child.[2]

It is obvious that the ideas and practices that
these men believe in are diametrically opposed to tra-
ditional English teaching. In his book on creativity,
Hugh Mearns reminds the reader that such men as these
leaders are creative in their own right, sparking new
traditions, new insights, and encouraging through their
own personalities, thoughts and feelings, others to
engage in their own discoveries.[3]

Honesty and objectivity are of primary importance
in personal writing, according to John Dixon. He further
remarks that the matter of learning accomplished during
"the act of writing" is really the chief concern.

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[1]Muller, The Uses of English, p. 125.

[2]Moffett, Teaching the Universe of Discourse
(see chapter six "Learning to Write by Writing," pp. 188-
210, passim).

[3]Hugh Mearns, Creative Power: The Education of
Youth in the Creative Arts (2nd rev. ed.; Dover Publi-
cations, Inc., 1958), p. 252.

Professor Dixon lists three dimensions for writing during one's education in English:

> (i) The view of experience must range from the concrete and particular to the general, often welding the two.
> (ii) The sense of audience must range from the intimate and personal to the distant and impersonal.
> (iii) The ordering of experience must range from the intuitive to the rational.[1]

Students given time to think, visualize, and generally become comfortable in their surroundings may find David Holbrook's "limbering up exercises" beneficial to their creative writing.[2]

New English and Automedia-- A Discussion

Ideally, the students of the Experimental Group in this study would have freedom and room to move about to explore and then implement some of their ideas. However, as often occurs, apathy and resistance to change discourage new and different modes. Thus, conventionality defers good education, good mental health, and creative activity. Dr. Lawrence S. Kubie, psychoanalyst, reminds us of the continuing neuroses bound to result from poor principles in schooling as well as living habits in the warning: "Education must include opportunities to undo

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[1]Dixon, "A New Tradition in the Teaching of English," p. 54.

[2]Holbrook, "Creativity in the English Programme," p. 18. See Appendix A for "limbering up exercises." Also see E. Paul Torrance, "Ten Ways of Helping Young Children Gifted in Creative Writing and Speech," pp. 209-19, passim. See Appendix A for the List.

some of those subtle restrictions of the human spirit
which arise as a result of the ubiquitous if masked
influence of both the neurotic and the schizophrenic
processes in every culture known to man."[1]

In response to a questioner asking why the success-
ful principles of Summerhill, the famous English school,
could not be used in public schools, A. S. Neill, Head-
master, replied:

> In a public school, the main work is learning school
> subjects. Attendance at classes is compulsory;
> duffers at math are compelled to sit there and do
> their best. There has to be discipline and an
> absence of noise. But free children make a lot of
> noise. In a conventional school, everything is
> against the teacher--the buildings, the lack of
> space for real play, the marshalling--indeed, the
> whole system.[2]

The teacher in this investigation hoped to instill
the attitudes of free and responsible citizenship in the
students. His class procedures did not require students
to sit in rows or in assigned seats. Hopefully, the
students would be able to respond to this treatment with
behaviors that would prove their eligibility to move
about the school.

> Any young teacher in a big school will find that it
> is impossible to appreciably depart from the school
> curriculum, or for that matter, from even the school
> traditions and customs. A teacher in the regular

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[1]Kubie, _Neurotic Distortion of the Creative Process_, p. 135.

[2]A. S. Neill, _Freedom--Not License!_ (New York: Hart Publishing Company, Inc., 1966), p. 58.

school system cannot use as much freedom as he
might like to. True, he can be on the side of the
child, he can dispense with punishment, he can miti-
gate some of the homework, he can be human, he can
even be jolly. Yet, in the ordinary crowded class-
room such a free-wheeling teacher may find himself
in all sorts of difficulties.[1]

Many educators aware of the stultifying atmosphere
and practices in the schools have succeeded in bringing
relief in their schools although as Neill further points
out:

The drawback about extending freedom in a big public
school is not alone that the authorities do not
believe in freedom, but that most parents do not
believe in freedom! Too many mothers and fathers
regard school as a place in which their offspring
will be disciplined.[2]

As Neill says, adults seem to feel that there is
immorality in play and actually demand punishment or at
least restriction for those who would play in school.
Administrators and teachers carrying out the community's
wishes, support this kind of oppression although some
realize its injurious nature.

The prejudicial attitudes toward play by adults
is understandable in the light of the definition used
here. In the struggle for income and material wealth,
a purely pleasurable pursuit for a few hours each day
with no apparent reward seems worthless to those adults
engaged in "work." From Arthur Koestler, author and
scientist, comes this definition of play:

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[1]Ibid., p. 59.   [2]Ibid.

> The degree of "playfulness" in an action decreases
> in proportion as the exploratory drive is adulterated
> by other drives; or, . . . as the self-arousing and
> self-rewarding nature of the activity, characteristic
> of the exploratory drive, yields to striving for
> specific rewards.[1]

Of course, this definition is fairly precise and does not include in it some of the attributes claimed by others. The exploratory drive allowed to flourish and not repressed by unfavorable pressures from others might reward the individual and his society in future days.

Play is one of the child's greatest sources of joy and his real occupation. Sigmund Freud early expressed a serious regard for this play. He discussed the world the child rearranges to his own liking, thusly:

> It would be incorrect to think that he (the child)
> does not take this world seriously; on the contrary,
> he takes his play very seriously and expends a great
> deal of emotions on it. The opposite of play is not
> serious occupation but--reality.[2]

To the great discredit of our school systems here and abroad and our societies that support them, and to ourselves as parents and in spite of recommendations by psychologists and psychiatrists, playtime is attenuated because of the pursuit of status through education in

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[1]Koestler, The Act of Creation, Foreword by Professor Sir Cyril Burt, p. 510.

[2]Sigmund Freud, On Creativity and the Unconscious: Papers on the Psychology of Art, Literature, Love, Religion, selected with Introduction and Annotations by Benjamin Nelson (New York: Harper & Brothers, Publishers, 1958), p. 45.

several forms, for example, progressively earlier formal education, educational toys, and guided play.[1]

Perhaps the words of John Dixon would be helpful in convincing those skeptical of the importance of play in his contention that: " . . . play has long been recognized as an essential part of work in the best primary schools; what we need now is an increased awareness of the language purposes it encourages and develops."[2]

The principle of freedom in thought, activity, and expression is characteristic of the New English tradition. And, this upholding of freedom is well-supported by many thinkers. The thoughtful statement by Brubacher says it well:

> If the values resident in individuality are found acceptable and desirable, there is yet one indispensable condition precedent to their realization and that is freedom. The teacher's method must so organize the social environment of the school that pupil individuality will have an opportunity to be and express itself.[3]

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[1]Jacob W. Getzels and Philip W. Jackson, Creativity and Intelligence: Explorations with Gifted Students (London and New York: John Wiley & Sons, Inc., 1962), pp. 120-23.

[2]Dixon, Growth Through English, p. 25.

[3]John S. Brubacher, Modern Philosophies of Education (2nd ed.; New York: McGraw-Hill Book Company, Inc., 1950), p. 267.

In his book, How Children Fail, John Holt reveals
the plight of children who find school an educational
maze designed to frustrate their attempts to learn:

> The student who will not be satisfied merely to know
> "right answers" or recipes for getting them will not
> have an easy time in school, particularly since facts
> and recipes may be all that his teacher knows. They
> tend to be impatient or even angry with the student
> who wants to know, not just what happened, but why it
> happened as it did, and not some other way. They
> rarely have the knowledge to answer such questions,
> and even more rarely have the time; there is all
> that material to cover.[1]

Yet this sad state of education is not confined
to this country or to this age. German novelist, Herman
Hesse, wrote about similar tragic school conditions:

> The (school) authorities go to infinite pains to nip
> the few profound or more valuable intellects in the
> bud. And time and again the ones who are detested
> by their teachers and frequently punished, the runa-
> ways and those expelled, are the ones who afterward
> add to society's treasure. But some--who knows how
> many?--waste away with quiet obstinacy and finally
> go under.[2]

While many educators and parents recognize these
circumstances, change comes slowly and particularly the
kind of change that must take place here. Change is
complex and to bring change about requires re-educating
those who must alter their way of being and acting.

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[1]Holt, How Children Fail, p. 190.

[2]Herman Hesse, Beneath the Wheels, trans. by
Michael Roloff (New York: The Noonday Press, 1968),
p. 100.

Fear,[1] set attitudes,[2] and traditionalism versus modernism[3] are three basic inhibitors of change. All three of course are part of the general malaise in education. Making such change requires love, understanding, and the recognition of human needs. It asks respect for personal enjoyment and achievement in aesthetic pursuits at times. Indeed, Holbrook warns of the disastrous effect upon literacy in denying the opportunity for creativeness by inhibiting spontaneity.[4] The work being done on the part of the student, may not necessarily involve practicality--unless one perceives the necessity of self-expression, human growth, and development and aesthetic values reasonable practicality. This definition of practicality is characteristic of the style of treatment that was planned for this investigation.

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[1]S. I. Hayakawa, Language in Thought and Action, in consultation with Leo Hamalian and Geoffrey Wagner (2nd ed.; New York: Harcourt, Brace & World, Inc., 1964), pp. 300-02, passim.

[2]Matthew B. Miles, "On Temporary Systems," in Chapter 19, Innovation in Education, ed. by Matthew B. Miles (New York: Teachers College Press, Teachers College, Columbia University, 1967), p. 444.

[3]Ibid., Chapter 25, "Innovation in Education: Some Generalizations," p. 646.

[4]Holbrook, "Creativity in the English Programme," p. 2.

The spoken word; how often it remains unuttered, unheard. Yet, the spoken word precedes all other forms of language use. How much language is used at home, at play, and in the school? Non-restrictive people and places allow language and mental growth. The child, just becoming acquainted with language; or the adolescent, practicing his; or, the graduate student, polishing his-- all students--and many are restricted by television sets, non-listeners and instructors (who make no provisions for talk!). In order to write, one needs to be easy with talk, comfortable, and knowledgeable. Language is a sophisticated set of symbols and the ideational process is dependent upon it. Professor Hayakawa says that "of all forms of symbolism, language is the most highly developed, most subtle and most complicated."[1]

Symbolism and ideational processes are expressed through language and are the source of self-expression and communication. Interference or diminution of these functions of language through genetic or environmental causes tends to stultify the human being bringing great harm to his self-concept and to his social welfare, his growth, and his development. However, language-based dysfunction due to environmental causes does occur among students daily and could be effectively lessened

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[1]Hayakawa, Language in Thought and Action, p. 26.

with changes in treatment of the children, their schools, and curricula.[1] Consider that language is the distinguishing characteristic of man in the animal kingdom. Spoken language is inextricably bound up with man's ideational and symbolization processes. And man's verbal language is his single best method of communication--written and spoken.[2] Of course, it is not his only method of communication and ancillary methods such as those found in the course of producing his own media works using different kinds of communication may prove to increase his language ability ultimately. Further, "apparently the 'spelling out,' or elaboration, of ideas in a visual medium stimulates children to cross the threshold from oral communication to use of written symbols. It seems to be the manipulation and playing around with ideas that make the difference."[3] Using communication as Montagu defines it, " . . . the behavior of an individual or a group that influences others," any number of signals by students working together makes communication easy and even agreeable--perhaps

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[1] M. F. Ashley Montagu, The Direction of Human Development: Biological and Social Bases (New York: Harper and Brothers, 1955), p. 177; David P. Ausubel, Educational Psychology: A Cognitive View (New York: Holt, Rinehart and Winston, Inc., 1968), pp. 184-87.

[2] Montagu, The Direction of Human Development, pp. 49-60.

[3] E. Paul Torrance, Rewarding Creative Behavior (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), p. 312.

much different from the more formal exercises in grammar
and rhetoric.[1]

There is nothing static or tame about a crew hard
at work producing a film written, directed, enacted,
critiqued, and applauded by the students themselves.[2] In
the atmosphere of a workshop the give and take of conver-
sation produces a sense of community. With no threat of
correction or evaluation, talk comes with ease. " . . .
It is, of course, undeniable that in some forms of intel-
lectual activity language is not only an indispensable
tool, but (that) the stream of language actually carries
the thought, so that process of ideation and verbal formu-
lation become indistinguishable."[3]

Before the actual production can begin, the script
has to be written and approved by the students and their
teacher. Next there must come the planning, rehearsal,
coaching, painting, sewing, decorating--matters that
must be discussed, manufactured, assembled, corrected,
approved--all active, living, experiential. The impor-
tant learnings are both evident and hidden. The workshop
is self-sustaining--its tasks not imposed but designed
and ordered by the students themselves. The teacher

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[1]Montagu, The Direction of Human Development, p. 49.

[2]Automedia: Teaching and Learning Goals; See
Appendix A.

[3]Koestler, Act of Creation, p. 174.

is a ready resource. The effectiveness of the experiential

curriculum is evidenced in the students' interest and pro-

duction. The heavy student investment in creative energy

almost insures success.

In support of this approach, Stephen Judy of

Michigan State University says, "The experience approach

simply argues that teachers must find the structure for

a class not in the discipline and subject matter of

English, but in the child himself, who as a curious,

growing human being uses language to express his needs,

opinions, reactions, and responses."[1] This is a strategy

that allows the students to move along naturally with

interest and selectivity about which Moffett says:

> The primary dimension of growth seems to be a move-
> ment from the center of the self outward. Or perhaps
> it is more accurate to say that the self enlarges,
> assimilating the world to itself and accommodating
> itself to the world, as Piaget puts it. The detailed
> forms which this movement takes are various and often
> paradoxical. In moving outward from himself, the
> child becomes more himself. The teacher's art is
> to move with this movement, a subtle act possible
> only if he shifts his gaze from the subject to the
> learner, for the subject is in the learner.[2]

In such highly motivating work as motion picture

making, the universe of discourse is partaken of without

much thought on the part of the student. The self-

conscious strain to "write a theme" or "do English" is

absent. Within the confines of the experience itself

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[1]Stephen Judy, "The Search for Structure in the Teaching of Composition," English Journal, LIX, No. 2 (February, 1970), 214.

[2]Moffett, Teaching the Universe of Discourse, p. 59.

is the opportunity to exploit the use of language--the
entire universe of discourse. "Through reading, writing,
and discussing whole, authentic discourse--and using no
textbooks--students can learn better everything that we
consider of value in language and literature than they
can by the current substantive and particle approach."[1]
Former beliefs in the efficacy of a three "R's" curriculum
and a steady sequence of drills for no apparent purpose
other than a quiet busy group of children is inadequate
and uncalled for in today's schools. Concept-relation-
ships, that is, teaching the child to search for inter-
relatedness of ideas that may at first seem unrelated;
encouraging students in problem-solving; and, alerting
students to identify or recognize gaps in knowledge are
some of the mental functions identified as creative
thinking by many educational psychologists. The importance
to society of this kind of thinking is undeniable. How
to attain it is a matter of great debate. Some maintain
that it can be taught while others feel it is elusive
and rare.

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[1]Moffett, Teaching the Universe of Discourse, p. 7.

Creativity

> One Power alone makes a Poet: Imagi-
> nation, The Divine Vision.
> > --William Blake[1]

Early in 1950, J. P. Guilford awoke the American
Psychological Association Conference to the need for syste-
matic investigation into the nature of creativity in man.
Until now little has been done to determine the capacity
of man in measurable terms. Those wishing to evaluate
and measure creativity in statistical terms have devised
definitions that will tolerate overt and measurable
inferences; however, at present, there seems to be no one
acceptable definition. On the other hand, there are those
to whom statistical descriptions are anathema to creativity
itself, and probably among the latter are those who feel
that creativity is a mystical experience out of which
comes an artistic offering and that it cannot be antici-
pated or induced.

Gordon Westland, lecturer in psychology and edu-
cation at the University of Surrey, in a paper written
from a cross-disciplinary point of view commented: "Crea-
tivity remains, if you like, a mystery; something we
respond to intuitively."[2] The misunderstanding that

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[1]Blake, Annotation to "Poems" by William Words-
worth, p. 782.

[2]Gordon Westland, "The Investigation of Creativity,"
The Journal of Aesthetic and Art Criticism, XXVIII, No. 2
(Winter, 1967), 130.

exists between psychologists and philosophers of psychological research into creativity is the theme of Westland's paper. Chiding psychologists who use criteria when testing as sure attributes of creativity, he makes the observation that their findings can only posit potential creativity. Only the products of the subjects' lives will prove the usefulness of the predictive tools. Dr. Westland sums up his article:

> Even the most abstract theoretical treatment of creativity must have reference to some ascertainable facts. To make, on the basis of intuition or speculative reasoning, assumptions--about the process of creation, about the aesthetic elements to which we respond and so on--which are testable, is by any standard, an inadmissible way of tackling the problem. In the overall study of human creativity the province of the psychologist is to answer the relevant empirical questions, to measure what can be measured. This has its own place and value.[1]

Generally, creativity has become an economic and political word, a word popular in television advertisements and university laboratories alike. And it is used with little clear definition and discrimination. Industry encourages innovation and inventiveness to cut costs, and to engineer efficiency on the one hand and to produce new techniques and products on the other.[2] In an increasingly complex society, systemization and replication characterize operations for commerce's convenience. Sheer numbers

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[1] Ibid.

[2] J. H. McPherson, "Environment and Teaching for Creativity"; Hubert E. Brogden, "Criteria of Creativity," in Creativity: Progress and Potential, ed. by Calvin W. Taylor, chapters 4 and 5, respectively.

require it. Personal identities become inconsequential in
this context. The consequent embarrassments resulting
from non-identification of the individual frustrates
and humiliates him. To combat the pervasive cybernetic
character of the nation's bookkeeping and the implications
and influences of it, celebration of the human manifests
itself variously.

Most artists and writers would agree with the
statement of Dr. R. W. Gerard, scientist: "Imagination,
not reason creates the novel. Imagination supplies the
premise and asks the questions from which reason grinds
out the conclusions as a calculating machine supplies
answers."[1]

Taken from legal arguments involving proprietary
rights some phrases help to deliniate the characteristics
of "creativity," a term that did not even appear in early
editions of the Oxford English Dictionary but today is
both heavily researched and widely sought after. In order
to earn the appellation of "creative" there must be a
"basic idea" or "convention," it must be in "concrete and
articulate form"; it must be "novel"; it must have "value";
and, "the novelty must be a useful novelty.[2]

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[1]R. W. Gerard, "The Biological Basis of Imagi-
nation," in The Creative Process: A Symposium, ed. by
Brewster Ghiselin (New York: A Mentor Book, The New
American Library, 1952), p. 227.

[2]Koestler, Act of Creation, p. 75.

In partial agreement with these descriptors are those of most psychologists engaged in psychometric investigation of creativity. Within the community of educational psychologists, creativity has been the subject of innumerable studies since Guilford's statement of the need for study. Four major ideas persist and are summarized in several studies. One such summary statement is by Marie Dellas and Eugene I. Gaier, Educational Psychology Department of the State University at New York at Buffalo and Eastern Michigan University, respectively. They list "(a) the nature and quality of the product created, (b) the actual expression of creative acts and the continuing process during the 'creation,' (c) the nature of the individual, (d) environmental factors and press to initiate and foster creativity." They also identify two questions currently under investigation: "First, is creativity independent of intelligence? Second, is personality, per se, a vital aspect of creativity?"[1] While Gordon Westland agrees that it is the "province" of the psychologist to measure, he says that "prediction of creative talent is not very accurate."[2] Taylor and Holland point to the need to improve creativity research

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[1]Marie Dellas and Eugene L. Gaier, "Identification of Creativity: The Individual," Psychological Bulletin, LXXIII, No. 1 (1970), 55.

[2]Westland, "The Investigation of Creativity," p. 131.

because " . . . there is a great need . . . for predictive (longitudinal) studies which use a very wide variety of potential predictors, and then after a suitable follow-up period, use good internal criteria of creativity."[1]

One of the great hopes of research on the creative person, according to Dellas and Gaier:

> . . . is the possibility that a finite number of personality characteristics is significant for creativity, as distinguished from those having significance for individual diagnosis, theory, or even academic performance. If some small number of parameters can be isolated, and defined in behavioral terms, great use of this might be mobilized for identifying creative potential.[2]

High intelligence is not a predictor of creativity, however, those of recognized creative ability--productive creatives--are intelligent people. MacKinnon's study in which eminent men and women of known creative ability were tested revealed that the adult with an IQ of 130 was as capable of distinguishing creative performance as the adult with an IQ of 180. This leads to the conclusion that little relation exists between creativity and intelligence when the IQ is above 115-120.[3] Creativity is an

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[1]Calvin W. Taylor and John Holland, "Predictors of Creative Performance," in Creativity: Progress and Potential, ed. by Calvin Taylor, p. 48.

[2]Dellas and Gaier, "Identification of Creativity," p. 68.

[3]Donald W. MacKinnon, "Identifying and Developing Creativity," in Creativity: Its Educational Implications, ed. by John Curtis Gowan, George D. Demos, and E. Paul Torrance (New York: John Wiley & Sons, Inc., 1967), p. 232. See: Liam Hudson, Contrary Imaginations (London: Methuen and Co., Ltd., New Fetter Lane, 1966), p. 104; and Torrance, "Education and Creativity," in Creativity: Progress and Potential, ed. by Calvin W. Taylor, p. 89.

aspect of intelligence, according to Guilford, especially when intelligence is broadly conceived.[1] Some misunderstanding results from confusing high-order talent, genius, or near genius with the intellectual, personality, and problem-solving traits found among the general population, but viewed on the spectrum including all intelligence, the concept of creativity of different caliber becomes clear.

Creativity and the Individual

> Improve[me]nt makes strait roads; but the
> crooked roads without Improvement are roads
> of Genius.
> --William Blake[2]

In agreement with Dixon, Holbrook, and Summerhill, psychologist Clarke Moustakas writes:

> In the healthy person, autonomy, spontaneity, and
> self-direction are the guiding forces in the develop-
> ment of unique identity and creative life. Motivating
> a person to adjust is an external means of influencing
> which leads to inauthentic, conformist living. Adjust-
> ment is not a positive assertion of the self. It
> does not indicate who a man is and what he is living
> for, but is a form of giving in to external pressures.[3]

Some modern thinkers believe that creativity is possessed by all human beings to some degree or at least most have the potential for it. However, of course, there are others who do not agree with the proposition totally. David P. Ausubel and Liam Hudson, both educational psychologists find fault with the generalizing and feel the error

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[1]Guilford, The Future Implications of Creative Research, p. 8.

[2]Blake, The Marriage of Heaven and Hell, p. 152.

[3]Moustakas, Creativity and Conformity, pp. 129-30.

in definition lies in semantic confusion. They agree that
the two terms "creativity" and "creative person" are being
confused. Creativity is a " . . . trait inclusive of a
wide range of individual differences, and the 'creative
person' (is) a unique individual possessing a rare and
singular degree of this trait, that is a degree sufficient
to set him off qualitatively from most other individuals
in this regard."[1] A further explanation clarifies their
position: " . . . [the creative person] is at such an
extreme point in the distribution of creative potentiali-
ties that he is qualitatively discontinuous from persons
exhibiting lesser degrees of creativity."[2] The creative
still remains extremely rare even with the best of environ-
ments.

In a report to the Congress of the United States on
gifted and talented children in the United States, it was
found that many of these children were performing well
below their potential. The specially endowed hardly need
more attention and largess says conventional wisdom, but
research is finding that "intellectual and creative talent
cannot survive educational neglect and apathy."[3]

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[1]Ausubel, A Cognitive View, p. 552.

[2]Ibid.

[3]U.S., Department of Health, Education, and Welfare,
Education of the Gifted and Talented, Vol. I, Report to the
Congress of the United States by the U.S. Commissioner of
Education, S. P. Marlaad, Jr. (Washington, D.C.: Govern-
ment Printing Office, August, 1971), n.p.

Among the 51.6 million school population in the
United States (1970 estimate), the government estimates
conservatively that about 1.5 to 2.5 million children fall
into the class of the gifted and talented.[1] It is generally
from among these gifted people that a nation looks for lead-
ership, artistic achievement, and scientific advancement.

These children are identified by school psycholo-
gists, teachers, and others able to judge this kind of
phenomenon and sometimes by testing. The various cate-
gories that are cited as those in which these gifted and
talented individuals fall are:

  (1) General intellectual ability;

  (2) Specific academic aptitude;

  (3) Creative or productive thinking;

  (4) Leadership ability;

  (5) Visual and performing arts;

  (6) Psychomotor ability.[2]

This small but potentially valuable segment of the
population is actually not easily or efficiently identified
" . . . hampered not only by costs of appropriate testing--
when these methods are known and adopted--but also by
apathy and even hostility among parents, teachers, admin-
istrators, guidance counselors and psychologists."[3] In
addition, research points to the " . . . minority groups
who have in both social and educational environments faced

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[1]Ibid., p. xi.   [2]Ibid., p. ix.

[3]Ibid., p. xi.

every configuration calculated to stifle potential talent"

among them.[1] Surely this meanness and ignorance among

adults outside and within school systems further indicate

the characters of some of those whom Neill and Silberman

among others have denounced.

A change in attitudes and values must come about

if the nation is to benefit from those who have superior

abilities and unusual talents. During a conference on

creativity, Dr. Guilford commented on the treatment of

the creative:

> It is very well known, of course, that society pro-
> vides dampers for creative production. The creatively
> productive person is generally envied, misunderstood,
> and mistrusted. He is upsetting to comfortable ways
> of thinking and doing. Sanctions of various kinds
> are applied to him whenever he becomes too much of a
> threat.[2]

A set of crucial educational problems--financial

burdens, student unrest, poor teaching, "irrelevant cur-

ricula," inept media usage, mounting enrollments, and

knowledge overloads--were tackled in a book review by

Robert H. Davis, Assistant Provost and Director of the

Educational Development Program at Michigan State Uni-

versity. In his review of the book, he made several

statements about education today related to some of the

problems discussed in this study. His chief criticism

indicated a deep philosophical change is necessary in

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[1]Ibid., n.p.

[2]Guilford, Future Implications of Creative
Research, p. 10.

the nation. Though he was writing about Higher Education, many of the same problems are besetting public education.

> My own more or less provincial view of the problem is that faculty attitudes and values are at the heart of the matter. The problems . . . will not be solved until these attitudes and values change. The cancer in American education at least is often found at the departmental level--in departments whose loyal-ties are to the discipline rather than to the uni-versity and the students, whose faculties engage in the most trivial nitpicking and call it significant research, and whose featherbedding in the name of quality has created a productivity crisis in higher education of critical dimensions. While I am not optimistic about changing these attitudes and values in the near future, the tides of change are running against the status quo.[1]

Children from a socio-economic group who enjoy many experiences in various modes--travel, reading, con-versation, theater, music and other perceptual experiences have fairly sophisticated and trained audiovisual per-ceptiveness. Memory storage is important in intellectual acuity and these experiences stock the memory with data to be drawn upon by the conscious mind. Children from poor areas and children who seldom leave a mile radius in the rural home or a three- or four-block area in a ghetto have narrow perceptual strength if the mind must depend upon experiences for learning.

Psychologists are contributing information to the common good of all with each study describing new

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[1]Robert H. Davis, "Teaching and Learning: An Introduction to New Methods and Resources in Higher Edu-cation, by Norman MacKenzie, Michael Eraut, and Hywell C. Jones," A Book Review, AV Communication Review, XIX, No. 4 (Winter, 1971), 452.

observations. Conclusions reached in a study of creativity in Irish children by Patricia M. Lynch found " . . . quali- tative differences not always evident in statistical results." She found the "highly creative" and "less creative" differed in a "distinctive pattern"; a second experiment corroborated this pattern:

    (i) The creatives produced more ideas (productivity);
    (ii) The creatives produced more original responses
         The productivity of the less creative was
         dependent on associational flexibility;
   (iii) The creative set themselves higher standards;
    (iv) The creative had a wider vocabulary;
    (v) The creative was characterized by a well stored
        mind;
    (vi) The creative demonstrated precision of syn-
        thesis;
   (vii) The creative displayed superior evaluative
        capacity.[1]

Patterns are also found in creative performance in different stages of growth. At ages five, nine, thirteen, and seventeen, Torrance found a general decline in creative activity among school children. Each of these age levels is recognizable as a new plateau in a child's life or a "discontinuity" as Torrance calls it. In each of these ages basic stages in growth and development of physical control or intellectual change, social obligatory changes are found incombent upon the child. The five-year-old faces great emotional change in leaving his home and encountering the multiple effects of peer orientation as well as the frustrations of restrictions imposed in most

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[1]Patricia M. Lynch, "Creativity of Irish Children," Journal of Creative Behavior, IV, No. 1 (Winter, 1970), 58.

kindergartens and of course the encouragement of self-discipline needed in society. At nine, the child again suffers personal disturbances in his pre-adolescence manifested in behavior problems leading often into delinquency as well as learning difficulty.[1] By age thirteen, the student is usually in the seventh grade. Demands upon his early adolescence are great for he faces new and "increased anxieties" and strives for " . . . approval of the opposite sex, and the like, all of which restrict many areas of awareness and impose new demands for conformity."[2]

From studies conducted among subjects from many different fields--artists, scientists, philosophers, and theologians--Torrance has gathered data toward the identification of creativity.[3] In some early studies with carefully controlled data, Torrance found three personality characteristics of the highly creative which differentiated them from their control subjects matched for "sex, intelligence quotient, race, class (teacher), and age" in: (1) their production of "wild or silly ideas, especially the boys" (2) their ideas which were highly "original," "off the

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[1]E. Paul Torrance, _Education and the Creative Potential_ (Minneapolis, Minn.: The University of Minnesota Press, 1963), pp. 72-88, _passim_.

[2]_Ibid._, p. 75.

[3]Torrance, _Norms-Technical Manual_, pp. 8, 26.

beaten track," and (3) their work that was often flavored with "humor, playfulness, relative lack of rigidity and relaxation."[1]

While some knowledge is innate, most has to be learned and Arthur Koestler differentiates the innate from the learned.

> . . . With the exception of brightness and colour constancy, and a few other primitive 'innate skills,' visual perception is inextricably bound up with learning, i.e., with memory. What we perceive in audition is not the linear pulse of pressure-variations arriving at the eardrum, but an 'inferential construct' of individual voices, instruments, musical or verbal phrases; and what we perceive in vision is not the camera-image on the retina but the "inferential construct" of people and objects which preserve their constant shape and size, regardless of angle and distance. The eye may be a camera, but immediately behind its lens there is a series of compensating, correcting, and retouching devices--the perceptual matrices or skilled vision.[2]

Process

Creativity may result from student manipulation of sensory perceptions supplied by mediated experiences. Frank Williams of Macalester College defined process of creativity in this way:

> The process of creating is in large measure associating or putting together in new and original combinations the elements of information which one has previously acquired. Thus, we must consider an originality or inventive factor as well as several kinds of flexibility factors that play a role in

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[1]E. Paul Torrance, Guiding Creative Talent (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962), p. 81.

[2]Koestler, Act of Creation, p. 527.

creative thought and action. Likewise, the more
combinations one can form, the more likely it will
be that some of them will be creative. Along with
originality and flexibility are various fluency
factors such as flow of ideas, flow of associations,
and flow of expressions which also are important.[1]

In direct opposition to Williams' willingness to
allow indiscriminate associating for chance success in
finding new and original combinations is the statement
of renowned mathematician, Henri Poincaré:

> In fact, what is mathematical creation? It does not
> consist in making new combinations with mathematical
> entities already known. Anyone could do that, but
> the combinations made would be infinate in number
> and most of them absolutely without interest. To
> create consists precisely in not making useless
> combinations and in making those which are useful
> and which are only a small minority. Invention is
> discernment, choice.[2]

Creative persons are sometimes difficult to deal
with simply because they perceive things differently from
others. For this reason a teacher may find himself hard
put to explain unusual or excessive behavior of the creative
child. At the same time teachers may also be of a creative
nature and administrators may find that their motivation
is totally their own with no need for outside suggestions.
Since a creative person has his own sense of authority in
what he thinks and does, the administrator will find that

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[1]Williams, "Creativity: Theoretical and Practical
Considerations for Media," p. 65.

[2]Poincaré, "Mathematical Creation," p. 35.

a system of rewards for such teachers has little or no

meaning. Torrance reminds his readers:

> Since creativity involves divergent thinking, adminis-
> trators can expect the creative teacher to express
> ideas which differ from some of education's time
> honored practices and their own ideas. Furthermore,
> since the creative teacher does not care for power,
> he is not likely to change his thinking just to
> curry favor with the administrator.[1]

Hugh Mearns writes about teachers as not only

instructors but also as entrepreneurs, . . . "uncovering and

enlarging native gifts of insight, feeling, and thinking."[2]

Of equal or perhaps greater importance is the teacher's

own enthusiasm for teaching, for people, for living!

"The peculiar mark of the creative teacher--as different

from all other businesses of man--is not his learning

alone but his ability to transform others by the contagion

of his own peculiar creative powers."[3]

The teaching strategy of student film-making is

being successfully used to help students socially,

intellectually, and aesthetically.[4] Automedia requires

equipment and software that is expensive perhaps

in dollars and cents, initially, and some public school

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[1]Torrance, Guiding Creative Talent, p. 205.

[2]Mearns, Creative Power, p. 52.

[3]Ibid.

[4]Joy Bolton, "Creative English in the Infants'
School Through the Use of Films," English in Education,
III, No. 2 (Summer, 1969), 26.

districts and colleges may not be prepared to meet the
financial demands of it. However, as is being so bitterly
learned, poor education and unimaginative use of our
people is decidedly more costly than the modest costs
of past education. Whatever the particular strategies,
the attitudes and values of teachers and administrators
are directly important to the students. Summerfield says:

> "Creative English" is not for me a matter of simply
> eliciting verse or worse, but rather of establishing
> a relationship and an ethos which will promote experi-
> ment, talk, enquiry, amusement, vivacity, bouts of
> intense concentration, seriousness, collaboration, and
> a clearer and more adequate self-knowledge. This will
> involve us in talk about our selves, our language,
> our behavior, our attitudes and beliefs, and when
> appropriate, in recording such things in writing. And
> the teacher's sense of his role is crucial. If he
> is prescriptive--knowing what he wants, knowing all
> the answers beforehand--he will be less effective
> than if he is prepared to allow the pupils' awareness
> of criteria to grow for itself in the business of
> making, modifying, and so on.[1]

While offering students an opportunity to express
themselves through the new mediacy, the teacher is often
having his first experience with Automedia and the impli-
cations and demands of this approach. The teacher willing
to explore with students these new electronic media are
usually willing to entertain new ideas, adopt new methods,
and are interested first in student education in its
broadest sense. The Dartmouth delegations from England
and the United States differed in attitudes: " . . . the

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[1] Summerfield, "A Short Dialogue on Some Aspects of
That Which We Call Creative English," Creativity in
English, p. 44.

British inclining to look for the principle of order in the psychological development of the child, the Americans looking more to subject matter or objective principles of knowledge."[1]

Product

> The Great Style is always Novel or New in all its Operations. Original & Characteristical are the Two Grand Merits of the Great Style.
> --William Blake[2]

The products of creativity enlarge and sanctify our lives by making us aware of our capacity for positive statement. At the same time, however, of course, a negative capability exists when creative genius exerts energy for evil, thus making men aware of their potential for a negative statement. In the community of scientists, most would agree that assessment of the creative output should not constitute a judgment of the social usefulness or desirability of the products--such value judgments should not concern them, only the value of the product itself as a new and unique offering.[3] Donald W. MacKinnon, psychologist, requires that creativity " . . . involve a response that is novel or at least statistically infrequent . . .

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[1]Muller, The Use of English, p. 39.

[2]Blake, Annotations to Sir Joshua Reynold's "Discourses (circa 1808), p. 468.

[3]Guilford, A Psychometric Approach to Creativity, p. 7.

adaptive to reality (and) . . . sustain the original insight, an evaluation of it, and elaboration, a sustaining and developing of it (the created) to the full."[1]

The products of fine artists, musicians, and writers are well known as creative works. Not so readily recognized by laymen are the creative contributions of scientists and mathematicians. And, further removed from general recognition is the genius that creates theoretical scientific systems that are articulated through new technologies. A process to be used in manufacturing may be the product of a creative thinker. Products of genius are successful because once designed, they are free of the author--free to be used by others. Some criteria based on value to society are "novelty," "size or quantity," "breadth of application," "economic saving by its use," and "errors or accidents prevented." These criteria bear testimony to the interests in creativity of the military (Brogden) and industry (Sprecher).[2]

While great emphasis is placed on the process of creativity among many psychologists, C. W. Taylor, University of Utah, with several colleagues, assesses product

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[1]Donald W. MacKinnon, Identifying and Developing Creativity. Creativity: Its Educational Implication, ed. by Gowan, Demos, and Torrance, p. 228.

[2]Hubert E. Brogden and Thomas B. Sprecher, "Criteria of Creativity," in Creativity: Progress and Potential, ed. by Calvin W. Taylor, p. 162.

as a means of better ascertaining the degree of creativity

demonstrated. The product is tangible evidence. Though

the product is the embodiment of an idea expressed by a

person, and a product is the outcome of the creative pro-

cess, little actual work has been done in establishing

criteria for assessing the creative product as such.[1]

The creative product is regarded by Anderson as

necessarily "original and unique" while others conclude

that the first discovery of a phenomenon or the invention

of an effective tool already in existence by one (usually

a child) also constitutes a creative product.[2] Educational

psychologist, John P. DeCecco states: "To some extent

everyone has the capacity for creative behavior, but few

individuals will make scientific and artistic contri-

butions which will achieve historical distinction."[3] And

Ausubel, comparing Einstein's formulation of the theory of

relativity and a child's discovery that things out of

sight still actually exist, illustrates the idea that all

act of discovery as "quantitatively of one piece" is an

unacceptable concept. He believes that a creative product

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[1]Taylor, Creativity: Progress and Potential,
p. 8.

[2]Anderson, "On the Meaning of Creativity," in Crea-
tivity in Childhood and Adolescence, p. 46.

[3]John P. DeCecco, The Psychology of Learning and
Instruction: Educational Psychology (Englewood Cliffs,
N.J.: Prentice-Hall, 1968), p. 454.

must be of greater magnitude than simply a matter of
individual personal discovery of life's ordinary phe-
nomena.[1]

Both Dr. Ausubel and Liam Hudson, British psy-
chologist, agree on the implausibility of universal crea-
tivity or "democratic creativity" or the idea that all
children are or can be creative thinkers. Ausubel rejects
Guilford's premise based on factor analysis and his
Structure of Intellect which would, according to Ausubel
make every child capable of genius or near-genius status
in at least one function, simply on the basis of proba-
bility; failing that, the educational environment or better
teaching methods could supplement the inadequacy.[2] "The
conscious nature of children's creative potentialities
may still be a worthwhile operation," according to Hudson,
"but not because it produces more and better brainworkers
. . . (but) quite simply it makes school a more enjoyable
place to be." The result could mean " . . . the 'rich
emotional life' (which is) every progressive psychologist's
wistful dream."[3]

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[1]Ausubel, A Cognitive View, p. 552.

[2]Ibid., p. 560.

[3]Hudson, Contrary Imaginations, p. 115.

Environment

> The Lives of Painters say that Rafael
> Died of Dissipation. Idleness is one Thing
> & Dissipation Another. He who has Nothing
> to Dissipate Cannot; the Weak Man may be
> Virtuous Enough, but will Never be an
> Artist. Painters are noted for being
> Dissipated & Wild.
>
> --William Blake[1]

In the concluding statement of his book devoted

to psychological health, Creativity and Conformity, Clark

E. Moustakas expresses his idea for reaping a "rich

emotional life."

> In the creative human relationship there is a feeling
> that soars beyond the limits of self-awareness and
> into the heart of another person. There is a feeling
> of oneness, a feeling of communion. There is the
> freedom of being that enables each person to be spon-
> taneous and responsible. Freedom means opening oneself
> to a relationship, experiencing it as positive and
> unique. It means allowing whatever will happen to
> happen, not forcing the direction or the results. It
> means expressing one's talents and skills immediately,
> spontaneously, and in accordance with the unique
> requirements of each human situation.[2]

Thus the human interaction and personal activity is

encouraged and sustained through an understanding of the

need for human expression and activity in oneself and

in others. Anderson calls such willingness to hear and

be heard and to appreciate and be appreciated a "personally

open system." A few examples of such a system in class-

room functionings listed by Anderson are the seminar, the

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[1]Blake, Annotations to Sir Joshua Reynold's "Dis-
course" (circa 1808), p. 454.

[2]Moustakas, Creativity and Conformity, p. 138.

class discussion and the student project. Conversely,
Anderson finds a "closed personal system" "unpropitious"
for creative activity. Personal unwillingness to allow
freedom of thought and action, he calls "domination" and
"usurpation." Two examples might be the dominating
teacher or parent who allows the child little latitude
in conducting his own affairs and the administrator who
fosters conformity by offering no alternatives in cur-
riculum, methods, and materials. The effects of such
environmental factors seem obviously stultifying to the
student and teacher. Anderson adds a third system, "the
impersonally closed system," which is the use of former
beliefs, past glories, and traditionally recognized works
of creativity, as the main course of study and source of
standards in an educational system.[1]

Another description of a learning environment is
that termed "responsive environment." It is the term of
O. K. Moore of Yale University. He found that children
out of their own curiosity investigated an electric type-
writer provided them. Moore found that pre-school chil-
dren could learn reading and writing skills as well as
those of typing and dictation. He is interested in

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[1]Anderson, "On the Meaning of Creativity," in
Creativity in Childhood and Adolescence, pp. 51-54, passim.
Torrance discusses the autonomous character of the creative
teacher in Guiding Creative Talent, p. 205.

extending his studies to offer automated learning devices as a means of providing "responsive environments."[1]

Of course, the response to stimuli is the constant work of man, and Montagu points out that " . . . instead of having his responses genetically fixed as in other animal species, man is a species that invents its own responses, and it is out of this unique ability to invent and to improvise his responses that his cultures are born."[2]

Both nature and nurture are part of man's existance. His own genetic make-up and the environment he finds himself in constitute the universe of which he fashions his life.

[1]E. Paul Torrance, "Education and Creativity" in C. W. Taylor's Creativity: Progress and Potential, p. 95.

[2]Montagu, The Direction of Human Development, p. 49.

CHAPTER III

DESIGN OF THE STUDY

Introduction

The investigation conducted at the Pattengill-
Eastern Schools in Lansing, Michigan in the Spring of
1970 is described in this chapter. The chief concern of
the experimenter was to try to determine if a class,
given a treatment based on a constellation of particular
ideas, would show a difference in performance and testing
above that of a class taught in the traditional manner.
The basis of this treatment is given in the following
restatement of the hypothesis written in the first
chapter.

Hypothesis:

Students, given the freedom and encouragement to
express themselves in personally selected media
(motion pictures, slide-film and audio tape), and
given free-range of ideas and subject matter in
their performance, with a modicum of teacher-
instruction, will express themselves in ways that
will better allow the release of their creativity.
With a growing sense of both personal freedom and
appropriate goals, the students should further
their capabilities in communication and gain new
insights into themselves, their peers, and their
environment.

Further, a description is given of the conditions
of the experiment and its various elements: (1) popu-
lation, (2) sample, (3) treatment, (4) instrumentation,
(5) test validity and reliability, (6) statistical
hypotheses, and (7) the design and analysis of pro-
ceedings.

Population

The population used for this investigation
included all students at Pattengill Junior High School,
Lansing, Michigan, a part of the Pattengill-Eastern
School Complex, a Junior High and Senior High School,
respectively. Some of the students and teachers were
participants in new and innovative programs introduced
under the auspices of the Trainers of Teachers of
Teachers (TTT Project) thus making them unavailable to
this investigation.[1] The experimental plan called for
four intact classes to be taught by two teachers. How-
ever, while many teachers were not available due to the
various new programs and the scheduling, others were
also unwilling to participate in the experiment.

Problems and pressures that plague urban schools
place severe handicaps on the student body and staff
alike. Among the crucial issues of city life are racial
strife, inadequate housing, and unemployment, and these

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[1]Funding as a result of the Education Professions
Development Act of 1967.

inevitably exert pressures on the *community-school*
relationship. In addition, the inner city schools
suffer from financial need. In fact, *present financing*
is wholly inadequate in these schools and " . . . *much*
of the money that finally filters down to schools
attended by the urban disadvantaged is wasted on
traditional approaches that are not appropriate for
inner city schools."[1] In addition, *while psychologists*
are aware of the importance of the self-concept in
relation to our creative potential, the pressure of
urban living " . . . *provides as consistant inputs*
multiple irritants, ugliness, violence, and lack of
close and meaningful relationships, (and) man is in
danger of becoming increasingly irritated, ugly, and
violent."[2]

The conditions of the treatment and the ideas
expressed in the hypothesis such as " . . . *students,*
given the freedom and encouragement to express themselves
. . . *(and) given free range of ideas and subject matter*
. . . *with a modicum of teacher-instruction, will express*

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[1]Henry M. Levin, "Why Ghetto Schools Fail,"
Saturday Review, March 21, 1970, p. 68.

[2]Herbert A. Otto, "New Light on the Human
Potential," Saturday Review, December 20, 1969, p. 16.
A broader view of the problems and pressures abuilding
in the United States is found in: Jean-Francois Revel,
"Without Marx or Jesus," Saturday Review, July 24, 1971,
pp. 14-31.

themselves in ways that will best allow the release of
their creativity . . . " apparently were threatening to
some of the teachers.

Deprivation of school children caused by inner
city educational inadequacies is slowly being revised.
The inner city distress is an outcropping of the layers
of hidden strata that contain veins of avarice, greed,
prejudice, and hate embedded in a bedrock of what
author Charles Silberman calls "mindlessness."[1] In
our scientific age, philosophy is not much discussed
but values are mentioned occasionally. Lining up values
is an early priority and, in addition, thinking through
a new system by which to live, a system with recognition
of needs beyond the material.

Articles and books appear frequently challenging
the public with the conditions prevalent in the schools.
Some of the conditions are a matter of neglect, such as
those of the inner city, some of ignorance or inhumaneness
in these and in many other areas of the country.

Sample

All the teachers in the Junior High School (com-
prising the seventh, eighth, and ninth grades) were
invited to consider participation in the experiment.

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[1]Charles E. Silberman, "Murder in the Schoolroom,"
The Atlantic, CCXXV, No. 6 (June, 1970), p. 83.

It was explained, however, that only two would finally take part in the experiment. As explained in the population section just discussed, the philosophy of the New English tradition--the student-centered curriculum, and student use of media would mean a complete change in teaching methods for some teachers and for others a need to learn completely new ideas that would be used in this cluster of ideas in the teaching of English, and in particular for this experiment, creative writing. Finally, however, two teachers asked to participate.

One, a young woman, taught English and Spanish but did not have the necessary number of English classes. The male teacher, therefore, became the sole participating teacher. He had two classes at the same grade level (seventh grade). The role each class would play (Experimental or Control) was left to random selection. The teacher would play the role of the traditionalist with the Control Group and the teacher-communicator with the Experimental class using ideas from the New English tradition and the new media with the Experimental Group. The teacher variable was thus eliminated.

Seventh graders are usually twelve or thirteen years old and at Pattengill Junior High the numbers of boys and girls were about even. This proved to be true in the two classes as to age and distribution in the experiment (see Table 1).

TABLE 1.--Spring enrollment 1970.

Control Group		Experimental Group	
Total N = 30		Total N = 31	
Boys	16	Boys	14
Girls	14	Girls	17

Randomization of classes is carried out on all levels at Pattengill Junior High School through data processing each semester.[1]

Choice of class role--Control or Experimental-- was decided on the basis of class period or time of day. It was decided to designate the last class of the day the Experimental class because there would be equipment and materials to be reckoned with. Most of it had to be returned to the media center in the school and the classes were of fifty minutes duration with new classes in close succession.

No data on students of either class were known to the investigator before all decisions concerning the designations were made. The fatigue variable, if any, would have been a disadvantage to the Experimental Group since this class was held late in the school day.

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[1]Gary H. Fisher, Principal, Pattengill Junior High School, Lansing, Michigan. The program is the Honey-well Schedule F-Honeywell 1200 computer, scheduling all Lansing Public School System. Marvin Bontroger, Operations Supervisor.

All sixty-one pupils took part in the investigation in the beginning; however, in the Control Group one student moved from the school district and four did not complete the testing instrument, <u>Torrance Tests of Creative Thinking</u>. The Experimental Group lost two students due to a family move from the school area; one student was suspended from school for a few days and was unable to complete the test; one student was reluctant to participate in any school work and refused to take tests; and, two students failed to complete the tests through absences. The final number of participants in testing was fifty (see Table 2).

TABLE 2.--Testing sample--Torrance Tests of Creative Thinking.

Control Group	Experimental Group
Total N = 25	Total N = 25
Boys 12	Boys 10
Girls 13	Girls 15

Of the students willing and able to complete both the compositional requirements--a piece written at the beginning and one at the end--nineteen from the Control Group could be counted and eighteen from the Experimental Group (see Table 3).

TABLE 3.--Testing sample--creative writings.

Control Group		Experimental Group	
Total N = 19		Total N = 18	
Boys	7	Boys	4
Girls	12	Girls	14

Treatment

The Experimental Group was taught under conditions which sought to free it from the constraints of unnecessary conformity and rigidity. The administrations of the Lansing Public Schools as well as that of Pattengill were aware of the tenets of the treatment and gave permission to the investigator to pursue this study. This was one class in a school complex which was largely traditional in its building structure, class structure, scheduling, and personnel. However, by the very presence of the Triple T Project in the school and the Experimental English Class, it seems obvious that at least some of the Faculty believed in experimenting toward planned change and took interest in student-centered curriculum. On the other hand, some faculty seemed unable to accept the idea of freedom accorded students.

Student attitudes of free and responsible citizenship were suggested class goals. The teacher encouraged their adoption through his own conduct and class procedures, for example: no seating requirements,

self-selected group discussions pertaining to class
goals, design and production of the students' own
written work, and freedom of students to move about
the school.

Students in the Experimental Group were encouraged
to use their own initiative and ideas in discussions and
in writing. The ripening of spoken language in the
light of human exchange is basic to successful handling
of the language in reading and writing, and the need for
student interaction, talk, and breadth of activity is
primely important, according to Harvard's James Moffett.

> The factors that determine how people produce and
> receive discourse are not at bottom linguistic but
> psychological and social. Forms of language and
> literature, choices made in composing and compre-
> hending, reflect the inner facts of mental operation
> and the outer facts of human transaction.[1]

Since the treatment was directly concerned with
creative activity, the English teacher was asked to have
the children talk with one another in free discourse, as
a class sometimes, at other times in pairs or in groups.
The students were encouraged to write about things that
mattered to them, things that they were interested in--
out of their own experience. They were encouraged to
write stories, poems, or other types of prose and later
scripts, written to be produced in various formats.

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[1]Moffett, A Student-Centered Language Arts
Curriculum, Grades K-13: A Handbook for Teachers,
p. 501.

Eight millimeter films, slide-tape programs, photographically illustrated story books (some of which were photographed copies of their own drawings and others of the snapshot variety) began to take shape. Tape recordings and film published the sounds and sights of their energy and imagination.

Both the Experimental and Control Groups were given the same receptive media programs--poetry readings and music borrowed from the school library and an occasional taped poem or song not available in the library.[1] A few films were also shown, and commercial feature films were scheduled for all the students in the auditorium at lunchtime, which gave them opportunity for further mediated experiences. In preparation for their role as filmmakers, the members of the Experimental Group were shown a student-made film and as they wrote and talked about their media production, music tapes were often played.[2]

Both groups accomplished exercises designed to improve their language. The Control Group followed the seventh grade English book and the year's regular syllabus while the Experimental Group used a more student-centered

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[1]Teacher-made tape.

[2]A student-made 8 mm film made at Michigan State University by two English majors for second investigation of Automedia concept by this investigator.

approach, part of the treatment design. The students

of the Experimental Group worked on an individual basis,

sometimes on a group basis, and used a more personal

experiential kind of subject matter--writing and often

drawing to express their ideas. They were not made to

drill with pages of work unrelated to their own daily

experience but found within their own lives the stuff to

write about; in consequence, motivation was made intrinsic

to learning. John Holt says: "In mathematics, certainly,

and very probably in all subjects, knowledge which is not

genuinely discovered by children will very likely prove

useless and will be soon forgotten."[1]

Since communication of ideas, thoughts, and feel-

ings was the central thrust of the treatment, identifi-

cation and development of many talents and skills were

necessary for successful class functioning. The Experi-

mental Class was taught to operate tape recorders, a cart-

ridge tape recorder and a Super 8 mm motion picture camera.

Information collected from the teacher and the students

indicated that interpersonal relationships grew with the

sharing of ideas, skills, and equipment.

Among the cameras furnished to the class were the

simple inexpensive Kodak Instamatic cameras, an Ektagraphic

Kit with a copy camera, and an Instamatic Super 8 mm

motion picture camera. The children were asked to plan

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[1]Holt, How Children Fail, p. 160.

some kind of project using any one of these media or any combination of them. Some children had cameras and cartridge tape recorders of their own which they often shared with others.

In preparing his communication, it was necessary for the student to outline his work; list the actions, cast, properties, sets, graphics, music, sound effects; and, finally, prepare a shooting script with all factors duly cued in. He was responsible for titles and drawings if his work was to be entirely his own kind of graphic expression. He was responsible for arranging his own production--getting commitments from fellow-actors, arranging sets, estimating length of production, predicting, tentatively, time and space for production. Thinking and organizational skills were required to arrange sequence and action in an orderly, economic, and logical manner. (Consider this kind of student involvement in contrast to the tame activity of a class in English that uses materials arbitrarily chosen for the seventh grade and, that mythical creature, the average seventh grader!) Students were invited to work alone or in groups. Film and processing as well as tapes were provided for them upon completion of a script with sketches showing what the project was about and what their needs would be.

Instrumentation

Two different measuring instruments were used: the <u>Torrance Tests of Creative Thinking</u> devised by E. Paul Torrance, a battery of tests designed to measure creativity, and a creative writing assignment. Both tests were applied in a pretest-posttest design with randomization.

Symbolically:

Experimental Group   R O_1 X O_2

Control Group   R O_3 X O_4

Legend:

R--stands for randomization

O--stands for observation

X--stands for the treatment[1]

The analysis of covariance was used in analyzing the posttest score. The pretest was used as the control variable.

The Torrance Tests are a pioneering attempt to investigate the nature of creative thinking. The test battery used in this work is the Research Edition (1969).[2]

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[1]Donald T. Campbell, <u>et al.</u>, <u>Experimental and Quasi-Experimental Designs for Research</u> (Chicago: Rand McNally, 1966), p. 13.

[2]Torrance, <u>Norms-Technical Manual</u>, p. 1.

It is one of the first tests appropriate for testing children. The opening statement of the Norms-Technical Manual states:

> . . . This publishing step is being taken while knowledge and understanding about creative thinking are yet in a relatively underdeveloped state. Under these conditions assessment cannot have reached the level of technical excellence that is eventually desired for it. On the other hand, publication of creative thinking tests in their present condition should encourage research, facilitate data gathering and accomplish the very widening of knowledge in this area that is so urgently needed.[1]

In forming a rationale for his tests, Torrance first carried on extensive research simply to arrive at the following definition which undergirds his tests: "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 these hypotheses and possibly modifying and retesting them: and finally communicating the results.[2]

At the time of publication this test was the first of its kind specifically designed for the testing of children and made available for general research. The Torrance Tests consist of two main parts--the Verbal and the Figural. The Verbal Tests (Forms A and B) and the Figural Tests (Forms A and B) make up the test

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[1]Ibid., p. 9.   [2]Ibid., p. 6.

booklets. The Forms A and B designations indicate two
different forms of each test--equal and parallel. They
can be used interchangeably as pretest or posttest;
they are equivalent alternative forms within the major
context of the Verbal or the Figural dimensions.

Within the Verbal Form (both A and B) there are
three variables: Fluency, Flexibility, and Originality.
The Figural dimension has four variables: Fluency,
Flexibility, Originality, and Elaboration. They are
interdependent and scoring of their appearance in the
students' work must be considered in the light of their
implications in meaning and in their balance of inci-
dences. Because of the importance of knowledgeable
correction procedures, the need for personnel to properly
balance the possible subjectivity resulting from but one
person correcting the tests, and the monumental task of
correcting over 200 test booklets of this test,
the tests were sent to the Testing Service[1] to be
evaluated.

By testing both written-language symbols and
line-drawn symbols different abilities can be tapped,
according to Torrance. These following definitions
cannot be called completely explanatory of the charac-
teristics and meaning of the various concepts; they must

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[1]Personnel Press Scoring Service, Personnel Press,
Inc., 20 Nassau Street, Princeton, N.J.

be interpreted in the light of their interrelationships
and bear careful study when being used. The components
with simple explanations following each are:

fluency-- recall of appropriate information imme-
diately available from the memory

flexibility--the characteristic of thinking that
allows freedom from rigidity: " . . .
ability to produce a variety of kinds
of ideas to shift from one approach to
another."[1]

originality--quality of newness and freshness of ideas;
" . . . away from the obvious, common-
place, banal, established."[2]

elaboration--" . . . ability to develop, embroider,
embellish, carry out . . . "[3]

Each test was designed to probe various thinking charac-
teristics believed to be those of creativity and each
was written with care to challenge and sustain the
interest of the subject whether a pupil in elementary
school or a student at the graduate level.

Tests were administered by the same teacher to
both groups. It was necessary and recommended by the
manual to divide the testing into two parts. Therefore,
both classes took two regular class periods on two dif-
ferent days to complete the tests.

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[1]Torrance, Norms-Technical Manual, p. 73.

[2]Ibid.   [3]Ibid., p. 74.

Upon completion of the pretests they were collected and prepared for shipment to the Testing Service for correcting by the staff that Torrance, himself, had trained. Upon the completion of the posttests, the completed sets of both the pretests and the posttests were mailed for evaluation. The corrected tests with raw scores tabulated were returned to the investigator.[1]

The students were asked to write something imaginative--something they would enjoy writing--a story, poem, or drama, perhaps. They accomplished these during classtime, one set at the beginning of the treatment (pretest) and one at the close (posttest).

In searching the literature for criteria for evaluation purposes, great diversity was found.[2] The criteria finally chosen for this test were: fresh and original ideas, diction, and coherence. These concepts were defined in the following manner:

      fresh ideas--an original approach to an idea; an idea, though not new, still free from obvious influences of comic books, television, and motion picture cliches.

      diction-- a mix of language in the Aristotelian sense--language alive with common as

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[1]Forms for tabulating scores can be found in Appendix E.

[2]Paul B. Diederick, "Problems and Possibilities of Research in the Teaching of Written Composition," Research Design and the Teaching of English Proceedings of the San Francisco Conference, David H. Russell, Director (Champaign, Ill.: 1964), pp. 55-56.

well as the unusual and foreign word;
lively, apt, and pithy. Clarity. The
terms "economy, grace and dignity" are
listed by Baker for cultivation of good
diction.[1]

coherence-- the arrangement of words, sentences, and
paragraphs that make the meaning of the
written piece perfectly clear. The
relationship between each of these parts
as well as the particular parts them-
selves should be logically arranged so
that the meaning and movement of the
writing can function.

A measure was applied awarding from one to five

points for each of these three evaluative items (see

example below).

Creative Writing Scale

	Pocr	Fair	Good	Very Good	Out-standing
	1	2	3	4	5
Fresh Ideas					
Diction (originality of expression)					
Coherence					

The instrument for evaluation was discussed at

length with the three teachers who would read and evaluate

the papers. The terms used--idea, diction, and coherence

[1]Sheridan Baker, The Practical Stylist (2nd ed.;
New York: Thomas Y. Crowell Co., 1969), p. 96.

were discussed and defined. To these terms were
appended the descriptors, originality, and freshness.
With these evaluative terms the readers must now try to
determine for example, the originality of ideas in a
student paper. Is it "original" to him though perhaps
part of the world's literature? Is it his own in idea
and expression? Is it easily identifiable banality,
the result of acquaintance with comic books and mass
media?

A Pretest-Posttest design with the two groups par-
ticipating were used with results reported as Gain scores.

Validity and Reliability

Validity is essential to the truth and worth of a
measuring instrument. Fred N. Kerlinger says, "the
commonest definition of validity is epitomized by the
question: are we measuring what we think we are measur-
ing?" The emphasis in this question is on what is being
measured.[1]

In discussing the validity of his test, Torrance
Tests of Creative Thinking, Dr. Torrance offers some
remarks on the reliability and validity of the tests.
Of validity, he writes: "Since a person can behave
creatively an almost infinite number of ways, in the

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[1]Fred N. Kerlinger, Foundations of Behavioral
Research: Educational and Psychological Inquiry (New
York: Holt, Rinehart and Winston, Inc., 1964), p. 464.

opinion of the author, it would be *ridiculous* even to try to develop a comprehensive battery of tests of creative thinking that would sample any kind of universe of creative thinking abilities."[1] Torrance points out that while the test does sample many of the creative abilities, it does not sample all. It should also be pointed out that the emotional state of the students makes a difference in their performances. It has been established that sixth- and seventh-grade students show an increasing lack of creativity at this time of their lives. Some changes concerning these conditions have been noted in schools where less authoritarianism exists. Torrance says:

> To insure content validity, a consistent and deliberate effort has been made to base the test stimuli, the test tasks, instructions, and scoring procedures on the best theory and research now available. Analyses of the lives of indisputably eminent creative people, the nature of performances regarded as creative, research and theory concerning the functioning of the human mind, and the like have been considered in making decisions regarding the selection of test tasks. A deliberate and consistent effort has also been made to keep the test tasks free of technical or subject matter content.[2]

In a further discussion of test validity, Torrance tackled varied results among scores challenging the " . . . same or similar criteria."[3]

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[1]Torrance, _Norms-Technical Manual_, p. 23.

[2]_Ibid._, p. 24.   [3]_Ibid._, p. 51.

When defining reliability, Kerlinger uses synonyms "dependability, stability, consistency, predictability, accuracy." More pointedly he writes: "Reliability is the accuracy or precision of a measuring instrument."[1]

Actually, validity is of most importance because, of course, if what we think we are measuring is quite something else, no matter how precise we are, its reliability is quite meaningless.

Testing and measuring creativity is of course as controversial as the subject itself and statements of reliability together with observations on the acceptance and performance of the tests seem appropriate to discuss here. The students were not pleased when asked to do the tasks required in the battery (although their teacher followed suggestions for introducing the test). The students had previously been tested with standardized achievement tests and a new state-wide personal assessment test in this same year. They vented their irritation with this additional test--some by refusing to complete their tests, some by refusing to take them altogether.

The creative person is often designated "nonconformist" and "divergent thinker"; students with such

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[1]Kerlinger, Foundations of Behavioral Research, p. 436.

tendencies may be some of those who refuse to comply
with being tested. Torrance writes:

> Because the emotional, physical, motivational, and
> mental health factors affect creative functioning
> and development and may contribute to a lowering of
> test-retest reliability as traditionally estimated,
> it should not be assumed that the measuring instru-
> ments are unreliable or are lacking in usefulness.[1]

In addition, the attitudes and feelings--the
emotional state--of those being tested does matter in
shaping responses. In discussing the import of emotional
factors on testing, Torrance says further:

> The very fact that measurement instruments are sensi-
> tive to such factors may make them especially useful
> in certain kinds of situations. Among such situ-
> ations are studies designed to assess the influence
> of experimental methods, organizational climate,
> experimental instructional materials, physical con-
> ditions in the classroom, fatigue, competition, and
> the like.[2]

The refusal to comply with school demands may
end in "dropping out" on the part of the student, dis-
missal by the administration, or it may simply end up
in bland acceptance by the student until he gains his
freedom through graduation or reaching the limits of
compulsory school age. Conformists may comply and non-
conformists refuse--or work half-heartedly--so that in
this sense reliability of any testing can be questionable.

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[1]Torrance, _Norms Technical Manual_, p. 18.

[2]_Ibid._, p. 18.

Statistical Hypotheses

The hypotheses stated in statistical or operational terms are given in the following statements for the <u>Torrance Tests of Creative Thinking</u> and for the creative writing activity.

H_o: There will be no difference between the Control and Experimental Groups as measured by the Verbal Dimension of the <u>Torrance Tests of Creative Thinking</u>.

Symbolically: H_o: $\mu_C = \mu_E$

Legend: C--Control Group
         E--Experimental Group

H_1: There will be no difference between the Control and Experimental Groups as measured by the Figural Dimension of the <u>Torrance Tests of Creative Thinking</u>.

Symbolically: H_1: $\mu_C = \mu_E$

Legend: C--Control Group
         E--Experimental Group

H_2: There will be no difference between the Control and Experimental Group as measured by the Figural Dimension of the <u>Torrance Tests of Creative Thinking</u>.

Symbolically: H_2: $\mu_C = \mu_E$

Legend: C--Control Group
         E--Experimental Group

Creativity Writing Activity:

H_o: There will be no difference between the Control and Experimental Groups as measured by the Creative Writing Activity.

Symbolically: H_o: $\mu_C = \mu_E$

Legend: C--Control Group
         E--Experimental Group

Design and Analysis of Proceedings

The design for this experiment is a standard one with two groups used, a Control Group and an Experimental Group. Two measures were used on each group, a Pretest and a Posttest. Because there appeared to be some significant relationship between the two measures, a Multivariate Analysis of Covariance (MANCOVA)[1] was performed, the two variants in this case were the Pretest and the Posttest with the Pretest serving as the covariable in each instance.

Each test has two dimensions: Verbal and Figural. Each dimension has appropriate subscales. The subscales are: Verbal--Fluency, Flexibility, and Originality; Figural--Fluency, Flexibility, Originality, and Elaboration.

In order to further explore the concepts that are the variables in this test and to give dimension to their meaning, Guilford as well as Torrance are helpful in their writings. First Torrance:

> The author 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 products and

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[1]Multivariance: Fortran Program for univariate and Multivariate Analysis of Variance and Covariance, Jeremy Finn, Department of Psychology, School of Education, State University of New York at Buffalo, May, 1967.

creative personalities. An attempt is made, however, to assess the products that result from the adminis- tration of these test activities in terms of Guilford's divergent thinking factors (fluency, flexibility, originality, and elaboration).[1]

Dr. J. P. Guilford's explanations, of course, bear directly on Torrance's use of the terms and are therefore especially appropriate and helpful.

> By fluency we mean the facility with which ideas are called out of memory storage for use in new situ- ations. Psychoanalytically-inclined psychologists point out that the creative thinker is in close contact with his unconscious. I am not sure what this means, but for one thing, I think it means much the same as the way in which I have defined fluency of thinking: the ease with which we use stored information when we need it.[2]

Guilford discusses flexibility defining it similarly to Torrance's way, and Guilford says that originality comes under this category. Elaboration is simply the ability to make addition upon addition to some given information and this includes the ability to produce detail and finally to achieve a finished product. All these attributes he tucks under the category of divergent thinking. The divergent thinker does not come up with the commonplace, the conventional, or the "right" solution.[3]

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[1] Torrance, Norms Technical Manual, p. 9.

[2] The Future Implications of Creativity Research, a one-day symposium co-sponsored by Los Angeles State College and Chouinard Art Institute, J. Leonard Stein- burg, Coordinator (Pasadena: March 10, 1962), p. 12.

[3] Ibid., p. 13.

Upon reviewing Torrance's handbook, one finds that combining the Verbal with the Figural scores to obtain a total mark of creativity would tend to be a rather misleading score (an apple and orange equation). However, combining over the Verbal and over the Figural in order to obtain a composite Verbal score and a complete Figural score did seem to be in order.

The data for this study followed the plan outlined here: (1) determine if there were a significant statistical difference between the Control Group and the Experimental Group on the complete Verbal score Posttest; (2) then, see if a significant statistical difference between the Control Group and the Experimental Group on the complete Figural Posttest existed. If this were the case, then post hoc procedures would be in order, that is to say, if a significant Verbal difference were found between the two scores it would be logical to ask which segment of the verbal composite score made the difference. Similarly, if there were a significant difference in the Figural Posttest score, the question would become which segment of the Figural component made the difference? The same procedure would be followed in the case of the English writing activity.

In order to perform the statistical analysis necessary for this plan, the MANCOVA program was used. There were several prerequisites which had to be met.

Also, the assumptions which underlay this statistical
procedure had to be verified. To begin with, an analysis
of covariance works best when there has been randomization
of the experimental units. The experimental unit in this
case was the classroom. This implies that deciding which
classroom is Control and which is Experimental must be
done on a random basis. The randomization process was
carried out in order to determine each group's role.
The Control Group preceded the Experimental Group in the
time of day. The Control Group's session was followed
by lunch; the Experimental Group period came at the last
hour of the school day, therefore, contamination between
the two groups or between experimental units the Control
Group would not see the treatment conditions as far as
the media equipment and materials were concerned.

Reviewing the plan for gaining information from
the test it was necessary to test to see whether the
covariables, that is, the Pretest affected significantly
the dependent variables of interest. If this were the
case, then the data would be analyzed by a Multivariate
Analysis of Covariance. If the effect of the covariables
was not significant, the data would be analyzed by a
Multivariate Analysis of Variance. The Hypothesis of
interest would then be tested to determine the impact
of the program. The level of significance was set
at .05.

In order to best compare, individually and collectively, the variables contained in the test and to arrive at information most expeditiously, data would be placed in the Control Data 3600 Computer at Michigan State University.

CHAPTER IV

ANALYSIS OF RESULTS

Introduction

In this chapter, the findings of the experiment
pursued at Pattengill-Eastern Public Schools in Lansing,
Michigan are presented. This chapter will include:
(1) report of the results, (2) discussion of findings,
and (3) summary.

Report of Results

In Chapter III, an analysis of covariance was
proposed in order to analyze the data generated by this
study. As such, it was necessary to check the assumption
that the covariables, that is, the pretests, signifi-
cantly increased the precision of the statements con-
cerning the dependent variables, or, the posttests, used
in this study. In order to accomplish this, a multi-
variate chi square test of independence was run between
the dependent variables and the covariables. This is
shown in Table 4.

An inspection of the computed significance level
based on the chi square analysis is less than .05, the

alpha level set as critical for the study. This shows
that though one degree of freedom was lost for each
covariable, the increased precision that was gained was
sufficient to conclude that a multivariate analysis of
covariance was proper to use for analysis. In order to
complete the plan of analysis, the hypothesis of interest
would have to be assessed in order to determine if there
were a significant difference between the Control Group
and the Experimental Group on the variable of interest.

TABLE 4.--Justification for covariance.

Variable	R^2	R	F	P α
Fluency-Posttest	0.6287	0.7929	25.4016	0.0001
Flexibility-Posttest	0.6368	0.7980	26.3027	0.0001
Originality-Posttest	0.6739	0.8209	30.9972	0.0001

Degrees of Freedom for Hypothesis = 3

Degrees of Freedom for Error = 45

Chi Square for Test of Hypothesis of No Association
Between Dependent and Independent Variables =
57.3247

Report of Results

H_o: There will be no difference between the Control
and Experimental Groups on any of the components
of the Verbal Dimension of the Torrance Tests of
Creative Thinking.

In observing the F ratio for multivariate test
of equality of mean vectors, it was found that this was
significant at the .4260 level. This is less than the

.05 level established for the purposes of this study.
Therefore, the conclusion reached was that there was no
difference between the Experimental and Control Groups on
the Verbal Dimension when looking at the subtests on the
Torrance Tests of Creative Thinking. As such, the null
hypothesis was rendered tenable (see Table 5).

TABLE 5.--F-Ratio for multivariate test of equality of
mean vectors = 0.9478.

Degrees of Freedom = 3 and 43,000
P ≰ 0.4260

Variable	Between Mean Squares	Univariate F	P ≰
Fluency-Posttest	0.1103	0.0040	0.9496
Flexibility-Posttest	18.0589	0.2614	0.6117
Originality	8.0628	0.2462	0.6223

Degrees of Freedom for Hypothesis = 1
Degrees of Freedom for Error = 45

H_1: There will be no difference between the Control
and Experimental Groups as measured by the
Figural Dimension of the Torrance Tests of
Creative Thinking.

The findings from the research of this hypothesis
is explicated in Table 6.

Upon investigating the overall multivariate F
test, it was found that there was significance. There-
fore, the Control and Experimental Groups differed on
the Figural Dimension of this test. As a consequence,

the null hypothesis was rejected and the following

statement was held tenable:

> There is a difference between the Control and Experimental Groups on the Figural Dimension of the Torrance Tests of Creative Thinking.

TABLE 6.--F-Ratio for multivariate test of equality of mean vectors = 0.2556.

Degrees of Freedom = 4 and 41.0000			
P $<$ 0.0006			
Variable	Between Mean Squares	Univariate F	P $<$
Fluency-Posttest	124.1473	1.6148	0.2106
Flexibility-Posttest	167.9606	1.3978	0.2435
Originality-Posttest	59.6214	0.0954	0.7589
Elaboration-Posttest	847.0541	22.0504	0.0001

Degrees of Freedom for Hypothesis = 1
Degrees of Freedom for Error = 44

Four covariates have been eliminated

Referring again to Table 6, one observes that the

significance of the sub-scale, Elaboration, was found

in the figures of the Univariate F Tests.

The least squares estimate adjusted for covariants

of the difference between the control and experimental

groups was formed by subtracting the Experimental Group

score from the Control score. A positive least

squares estimate would indicate that the Control group
had a higher score and hence did better than the Experi-
mental Group. A negative score would indicate that the
Experimental score was larger, in other words, that the
Experimental Group did better than the Control Group.
The least squares estimate was negative as shown in
Table 7. It was (-8.62) which indicates that the
Experimental Group did better than the Control Group.

TABLE 7.--Least squares estimates adjusted for covariates
of the difference between the control and experimental
groups [four covariates have been eliminated].

Source	Least Squares Estimate	Standard Error of Adjusted Least Squares Estimates	Signifi- cance
Control-Experimental on Figural- Elaboration	-8.62	+1.84	Yes

The English Writing Activities administered to
both the Control and Experimental Groups were evaluated
by three certified secondary teachers. A Pretest-Posttest
design with two groups participating was reported through
analysis of covariance. Table 8 shows the means of the
groups on each variable.

An analysis of covariance was considered in order
to analyze the data generated in this investigation.
Therefore, it was necessary to check the assumption that

TABLE 8.--Creative writing activity: Pretest-posttest
                      gain scores.

	Ideas	Diction	Coherence
	Pretest		
Experimental N = 18	$\bar{X}$ 7.05 SD 9.11043	$\bar{X}$ 6.27 SD 6.92820	$\bar{X}$ 6.94 SD 6.85565
Control N = 19	$\bar{X}$ 7.89 SD 14.8661	$\bar{X}$ 7.58 SD 12.0416	$\bar{X}$ 8.16 SD 10.2470
	Posttest		
Experimental N = 18	$\bar{X}$ 7.00 SD 8.60233	$\bar{X}$ 7.00 SD 8.60233	$\bar{X}$ 7.11 SD 7.34847
Control N = 19	$\bar{X}$ 7.74 SD 14.8997	$\bar{X}$ 7.42 SD 9.64365	$\bar{X}$ 7.89 SD 14.8997

the covariables, that is, the pretests significantly
increased the precision of the statements concerning
the dependent variables, or, the posttests, used in
this study. In order to accomplish this, a multivariate
chi square test of independence was run between the
dependent variables and the covariables. This is shown
in Table 9.

An inspection of the computed significance level
based on the chi square analysis is less than .05, the
alpha level set as critical for the study. This shows
that one degree of freedom was lost for each covariable,
the increased precision that was gained was sufficient
to conclude that a multivariate analysis of covariance

was proper to use for analysis. In order to complete the plan of analysis, the hypothesis of interest would have to be assessed in order to determine if there were a significant difference between the Control Group and the Experimental Group on the variable of interest.

TABLE 9.--Justification for covariance.

Variable	R^2	R	F	P $\varkappa$
Idea-Posttest	0.3287	0.5733	5.2219	0.0048
Diction-Posttest	0.4615	0.6794	9.1426	0.0002
Coherence-Posttest	0.4647	0.6817	9.2612	0.0002

Degrees of Freedom for Hypothesis = 3

Degrees of Freedom for Error = 32

Chi Square for Test of Hypothesis of No Association Between Dependent and Independent Variables = 22.8406

A multivariate analyses of variance was used to analyze the English scores of the Experimental and Control Groups on the Creative Writing Activity.

Report of Results

H_o: There will be no difference between the Control and Experimental Groups as measured by the Creative Writing Activity.

In observing the F ratio for multivariate test of equality of mean vectors it was found that this was significant at the .6171 level. This is less than the .05

level used in the study. Therefore, there is no signifi-
cant difference between the Experimental and Control
Groups on the English Creative Writing Activity (see
Table 10).

TABLE 10.--English Writing Activity; F-Ratio for multi-
  variate test of equality of mean vectors = 0.6047.

DF = 3 and 30.0000
P ⟨ 0.6171

Variable	Between Mean Squares	Univariate F	P ⟨
Idea	0.6349	0.1457	0.7052
Diction	5.5020	1.4301	0.2406
Coherence	0.5007	0.1900	0.6659

Degrees of Freedom for Hypothesis = 1
Degrees of Freedom for Error = 32

The findings of this study indicate also that the
control and Experimental Groups after the treatment
period did not differ significantly on the English
Creative Writing Activity. Results of the observation
of the F ratio for Multivariate Test of Equality of
mean vectors confirm that there was no significant dif-
ference in the performance of the two groups.

According to Geoffrey Summerfield there may be
little psychometric evidence in support of the new tra-
dition's approach in writing:

Although there is some evidence indicating that students so trained wrote more correctly as well as effectively than others who had been drilled in mechanics, I would not have high hopes that extensive research could prove much about this argument. Too much would depend on such immeasurables as the quality of the teachers and the depth of the interest they aroused . . . clear writing can be a cause as well as an effect of clear thinking. Practical, hard-headed men need to be reminded that good creative writing is a product of thought and hard work, not merely of imagination.[1]

Summary

In summary, the findings of this study indicate that the Control and Experimental Groups after the experimental treatment in Pattengill Junior High School in the Lansing, Michigan area did not differ significantly on the Verbal Dimension of the Torrance Tests of Creative Thinking.

However, the groups did differ on the Figural Dimension of the Torrance Tests of Creative Thinking. Moreover, they differed significantly on the Elaboration Component of the Figural Dimension.

The Least Squares Estimate Adjusted for Covariants of the Difference Between the Control and Experimental Groups (Table 7) records the Figural Dimension variables in which a difference occurred. On this sample the findings seem to indicate by the negative sign that the experimental group does better on Fluency and Flexibility

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[1] Muller, Uses of English, pp. 125-26.

as well as Elaboration but the Control Group does better in Originality on the tests given them.

It would not be justifiable to claim significance among the Figural variables other than Elaboration. However, it should be pointed out that the small sample used and the score obtained by the Experimental Group seem to indicate that the constellation of concepts used in this study are worthy of future consideration.

The Control and Experimental Groups did not differ significantly on the English Creative Writing Activity. Confirmation of no significant difference may be observed in Table 10, the F ratio for Multivariate Test of Equality of Mean Vectors.

Additional statistical information concerning the Verbal Dimension of the Torrance Tests is contained in Appendix B.

In Appendix C, further tables related to results obtained on the Figural Dimension of the Tests are to be found.

Additional information on the English writing activities is included in tables in Appendix D.

Finally, in Chapter V, further discussion of the implications and possible explanation of the results of the scores on the tests used in this experiment will be included.

CHAPTER V

SUMMARY

The Spectre is the Reasoning Power in Man,
    & when separated
From Imagination and closing itself as
    in steel in a Ratio
Of the Things of Memory, It thence frames
    Laws & Moralities
To destroy Imagination, the Divine Body,
    by Martyrdoms & Wars.
                  --William Blake[1]

Introduction

A general exploration of three concepts and an

experiment to ascertain their usefulness has been pursued

in this paper. This study is predicated on the following

Hypothesis:

> Students, given the freedom and encouragement, to
> express themselves in personally selected media
> (motion pictures, slide film, and audio tape), and
> given free-range of ideas and subject matter in their
> performance, with a modicum of teacher instruction,
> will express themselves in ways that will better
> allow the release of their creativity. With a grow-
> ing sense of both personal freedom and appropriate
> goals, the students should further their capabilities
> in communication and gain new insights into them-
> selves, their peers and their environment.

The first concept, Automedia, is the use of media

(especially photographic and electronic communication

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[1]Blake, Jerusalem, p. 714.

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technology) initiated, designed and performed by students or other individuals. The term, _Automedia_, was coined to describe the new and particular way in which the communications technology would be used in this investigation.

The second concept is a substantively new tradition in English which gained impetus at the Anglo-American Conference on the Teaching of English at Dartmouth in 1966. At the Dartmouth Seminar, as it is widely referred to in the literature, the outlines of the _New English_ emerged from hours of concerned discussion and debate. The _New English_ represents an approach to the teaching of English which advocates a sequential and integrated program of total language usage--a universe of discourse--that identifies intimately with the growth and development of the ideational processes and emotional, physical, and social experiences of the child from the beginning of his schooling through college. Freedom with discipline is prerequisite to an environment conducive to creative activity. The curriculum is experience based. Because of the nature of filming, video-taping, slide-tape programs, and other such communication styles, a humanities orientation is recommended. The new traditionalists view language as the central focus of education because it is the agent through which most communication passes and thinking occurs.

The third concept deals with Creativity. The concept is controversial and therefore it is treated in this paper with a certain amount of reservation, however, it is given specific meaning based on the definition written by Torrance for the experiment performed.

Two definitions recognized in the literature and used in this paper in discussion of some of the literature are:

1. Creativity of the magnitude required for original, singular, and authoritative contributions;

2. Creativity as awareness, sensitivity, originality in daily living; original and imaginative.

and Torrance's definition:

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 these hypotheses and possibly modifying and retesting them; and finally communicating the results.[1]

The experiment was conducted to determine if a class (designated Experimental) given a treatment based on the constellation of ideas described under the New English, Automedia, and Creativity (as defined by Torrance) would show no difference in the given tests from that of a class (designated Control) taught under traditional

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[1]Torrance, Norms-Technical Manual, p. 6.

conditions. Both classes were taught by the same teacher. A pre-post standard design with randomization was used.

Review of the Analysis

The Torrance Tests of Creative Thinking, Pretests Verbal A and Figural A, were administered to both the Experimental and Control Groups on the same day before the clinical experiment was begun. Termination of the experimental period was followed by the Posttest Battery of Torrance Tests designated "B" versions of the Verbal and Figural Dimensions.

The components and their definitions of the Verbal and Figural Dimensions of the Torrance Tests of Creative Thinking were:

Fluency.--Recall of appropriate information immediately available from the memory.

Flexibility.--The characteristic of thinking that allows freedom from rigidity: " . . . ability to produce a variety of kinds of ideas to shift from one approach to another."[1]

Originality.--Quality of newness and freshness of ideas; " . . . away from the obvious, commonplace, banal, established."[2]

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[1]Ibid., p. 73.   [2]Ibid.

Elaboration.--" . . . ability to develop, embroider, embellish, carry out . . . "[1]

On another day, as the Pretest Creative Writing Activity, both classes were asked to write an imaginative piece in a style of their own choosing. Upon completion of the clinical experiment, students again were asked to write an original piece of their own choosing as the Posttest Creative Writing Activity.

The components and their definitions of the Creative Writing Activity:

Fresh ideas.--An original approach to an idea; an idea, though not new, still free from the obvious influence of comic books, television, and motion picture cliches.

Diction.--A mix of language in the Aristotelian sense--language alive with common as well as the unusual and foreign word; lively, apt, and pithy. Clarity. The terms "economy, grace, and dignity" are listed by Baker for cultivation of good diction.[2]

Coherence.--The arrangement of words, sentences, and paragraphs that make the meaning of the written piece perfectly clear. The relationship between each of these

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[1]Ibid., p. 75.

[2]Baker, The Practical Stylist, p. 96.

parts as well as the particular parts themselves should
be logically arranged so that the meaning and movement
of the writing can function.

Report of Results--The Torrance
Tests of Creative Thinking

A Multivariate Analysis of Covariance (MANCOVA)
was used for analysis on the Torrance Tests of Creative
Thinking and a Multivariate Analysis of Variance was
used to analyze the Creative Writing Activity scores.

Results of the analysis of the Verbal Dimension
of the Torrance Tests of Creative Thinking found no
significant difference between the Experimental and
Control Gooups.

The analysis of the Figural Dimension of the
Torrance Tests of Creative Thinking indicated there was
a difference between the two Groups. Upon investigating
the overall Univariate F test, it was found that there
was significance at the .05 level (the level established
by the investigator for this study). As a consequence,
the null hypothesis was rejected and the following
statement was held tenable:

> There is a difference between the Control and Experi-
> mental Groups on the Figural Dimension of the Torrance
> Tests of Creative Thinking.

The component, Elaboration, was the cause of the difference
between the groups. The significance of the sub-scale,
Elaboration, was found in the figures of the Univariate F
Test.

Report of Results--English Creative
Writing Activity

A Multivariate Analysis of Variance was used to analyze the English scores of the Experimental and Control Groups on the Creative Writing Activity.

In observing the F ratio for multivariate test of equality of mean vectors, it was found that this was significant at the .6171 level. This is less than the .05 level used in the study. Therefore, there was no difference between the scores of the Experimental and Control Groups on the English Creative Writing Activity.

Population

The population selected included all students at Pattengill Junior High School, an inner-city school with a demography typical of such schools. Several innovative programs were in progress in the school which made some faculty and their classes unavailable to participate in this investigation. In addition to the special programs, class schedules further restricted the population. There were, of course, teachers who had no interest in taking part in the experiment. The size of the population may well have been a major factor in the lack of significance on the tests, with the exception of Elaboration, a component of the Figural Dimension of the Torrance Tests.

Treatment

In the three-month period of the experimental treatment, the hypothesis was put to task. The philosophy of the New English as described in some of the literature by authors and teachers Moffett, Dixon, Summerfield, and Holbrook, among others, was embraced. The methods and technologies of Automedia were used as well as conventional media applications. Creative writing as opposed to purely functional kinds of writing was stressed. The triad of Automedia, the New English, and Creativity were the chief elements of the Treatment.

The environment was adjusted to better accommodate the ideals of freedom and self-expression of students. The students were given their choice in idea and style of expression in their writing and media performances. As a result the peer interaction in the classroom due to the informal atmosphere and the need to help one another in media productions seemed to increase.

All kinds of communication were needed and used in the interacting bodies of students involved in work. Talk, writing, hand signals, facial grimaces, and other forms of communication were used. The teacher encouraged further communication and self-expression through individual, group, and class activities. The scores of the Experimental Group seem to indicate that the constellation of concepts used in this investigation are worthy of further study.

It would seem appropriate to use a larger population and to extend the time of clinical observation. This would allow greater representation for statistical study. It would also provide time for school personnel, parents, and students to become better acquainted with these ideas and methods. A longer treatment period would afford an opportunity for student growth in terms of self-discipline and the use of freedom, in terms of self-realization and interaction with peers, as well as in skills of communication and self-expression. Finally, of course, the time would enhance the opportunities for the thinking and imagination prerequisite to creative writing as well as the product itself.

Discussion

While it has been reported that there was no significant difference on the Torrance Tests of Creative Thinking except on the Figural Dimension, the Least Square Estimate Adjusted for Covariants of the Difference Between the Control and Experimental Groups (Table 7) records the Figural variables in which a difference occurred on the component, Elaboration. On this sample the findings seem to indicate by the negative sign that the Experimental Group did better on Fluency and Flexibility as well as Elaboration but the Control Group did better on Originality on the tests given them. The nature of the study--the use of various alternatives in media

for better communication and creative activity in addition
to the medium of writing styles suggest that new-found
interest in light and sound in terms of self-expression
has affected the outcomes. Attentiveness to visual
information and imagery and the operation of cameras
through whose eye the student specifies and delineates,
describes, and elaborates may have activated abilities
whose measurement is being partially reflected in the
scores. Again, it would be inappropriate to claim sig-
nificance on any variable other than Elaboration, however,
the sample used was small and the scores of the Experi-
mental Group seem to indicate that the constellation of
concepts used in this investigation are worthy of further
study.

It would seem appropriate to use a larger popu-
lation and to extend the time of clinical observation.
This would allow greater representation for statistical
study. It would also provide time for school personnel,
parents, and students to become better acquainted with
these ideas and methods. A longer treatment period would
afford an opportunity for student growth in terms of
self-discipline and the use of freedom, in terms of self-
realization and interaction with peers, as well as in
skills of communication and self-expression. Finally, of
course, the time would enhance the opportunities for the
thinking and imagination prerequisite to creative writing
as well as the product itself.

Conclusions

The conclusions reached as a result of the combined findings of the Experiment and the pertinent literature are to be found in the statements that follow. The statements are divided according to the concepts of chief interest in this study: Automedia, the New English, and Creativity.

From the Experiment:

Automedia

1. Results of testing seem to indicate that the use of Automedia augments student elaborative processes in the Figural Dimension. Figural elaboration of ideas in Automedia encourages students in oral communication leading to written symbols.

From the Literature:

Automedia

1. Automedia, electronic or photographic communication technology used for self-expression, opens new avenues for the individual differences of students.

2. The New English-Automedia-Creativity triad requires a multi-disciplinary approach and is probably usable in most disciplines.

3. Past student Automedia productions make excellent models for new classes because they demonstrate the alternative styles of presentations and kalidescopic breadth of subject matter possible for production.

The New English

1. Creative or personal writing increases student interest, learning, involvement, and motivation.

2. Thought and language and their various manifestations comprise the universe of discourse. It is the natural setting for all subject matter. As such, it should be recognized and used as the core of the curriculum.

3. Small classes are necessary for optimum learning. Opportunities for creativity are increased in small classes (no more than 25).

4. The New English's concept of freedom with discipline is democratic. It is this setting in which successful discussion, role-playing, and other positive interaction behaviors can be expected to occur.

5. Peer interrelationships are important in the classroom. Peer interaction is a variable that correlates significantly with educational success.

6. The experience-based curriculum appeals to students and excites intrinsic motivation.

Creativity

1. Among the teachers' repertoire of competencies and conduct should be a willingness for open behavior. That is, the teacher must be willing to risk open, frank, and fair exchange with students.

2. Risk-taking in creative activity needs to be recognized and appreciated. Students, teachers, and administrators share like abilities with different levels of performances. Mutual understanding and respect should enhance the opportunities for better education through the creative efforts from whichever source.

Generalizations:

Automedia

1. Receptive media, conventional use of media for dissemination of information, instruction or entertainment, are available for English programs. There are excellent commercially made motion pictures and records.

The New English

1. Techniques of discussion, role playing, production, and publication should be learned and exercised.

They become good evaluation instruments; in them, students have overt behaviors to observe and models for self-measurement.

2. Technological communication is a reality. There is no question of its power and utility in education. Whether English educators come to meet the challenge or abdicate their role is up to the men and women who teach. They seem, for the most part, to be print oriented. New teachers coming into teaching have been entertained and taught by a near all-pervasive media. Learning levels are higher outside schools today than inside.

3. Risk-taking is maximal in creative performance; adult awareness of this fact is essential because it allows the adult to protect the student in eventual success or failure.

4. Since the student has been partially responsible for class goals and class conduct (freedom with discipline) as well as subjects for his own work, intrinsic motivation should characterize his activity.

Creativity

1. Play, humor, and "wild" ideas are often products of creative thinking. They certainly are part

of human thought and conduct and deserve respect
and suffrance in modern schools.

2. Continuing disapproval of unusual, silly, or
    divergent ideas may drive a student into apathy
    or out of school. Such persons are often
    hypothesizing and from their hunches, new ideas
    or techniques emerge.

3. Individual differences in learning styles, abili-
    ties, and talents as well as personalities are
    best served in an atmosphere of freedom with
    discipline. Mutual respect of student and
    teacher is essential. The student is thus able
    to follow his hunches, to experiment, and to play
    with ideas often concocting new ideas (perhaps
    not new in the world of ideas but new to him
    personally--his own discovery!)

Recommendations

These recommendations have grown out of the
investigation. They are listed in three categories:
(1) From the Experiment, (2) From the Literature, and
(3) Generalizations. Under each category are three
main concepts: (1) Automedia, (2) the New English, and
(3) Creativity where citations are to be made. It is
not an exhaustive list of possibilities but teachers
and administrators who work with these concepts (should

they be so inclined) will find their own innovations and creative ways to utilize the various factors.

From the Experiment:

1. A wider population should be used to further test the triadic concept—Automedia, the New English, and Creativity.

2. A study in which a larger population would be used could perhaps give further evidence of the effectiveness of the variables. Such a population should be distributed as follows:

    (1) Automedia-New English-Creativity

    (2) Automedia-Traditional English-Creativity

    (3) New English-Written Work-Creativity

    (4) Traditional English-Written Work-Creativity

3. An Instructional Technology Workshop should be made available to teachers in which the concept, Automedia, is taught and in which the teacher is required to write, design, and produce a program in a single electronic or photographic medium or in a combination of them.

From the Literature:

1. Highly gifted and talented children need special programs so that they may better fulfill their potential. Administrators, teachers, and parents must be alerted to recognize them and

help them. These rare individuals benefit the
nation with these contributions in the arts,
sciences, sports, and other fields.

2. Authoritarian measures taken in schools for the
purpose of discipline too often result in stu-
dent conformity. This has a deleterious effect
on creativity and may lead to repressiveness.
A student-oriented curriculum and activities
program with opportunities for student and
teacher mutual goal setting is recommended.

Generalizations:

1. Application of the hypothesis comprising the
ideas of Automedia, the New English, and Creativity
should span all school-age populations from
kindergarten through college in further studies.

2. Normally, convergent thinkers prefer closure and
the "right answer." The divergent thinker, on
the other hand, may offer the "right answer" but
at the same time have several alternative
solutions. Open-ended assignments, independent
studies, and open-mindedness in regarding the
student's entire performance may better allow
him to successfully learn and enjoy himself.

3. An experiment-based curriculum is capable of
exciting intellectual and aesthetic curiosity.

Students should be given opportunities for
personal experiences through field trips (these
should include where possible--theater, opera,
symphony, musicals, museums, libraries, news-
papers, television studios, radio stations, com-
puter centers--any other type of communication
centers), resource people (if possible--people
from the fields, not people who talk about the
subject), automedia, and peer and adult inter-
action.

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SOURCES CONSULTED

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APPENDICES

APPENDIX A

AUTOMEDIA, THE NEW ENGLISH,

AND CREATIVITY

MOFFETT'S SPECTRUM OF DISCOURSE:
A MODEL

Professor Moffett's Spectrum of Discourse
represents "a hierarchy of levels of abstractions." He
recognizes the limitations of the following linear model
and his discussion accompanying it in his book does
amplify and describe the whole concept of discourse.
However, this schematic rendition of his ideas is
helpful and provocative.

This is a highly schematic representation of the
whole spectrum of discourse, which is also a hierarchy of
levels of abstraction.

Interior Dialogue
   (egocentric speech)   P
Vocal Dialogue
   (socialized speech)   Recording, the   PLAYS   O
                           drama of what is
                           happening.

Correspondence
Personal Journal
Autobiography   E
Memoir
                           Reporting, the   FICTION T
                           narrative of what
                           happens.

Biography
Chronicle
History

Generalizing, the
exposition of what
happens

ESSAY   R

Science
Metaphysics

Theorizing, the
argumentation of
what will, may
happen.[1]

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[1]Moffett, Teaching the Universe of Discourse,
p. 47.

DAVID HOLBROOK'S "LIMBERING UP EXERCISES"
FOR CREATIVE WRITING

1. Writing down free associations of words.

2. Writing down responses to pieces of music,

    pictures, sounds.

3. Writing a "poem like this one" or a story "like

    this."

4. Painting a picture from a poem.

5. Miming a poem, piece of music, or a story.

6. Devising a synopsis for a play.

7. Giving a description of a person (as for the

    police, etc.). Some of these exercises may be

    tape recorded and played to other classes.[1]

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[1]David Holbrook, "Creativity in the English Programme," p. 18.

E. PAUL TORRANCE'S TEN WAYS FOR ENCOURAGEMENT
OF CREATIVE WRITING AMONG GIFTED CHILDREN

1. Provide materials which develop imagination.

2. Provide materials which enrich imagery.

3. Permit time for thinking and day dreaming.

4. Encourage children to record their ideas.

5. Give children's writings some concrete embodiment.

6. Accept the child's natural tendency to take a
   different look.

7. Prize rather than punish true individuality.

8. Be cautious about editing children's writings.

9. Encourage children to play with words.

10. Love them and let them know it.[1]

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[1] E. P. Torrance, "Ten Ways of Helping Young Children Gifted in Creative Writing and Speech," in _Creativity: Its Educational Implications_, compiled by John Curtis Gowan, George D. Demos, and E. Paul Torrance (New York: John Wiley & Sons, Inc., 1967), pp. 209-19, _passim_.

LESSON PLANS FOR FOUR CREATIVE
WRITING CLASSES

Following are the lesson plans for four different

Creative Writing periods in May, 1970 (during the experi-

ment at Pattengill Junior High).

May 1, 1970

-- List costumes, properties if needed
-- How many people in cast and crew
-- Who has what part, etc.
-- Make a copy for the teacher to keep. Make it so
   that it can be understood.

May 4, 1970 (3 groups)

-- Two students (helping the instructor) will teach
   students how to use all machines. (One group
   per instructor)
-- Use a large piece of paper (inexpensive school
   stock newsprint). Fold the paper into eight
   squares. With crayons, you can sketch your
   story for slide-film or movie to work out a
   logical sequence of events so that it can be
   understood easily by yourself, and can be used
   as a guide for others who may want to work with
   you. Use stick figures for your characters.
   Use paints if you like.
-- Later you will get 5 x 8 cards upon which you can
   sketch your series of scenes or actions; write
   in the dialogue; and, finally number these
   sequentially. These are your guides for your
   production--the storyboard. (3rd group work on
   storyboard--groups switch when finished)

May 8, 1970

-- Show slide-tape poem Manahatta. Write something
   you would enjoy. Consider how you could com-
   municate your ideas with pictures and tape based
   on what you write.

May 15, 1970

-- Listen to Tommy--Rock opera (Decca). Both groups
-- Volunteer Role-playing
      Were you unable to hear, see, speak, how could
      you communicate? (Relate story of Helen Keller)
      How would you communicate with someone unable
      to hear or see? Role play.[1]

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[1]These notations are taken from the set of lesson
plans used by Mr. Thomas Nyhus, participating teacher at
Pattengill Junior High School, Spring term, 1970.

AUTOMEDIA: TEACHING AND LEARNING GOALS

The following is outlined to use as a possible
model for teachers interested in considering the Automedia
approach. It would be hoped that the teacher and students
would consciously share in setting up some goals for them-
selves. Obviously, the teacher must structure the environ-
ment so that it is possible for the learning to take place
but student awareness of goals to be gained and the con-
templation of the destiny of their personal outlay of
physical and psychic energy and their individual risk-
taking would seem to merit participation in the setting
of goals.

Goals:
  To Encourage and celebrate:

Originality	Maturation
Self-Expression	Freedom
Talking	Feeling
Inter-talk	Loving
Imagination	Giving
Enthusiasm	Earnestness
Drama	Perceptiveness
Beauty	Communication

Learnings:
  For the teacher:

To create a classroom atmosphere conducive to
easy comment, conversation, "talk." (This may be a

discussion preceding the introduction of a piece of literature or the introduction of an author, or perhaps simply a new concept. It may be a purely spontaneous discussion resulting from a school incident, a matter of world-wide concern or perhaps a student's personal vignette. The teacher must be competent in the area of the subject he is teaching, able to relate the subject to an interdisciplinary view of it—how have other disciplines worked with the subject? What work of literature has inspired music, opera, modern ballet? How could students relate the writings of an early American to the events of his time and draw a modern parallel in today's society—perhaps the conditions of today, perhaps the writings of a modern author?)

The list below is for the student but the teacher should find the list interesting and challenging for himself. In fact, teachers should really avail themselves of the opportunity to make a slide-tape program, 8mm motion picture or some such production to appraise themselves of the investment the student must make in such an assignment in personal energy—physically, intellectually, creatively, and in personal risk-taking.

Learnings:
  For the students:

    (1) To communicate ideas, thoughts, and feelings.

(2) To implement thinking and organizational skills
    in order to arrange sequence and action in an
    orderly, economic, and logical (though iconic
    display may be mosaic) manner.

(3) To employ visual and verbal imagery that will
    enhance the beauty of the art form being created.

(4) To outline, or to list the actions and/or language
    necessary to make an art form in visual and/or
    verbal language. Music is also a language, of
    course.

(5) To include in the outline, storyboard, shooting
    script, or full script, the information for casts,
    properties, set, sound effects, audio (voice,
    music), cameras, and director and crew.

(6) To make sufficient prediction of time and space
    for production and to make arrangements for that
    stipulated.

(7) To employ vocabulary that offers economy, pre-
    cision, and colorfulness.

(8) To develop coherence throughout the story presen-
    tation, from idea to idea, action to action, visual
    to visual, using imagery (verbal, visual, auditory)
    to foster relationships of ideas, one to another
    and bring the presentation to a satisfactory

conclusion. (A purely linear model is unrealistic for most presentations, however. It is a print concept.)

(9) To strive to gain mastery in writing so that audience attendance is good and interest keen.

(10) To write effectively and imaginatively (avoiding the cliches of daily film and television fare) and to make analogous strides in visual and sound efforts.

(11) To take a critical stance and attain aesthetic distance to make judgments of newly made art forms based on criteria established over the term by the students themselves (by viewing productions, reading, and personal involvement).[1]

(12) To make changes and corrections in order of sequences designed in visual or verbal language, or both, before beginning actual production.

(13) To make changes in original script of cast lists, properties, sets, and sound effects if needed before production begins (although some changes will be found necessary as production progresses).

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[1]Investigator's footnote: Susanne Langer, "A Note on the Film," in Film: A Montage of Theories, ed. by Richard Dyer Mac Cann, A Dutton Paperback (New York: E. P. Dutton & Co., Inc., 1966), p. 200.

"It is too early to systematize any theory of the new art, but even in its present pristine state it exhibits--quite beyond any doubt, I think--not only a new technique, but a new poetic mode. . . . "

(14) To make arrangements for production, cast, crew, properties, set, sound effects, camera, film, tapes, etc. (This involves many skills including the need for budgeting and figuring costs, as well as logistics.)

(15) To operate the cameras, projectors, tape recorder, etc., necessary for full production. Editing and final approval of those involved. To "publish": presenting the finished product for an audience. Evaluation by teacher, audience, and peers.

SLIDE FILM AND TAPE PRESENTATION OF
WILLIAM BLAKE'S BOOK OF URIZEN

The presentation consists of a twenty-seven-minute tape which carries the voice of Joel Plotkin reading The Book of Urizen, Franz Listz's "Mephistopheles" from the Faust Symphony and John Cage's Percussion, seventy-three 35mm slides (eight of these, however, are black slides), and a script. Dr. Elwood E. Miller and Steven Newstat were consultant-photographer and photographer, respectively. Curt McCarty recorded the voice and was the music consultant.

The presentation was carried out in partial fulfillment of requirements for a Reading Course in English (970) and taught by Dr. Roland Duerksen.

The script is prepared in a format designed to be used in the actual audiovisual presentation. A yellow mark (made by a felt pen) signals the proper word that in turn signals a change in slide. Thus, the voice-poetry (tape) with music associatively synchronized with it is the key to the pace and turn of the slides. It is suggested that the slides (which are numbered according to appearance in concordance with the script) be divided so that all even numbers are put in one carousel in consecutive order while the numerically uneven are arranged in similar order in a second carousel and used with a dissolve-unit for the aesthetic effect achieved by a smooth action in the change of slides. If the slides are shown in a single projector, however, regular numerical order will accomplish appropriate placement with the script and tape.

Lyndon B. Preston

William Blake's The Book of Urizen--
An Audiovisual Presentation and
Some Accompanying Notes

Reading the conflicting commentary on William

Blake soon leaves one in despair of ever knowing the

"real" Blake, except that with each reading and accompany-

ing perusal of his art work, one becomes increasingly

aware of new depths and revelations. Making William

Blake's art as well as his poetry available for

greater enjoyment and satisfaction in reading his liter-

ature is important in gaining a true understanding of

Blake. Of course, Blake's work is much more accessible

now due to the efforts of many scholars and interested

persons and particularly the members of the Blake Trust.

The latter organization is devoted to the interests of

preserving existing works, researching new information,

and making, through the medium of exquisite facsimiles

the works of Blake as he originally presented them.

Still, withal, the facsimiles are themselves locked

away in the Rare Book Rooms of university libraries,

public libraries, art museums, private collections and

the like, and really to all intents and purposes, hidden

away from the public in general. This is not to say that

Blake will probably ever be a popular poet-painter in the sense of mass-acceptance, for he is a poet of great intellectual power and depth, consistent and systematic generally in his work but purposely difficult at times for fear of political reprisal during the revolutionary days of his lifetime. His painting is generally esoteric in content. Combined, this is a body of material that requires imagination and thinking to understand its philosophical, political, religious, poetical, and artistic nature.

Blake was not much honored or accepted in his life-time. He really was avant garde and now, some 200 years later, his writings are being probed and printed with new understanding. Formerly enjoying but limited appeal--and that for his lyric poetry admittedly among the best in the English language--the bulk of his serious religious and philosophical literature and his art seemed doomed to only partial display in anthologies for college students. Today, happily, the once obscure Blakean poem "Jerusalem" from Milton is, after 200 years of near silence, being sung lustily in Britain and its creator hailed as poet and prophet of "England's green and pleasant land."[1]

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[1]Geoffrey Keynes, William Blake (1757-1827) (New York and London: Pitman Publishing Corporation, MCMXLIX), p. 3.

> I will not cease from Mental Fight
> Nor shall my Sword sleep in my hand
> Till we have built Jerusalem
> In England's green and pleasant Land.[1]

It is interesting to note also that two leading writers and thinkers of contemporary society have drawn heavily upon Blake for ideas, explanations and in fact, for titles and themes for their books. Aldous Huxley has derived the titles of two books from Blake's work, Heaven and Hell (Blake's The Marriage of Heaven and Hell of course) and The Doors of Perception (Blake's admonition to cleanse the doors or senses of perception that we might perceive). Probably the most controversial and flamboyant philosopher of today, Marshall McLuhan, finds Blake's understanding of man's perceptions complete and correct and certainly ahead of the majority of twentieth century thinkers even today and he uses his lines as the theme of one of his books (The Gutenberg Galaxy).

It is probably Blake's understanding of the psyche of man that really puts him in touch with the twentieth century. Mark Schorer discusses this aspect of Blake and his four-fold vision and its basic modern psychological view described by Jung as thinking, feeling, sensation, and intuition. Blake's four psychic functions named Urizen, Luvah, Tharmas, and Urthona are reason,

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[1]Geoffrey Keynes, Complete Writings of William Blake with Variant Readings (London: Oxford University Press, 1966), Milton, p. 481.

passion, body or sense, and spirit, respectively. In the combination and integration of the four-fold vision one beholds the " . . . whole man, perceiving a total experience."[1] This is the mosaic of perception of which McLuhan also writes.

Blake not only confounded thinkers in the Humanities with his extraordinary visionary insightfulness but his work which he reproduced himself stumped printmakers until 1948 when Hayter, Todd, and Miro patiently experimented until they found at least a reasonable proximity of the method which Blake must have used to produce some poems with illustrations. Joan Miro, artist, and Rutheven Todd together produced some illustrated poems similar to Blake's style of printing.

> The first printmaker who used relief etching extensively was William Blake the great English poet and printmaker of the 19th century. He even devised a very ingenious way of transferring handwritten illustrated poems on metal for relief painting. In Studio Seventeen, the English poet Rutheven Todd etched several of his poems illustrated by Miro with this process.[2]

However, though they succeeded in mimicking his method, it was not the vision and imagination of a single poet-artist! Another tie-in with modern methods in printmaking

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[1]Mark Schorer, William Blake: The Politics of Vision (New York: Vintage Books, 1959), pp. 266-67.

[2]Gabor Peterdi, Printmaking: Methods Old and New (New York: Henry Holt & Co., 1967), p. 138.

finds Blake anticipating the etchers in intaglio color printing. Gabor Peterdi wrote: "Of all the great etchers of the past, only Hercules Seghers and William Blake did any experimentation that directly ties in with the development of contemporary research in intaglio color printing."[1]

It is because of the nature of William Blake, his text, and art that there seemed to be justification in committing his works to the further extension of their structures through media. Media are, in actuality, extensions of our senses. Though McLuhan claims that the media have meaning in themselves (Media Is the Message), still these methods of presentation give an effect which Blake himself understood and promoted and that is of instantaneous and mosaic perception.

While teachers in secondary school and college do include Blake's lyric poems in the regular class work, they do not usually pursue the poet any further and they also apparently do not make a point of studying the art in conjunction with the poetry. While there are some good reproductions of some of the paintings and drawings as far as regular book printing will allow, comparisons of these with many of the facsimiles in the Rare Book Rooms leave much to be desired. Except for those students particularly interested in Blake, motivation to visit the special collections' rooms is fairly rare. Such

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[1]Ibid., p. 170.

visits to the rooms are time-consuming adventures and can be frustrating when only special persons are allowed to enter the sanctum of the vaults to retrieve the desired volumes. In fairness, however, this is done to preserve the few copies turned out at a single printing--in the case of Urizen, Michigan State University has one of 500 copies. The rest of the printing executed by the redoubtable Jura Press is shared by institutions in other parts of the world.

Some studies of multi-modality transmission included in some research in the audiovisual field were searched for possible substantiation of better learning through use of pictures and sound but I am convinced that the aesthetic pleasure derived from viewing Blake is excuse enough for making film of his work available. The research does not cover the area of the affective domain and who will compare the transmission of nonsense syllables with the sense and syllables of William Blake?

It was with great excitement that we first looked at the 35mm slides that were taken of The Book of Urizen in the Rare Book Room at Michigan State University and found them to be clear, colorful, and what seemed to be reasonably close to the color of the facsimiles used in the reproduction. A Nikon F Camera with a Micro-Nikkor Lens was loaded with Type A for photoflood light, Koda-chrome II, Professional film for color slides

(KPA 135-136). A procedure of "bracketing" was employed which is the expedient of using three different light exposures on the camera in order to try to be certain of one set of good pictorial results. The results of this type of copying with the kind of color, paper texture, outline, and artificial lighting (there are no windows in the Rare Book Room, and the photographers felt that natural light would be most effective in getting natural results), defied a prejudgment as to the proper F number to use. The "proper" exposure, in my opinion, should be left to the discretion of the photographer because of differences in light, cameras, and other extenuating circumstances that might exist during the photographing of art work.

An Independent Study: Creative
Writing and Media

Proposal: An experimental class in creative
writing for a technological medium.

Objective: The objective of this independent
study will be to find out how well a group of four or
five college junior or senior English majors, selected
by the English Department, is able to translate its
writing talents into visual and oral expression. The
Professors of the English Department have been asked
to select those from among the talented student writers
whose craftsmanship is of good calibre, and whose interest
in this project will insure the successful pursuit of
its goals. The class will cover a period of five weeks.
No hourly credit will be given.

Portable Television gear, Super-8mm Motion
Picture and 35mm cameras and Audio-tapes will be made
available to the students for the means of self-expression
most suitable to their tastes and interests.

Students will be required to plan and outline
their ideas and submit them to the class instructor
before production can begin.

Finally, a working manuscript and the vehicle(s) for production of it must be fully defined. A finished product is required.

The Use of Media in Teaching:
Student Involvement in
a Special Study

The objective of the independent study was to find out how well a group of four or five college junior or senior English majors selected by faculty of the English Department were able to translate their writing talents into visual and oral expression; to find out what kinds of motivational spin-off and relevance would be found resultant from the opportunity to use these modern tools of communication.[1] The students who were finally selected were Joe Dionne, Allan Crosely, and Joe Heagany. It took some time to get the project under-way and only two members of the class actually partici-pated in the study. The third was unable to partici-pate because equipment and materials were no longer available for the purpose (this student found it neces-sary to be out of town and missed part of the time allotted to the project). Joe Dionne submitted a poem that he felt could be interesting film-fare. His good friend and classmate, Allan Crosely, offered to be the cinematographer. The latter had never done motion

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[1]The original paper submitted in class outlining the project can be found in Appendix I.

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picture photography before. Part of the provisos of participation was a written script based on the original writing--in this case, Joe's poem, "The Circus Disaster of Gloucester Cliffs."

Upon submission of this latter requirement, Joe, Allan, Professor Albert Drake of the English Department, and I met in the Union Grill to discuss present events and coming attractions. All of us were excited and hopeful. A time was set to meet at the Computer Center where we had access to a video tape recorder under the Title VIB Media Institute. While there, we planned to examine the Bolex Super 8 motion picture camera with so many built-in capabilities that our cameraman had only to pull the trigger and hold it steady. The 35mm Nikkermat camera was also discussed and hefted and used for viewing one another, the buildings across the way, etc. The students were considering the idea of using it in combination with the motion picture, for fade-ins, stills, and perhaps titles.

The students left carrying with them their shooting script (which they had submitted and were by now taking a new look at) plans to find costumes, a tent, makeup, and above all, actors! They had talked to their friends to find those who would seem to come across most

"natural and plausible." Their script called for pure fantasy--the achievement of which is quite difficult even with the most sophisticated materials and professionals. Unaffected, unthreatrical people seemed best fitted for such roles according to Joe.

The students who worked with our poet-director, Joe Dionne, and cameraman, Allan Crosely, were earnest, pleasant, and appreciative of the task underway. They represented several disciplines, also several papers due, examinations, travel plans, dates, graduations, et al. Therefore, the shooting schedule was reduced to three days to accommodate all these conditions. One day found a crew successfully finishing up the schedule as set. Another shooting day was rain-cancelled. But finally, the second day was completed and the students returned to their papers due, examinations, etc., etc., etc. The costumes which had been graciously lent by the Theater Department were returned and Joe and Allan among others were graduated from Michigan State University.

This week of June 9, Allan will photograph the titles and make a few still shots. Then, Joe and Allan will edit the entire film. They are eager to finish quickly, yet each is severely critical of himself. They have set high standards of performance for themselves and they hope to produce a respectable art form.

It is interesting to note that *Joe Dionne*, the author of the script, though never a film writer (he has had one play produced in Grand Rapids, Michigan) or director began his task with authority. He directed the crew with courtesy, humor, and firmness. He asked for no suggestions and he was offered few. His ally, Allan Crosely, was friend, confidante, cameraman, and artist-- completely committed to the success of the venture.

The "rushes," unfinished scenes of unedited movie reels, revealed the flavor of the work, some of the techniques, and the beauty of the actors. That this is an amateur production is obvious. Nevertheless, it offers freshness, originality, and drama.

Further, the participants are eager to make more movies. Allan has gone to Martha's Vineyard, his home, where he intends to finish a novel that is centered about that area and he also plans to explore further the medium of motion picture-making with an 8mm camera his father owns. Our recent conversation upon his departure promised several rewards for this writer: a letter from him with some insights into his experiences with more movie-making, some comments on the final edited version of the film completed this past term with Joe, et al., and perhaps some comments on his novel. In regard to the latter, he said he has already begun toying with the idea of relating a few scenes via movies.

It seems obvious with the little exposure these students had to the personal use of media that here is a great virtually untapped source of motivational strategies. Further, and particularly in relation to the language arts which are difficult to the point of defeating to many boys and girls in our educational systems, the opportunity for children to become articulate through means other than the written word in the beginning of their educational lives, may well save them from the disaster of defeat and serve to enhance their native creativity.

As instructional methods are developed in maximal use of media, it seems to me it will be important to exercise caution in imposing too much structure on plans for student use. However, as pointed out by Julian Roberts, " . . . (most) important of all is to face that not-so-impossible dream of having explicit behavioral objectives in mind, the development of behaviors that indicate both cognitive and affective maturation in the individual learner."[1]

Several articles appearing in various publications offer wide evidence of the usefulness of film-making in teaching. The articles point out that such a teaching strategy is having an impact on children of all levels

[1] Julian Roberts, "Three Plus One (An Essay Review)," Educational Forum, XXXIII (November, 1968), 103.

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of schooling involving the teaching of self-expression, composition, and thinking. From the sociological point of view, it is offering new insights into children called the disadvantaged.[1] The January, 1968, issue of _Audio-visual Instruction_ was devoted to media and the humanities. The two quotations following and several others cited throughout the paper give credence to the acceptability of media as a mine, method, and a mode. Some schools are using film to aid in the development of communication. "When we began our work with film three years ago, it was difficult to imagine that third-graders could create their own scenario and shoot a five-minute story on 8mm film using animation with puppets."[2] And, "Film making provides an important aesthetic experience, and prepares the student to be an intelligent consumer of movies, the national folk art, and of visually transmitted information in general."[3]

Though this study involved talented English students and students ready to be graduated from college, still it would seem to me that the success of this

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[1]Don D. Bushnall, "The Educational Advantages of the Poor," _Audiovisual Instruction_ (January, 1968), p. 24.

[2]Kay Vandergrift, "Film Program at Agnes Russell School," _Audiovisual Instruction_ (January, 1968), p. 21.

[3]Don D. Bushnall, "The Educational Advantages of the Poor," _Audiovisual Instruction_ (January, 1968), p. 26.

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venture in capturing the imagination of these students

could be generalized to include students at most any

level of schooling. Perhaps all students would not be

interested in the writing but some would be interested

in this aspect and others would find the technical jobs

exciting while still others might find the performing

arts of acting and dancing more suitable to their tastes.

This method of teaching leaves a wide range of options

for the lucky students whose teachers are able and will-

ing to organize a classroom for diversive and creative

activities.

Perhaps the search for creativity in children

should begin with the finding of teachers willing to

countenance and encourage it.

> Inlow's challenge to produce and encourage more stu-
> dent "rebel in search of the imaginative" (p. 87)
> calls for teachers who "not only remain composed
> (in the face of the rebels), but who actually become
> excited by the unusual." Creativity, then became
> an integrative force in a curriculum designed for
> an open society within the school setting.

And, "(Inlow's book should) be given priority reading for

its strong statement on a much needed subject the comple-

mentary development of the cognitive and affective domains

of the learner, a kind of support of one to the other so

frequently and violently absent from the curriculum of

today's schools."[1] It is indeed encouraging to read

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[1]Gail Inlow, "The Emergent in Curriculum," Edu-
cational Forum (A Review), XXXIII (November, 1968), 107.

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articles which underline the need for aesthetic experiences and learnings in our daily lives.

In considering the factor of visual imagination, students who are unable to verbalize well may find expression in this manner. As has been pointed out at least by implication, there are those who by their very nature are more inclined toward the performing arts, divergency in thinking, or artistic talent. Individual differences, the variety of nature, define as you will, our nature, experiences and abilities seem to conspire to make different kinds of learners and different kinds of "appreciators" of us.

The high literacy of those preparing for a writing career could make a contribution toward Public Television and Films thus upgrading that which we view, leading to the improvement in taste and interest on the part of the general audience. Also, it would be hoped that student and teacher alike would recognize the implications of production of materials not usually available (such as rather esoteric works and limited editions that forbid general circulation of the literature and keeps it either stored away in rare bookroom vaults or perhaps unavailable because it is to be found in only one place (e.g., British Museum, Foreign Libraries, personal collections, etc.). Through the use of various media these hidden works of art can be

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researched, perhaps newly found, brought to light through the work of students using new technological equipment.

Work as we have known it simply will not exist in the near future according to present projections. Man may realize, finally, his ancient desire for leisure time. Technology will have so revolutionized our lives that it will have made the past and present styles of living almost totally changed. The work ethic is attacked today by some modern thinkers and well it should be for the ethic which, while necessary to sustain men under the various cultures and making progress possible, is steadily being accomplished by machines. If this continues, perhaps as much as two-thirds of our society may well be left to fill their days with some activity other than industrial, commercial, business, or other product-oriented work. Lack of creature comforts will no longer create a threat to man's existence and assuming that distribution of goods and services are made to all men to their separate physical needs. This then, leaves men fed and warm. What of his mind? What of his imagination? _Ennui_ or destructiveness could fill his days. However, art and social-mindedness might become important to him and enrich his life. The importance of education is underlined in considering the future. Preparing ourselves to better enjoy the works of man assumes new proportions. Our new-found freedom from former drudgeries

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will leave society for the greater part options for leisure among the arts and sciences. Science is the foundation of and really seems responsible for the opportunity of man's future adventure. The scientist is a creative being and the genesis of his inquiry is imagination. It is his imagination which is basic to the character of man and that of which thinking men have been keenly aware. This then, the imagination, should be fostered in the lives of our children.

THE CIRCUS DISASTER OF GLOUCESTER CLIFFS

1. A live camera is lying in grass, focused across grass (15 sec.)

2. Camera shot of shoes approaching

3. Hands reaching down to pick up camera and face of cameraman

4. General panorama of trees, sky (chaos)

5. Camera shot of action on cliff, span faces and action of assembled actors, trapeze artist, clowns, dancing midgets, naked juggler in distance, calliope and Mozart, peacock strutting, circus tent and props, in front of tent blind woman seated and playing with cards; she holds a cat and on one side a caged bird. SUPERIMPOSE TITLE: THE GREAT CIRCUS DISASTER OF GLOUCESTER CLIFFS

6. Poet standing on rock holding sign. Zoom on sign: I. caught among peonies, dissolve after appropriate time

7. Prisoners walking on path, chained, stooped, painted faces, marching with faces straight ahead . . . long shot

8. Close-up of faces

9. THE DANCE whipping and proding, cruel mouth, black cape . . . close-up shot

10. Various shots of PRISONERS and THE DANCE from various locations as they climb the cliff

11. THE POET with sign: prisoners of the dance, in the blind woman's garden

12. On top of cliff as prisoners ascend

13. Last prisoner holding sign into camera: We moved in that city like dying puddles in the afternoon

14. THE DANCE prods prisoners to assemble around blind woman who remains stoic

15. Sign in grass: <u>She wore shells over her eyes yellow & white button/blinders</u>

16. Close-up of blind woman and shells as company continues action in background as in #5

17. As camera moves for long shot, woman removes shells, motions for prisoners to be seated before her, THE DANCE prods prisoners to be seated

18. Middle prisoner holds sign: <u>Taught us backgammen fed a bird a spaded cat asked us if the rain had erased her name</u>

19. Long shot from either side of river on POET'S BACK, holding sign

20. Short shot from below cliff of POET holding sign

21. Camera moving from POET'S shoulder to words on sign: II. <u>We lived under mushrooms</u>

22. Shot over POET'S shoulder of people in tent, sitting motionless staring at BLIND WOMAN, THE DANCE prods them

23. Sign stuck in grass beside woman: <u>Yellow tents beating from entrance to exit</u>

24. Camera comes outside spans scene in tent centers on guide lines and sign at base of line: <u>Sending spasms through guide lines (anchored veins which took the earth rhythmically) giving the cliffs our bloody mysteries</u>

25. Outside tent prisoner seated around blind woman who is feeding them peanuts out of her sea shells, people grovel for them as she dumps them on heads

26. Prisoner holds up sign which says: <u>The blind woman seats us bringing us gifts, peanut hearts served on her shells.</u> This shot will be at angle where in the background can be seen two clowns swinging from their knees in the trees and leaves

27. Sign on tree: <u>We disassociate with leaves to hear music dissolve into calliope</u>

28. Mozart playing with calliope which has appropriate movements

29. Sign on calliope: The calliope commands these cliffs watching them and see catching destruction forced into tight pipes . . . camera at angle so in background can be seen midgets

30. Midgets doing cartwheels, somersaults, and threating gestures profile of midget's distorted face on grass laying next to sign which reads: Faces that stoop without bending faces that stoop through the mushrooms into myth

31. As midgets move to calliope focus on back of Mozart's back to a card: The midgets play under lights diving into cartwheels mocking our ears into desires

32. Midgets mocking calliope, sign on middle of the calliope: Images bursting from tight pipes

33. Long shot from calliope to tent are where appropriate shot is going on card: Legs halt in peepies (crazy john) the spitting of a spayed cat towards stooping faces (prisoners ignoring whole thing)

34. Camera behind calliope THE DANCE prodding prisoners over to the calliope

35. As prisoners are being seated around the calliope a prisoner holds a sign: To hear music we assume the calliope lengthy shot of prisoners faces as they are put into a trance by the music and movement of the calliope dissolve into one prisoner's face

36. Dream sequence film in appropriate place with appropriate sign

37. Dissolve back in (fading) from prisoner's face all prisoners assume movements of calliope

38. Closeup of blind woman as she surveys scene and smiles she holds sign: To hear music we stoop to shells button/blinders catching destruction

39. THE POET in appropriate position sign: III. The metallic clowns put on the tent with paint and move like drugged fires in agony clowns paint one another in drugged agony

40. Midgets' faces positioned vis a vis with signs tacked on tree: Faces that stooped by burning birch (a bludgeoned nose of an uncle)

41. Shot from top of step ladder leaning down on heads of calliope somehow met picture of sign: the calliope drains the cliffs of the sea packing passion into tight pipes

42. THE DANCE prods prisoners from the calliope to the tree where clowns swing from knees simulating a dance in the trees, hanging from one of the branches as a bone, closeup of bone, also a sign which reads: Trapped in the dance clowns prove the moon a bone distracting us from our jealousy our rejection of faces in leaves bodies entwined in tubers

43. Long shot from distance of prisoners sitting motion-less looking at clowns and theodora who swings then falls into assembled prisoners. All the while pea-cock struts over from somewhere and dances above a writhing theodora . . . sign of Theodora's belly . . . see 43

44. Long shot from tree theodora to naked juggler who does appropriate shot

45. Closeup shot of sign on juggler's concealed ass: Suspended a naked juggler . . . etc., etc.

46. Closeup shot of juggler juggling eggs and dropping them

47. Sign on ground with broken egg on it sign: His eggs wear etc.

48. Back to theodora and assemble troup where writhing and prisoner holds sign to camera: To hear music we disguise etc.

49. Shot of POET with sign: IV. etc. standing near calliope as camera moves around calliope makes appropriate bursting gestures in slow motion camera until finally theodora can be seen in background thrusting off the peacock

50. Sign in grass as camera focus on it but always keep-ing theodora in background: When the calliope burst etc.

51. Midgets roll from top of cliff towards sea

52. Camera focuses on blind woman who dies majestically and horribly sign: Gloucester were an old woman

53. THE DANCE runs over to old woman deserts prisoners. One rises and rips bone from tree and others slowly stand up and disperse into weeds keeping within ten yards. However, while prisoner rips bone from tree it is done in slow motion so can capture picture of sign on bone: Our gift became bones.

54. Sign in foreground as mentioned above: Faces that stopped etc.

55. Prisoners completely disappearing into weeds

56. Span over motionless circus scene and superimpose over this the words: Buried in the dance

57. THE POET on same rock as in beginning long shot closeup shot card: We wear terror to hear music dissolve into poet's face

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Evaluation: Evaluation of the works will be made by the students themselves and, if agreeable and possible, by members of the English and Instructional Development Faculties.

Besides an evaluation of the actual literature (a special use of the word, perhaps, but not without antecedents in Literary History) it would be hoped that some information could be chronicled that would suggest what impact such a strategy of teaching might have on all levels of schooling involving the teaching of self-expression through composition and through multi-imageries in the teaching of English.

Justification: The electronic media command the attention of today's students. Their language (both oral and visual) has become the idiom of the modern student. Therefore, need for general improvement in commercial television and the cinema seems axiomatic, and the high literacy of those preparing for a writing career with extensions of their craftsmanship and interest into media could conceivably help to bring it about.

APPENDIX B

TORRANCE TESTS OF CREATIVE THINKING

VERBAL COMPONENT

TABLE B-1.--Torrance Tests of Creative Thinking, Verbal
Tests: Form A (Pretest) Form B (Posttest) Cell Means.

Variables:	Fluency	Flexibility	Originality
	Pretest		
Control	41.20000	52.40000	50.20000
Experimental	44.40000	54.40000	53.20000
	Posttest		
Control	41.60000	50.20000	48.20000
Experimental	43.60000	51.60000	51.40000

TABLE B-2.--Torrance Tests of Creative Thinking, Matrix
of Correlations with covariates eliminated, Verbal:
Form B (Posttest) Variance and standard deviation
adjusted by N covariates.

Variable:	Variance	Standard Deviation
Fluency-Posttest	27.325626	5.2274
Flexibility-Posttest	69.083466	8.3116
Originality-Posttest	32.755604	5.7233

TABLE B-3.--Torrance Tests of Creative Thinking, Verbal
Dimension-Pretest-A-Posttest-B, Matrix of Correlations
with Covariates Eliminated.

Variable:	Fluency	Flexibility	Originality
		Posttest	
Fluency	1.000000		
Flexibility	0.839695	1.000000	
Originality	0.712507	0.794660	1.000000

TABLE B-4.--Torrance Tests of Creative Thinking, Verbal
Thinking, Verbal dimension, Hypothesis 2.

Source	df	Ms	F	Significance Level
Between	1	12.45	.040	
Within	47	311.25		.8424

APPENDIX C

TORRANCE TESTS OF CREATIVE THINKING

FIGURAL COMPONENT

TABLE C-1.--Torrance Tests of Creative Thinking, Figural
dimension-Pretest A-Posttest B, Cell means.

	Fluency	Flexibility	Originality	Elaboration
Pretest				
Control	42.40000	47.60000	53.60000	45.60000
Experimental	40.63000	46.20000	49.20000	41.60000
Posttest				
Control	37.40000	42.40000	56.60000	38.60000
Experimental	39.20000	44.60000	55.60000	44.20000

TABLE C-2.--Torrance Tests of Creative Thinking, Figural
dimension-Posttest, Standard deviations.

Variable	Variance	Standard Deviation
Fluency-Posttest	76.882965	8.7683
Flexibility-Posttest	120.160690	10.9518
Originality-Posttest	624.837167	24.9967
Elaboration-Posttest	38.414482	6.1979

TABLE C-3.—Torrance Tests of Creative Thinking, Figural dimension-Posttest matrix of correlation with covariates eliminated.

	Fluency	Flexibility	Originality	Elaboration
	Posttest			
Fluency	1.000000			
Flexibility	0.943819	1.000000		
Originality	0.128108	0.121490	1.000000	
Elaboration	0.023674	-0.097044	0.016066	1.000000

TABLE C-4.—Torrance Tests of Creative Thinking, Figural dimension, Hypothesis 2.

Source	df	MS	F	D
Between	1	1775.57	1.572	.2161
Within	47	1129.49		

APPENDIX D

CREATIVE WRITING ACTIVITY

TABLE D-1.--Creative Writing Activity, cell means.

	Idea	Diction	Coherence
		Pretest	
Control	7.894737	7.578949	8.157895
Experimental	7.055556	6.277778	6.944444
		Posttest	
Control	7.736842	7.421053	7.894737
Experimental	7.000000	7.000000	7.111111

The Sample Correlation Matrix shows the variables on the English Writing Activities--idea, coherence, and diction--to be highly correlated.

TABLE D-2.--Creative Writing Activity, sample correlation matrix.

	Idea	Diction	Coherence	Idea	Diction	Coherence
Idea-Pretest	1.000000					
Diction-Pretest	0.846476	1.000000				
Coherence-Pretest	0.862815	0.847035	1.000000			
Idea-Posttest	0.391434	0.529966	0.506243	1.000000		
Diction-Posttest	0.488123	0.621841	0.627300	0.798991	1.000000	
Coherence-Posttest	0.500527	0.623995	0.637113	0.704670	0.815808	1.000000

TABLE D-3.--Creative Writing Activity, least squares
estimates of effects.

	Idea	Diction	Coherence
		Pretest	
Control	7.475146	6.928363	7.551170
Experimental	0.839181	1.301170	1.213450
		Posttest	
Control	7.368421	7.210526	7.502924
Experimental	0.736842	0.421053	0.783696

APPENDIX E

TORRANCE TESTS OF CREATIVE THINKING

TORRANCE TESTS
of
CREATIVE THINKING

by E. Paul Torrance, Ph.D.

DIRECTIONS MANUAL
AND
SCORING GUIDE

Figural Test
Booklet A
Research Edition
December, 1967 Revision

Personnel Press, Inc.

Princeton   *New Jersey*
A DIVISION OF GINN AND COMPANY

TABLE OF CONTENTS

INTRODUCTION

This manual includes directions for administering and scoring the *Torrance Tests of Creative Thinking,* Figural Form A. The figural test is appropriate for use in kindergarten through graduate school. Other tests in this series include an alternate Figural Test, Form B, and two Verbal Tests, Forms A and B. Verbal tests may be used with groups in fourth grade through graduate school and as an individual test in kindergarten through the third grade. For each test there is a manual designated as the Directions Manual and Scoring Guide, containing all information necessary to administer and score the test. A single Norms-Technical Manual, covering all four tests, includes the theoretical and statistical background material underlying testing of creative thinking. It also includes normative information.

Examiners should note that the test booklets are titled *Thinking Creatively With Pictures, Booklet A.* This is the "working title" for the Figural Test, Form A, and it is employed in an attempt to reduce the examinee's perception of being tested when he is confronted with creative thinking materials. Although the booklets will be referred to as "tests" in the manuals and other material designed for the examiner, use of "tests" and testing terminology with the pupils is discouraged.

Examiners not familiar with Dr. Torrance's concepts of creative thinking and its measurement are urged to inform themselves before using this test. Much of this background material is to be found in the Norms-Technical Manual which also includes an extended bibliography of the author's publications. Three especially helpful references follow:

Torrance, E. P. *Guiding Creative Talent.* Englewood Cliffs, N. J.: Prentice-Hall, 1962, Chaps. 2, 3, Appendix.

Torrance, E. P. *Rewarding Creative Behavior: Experiments in Classroom Creativity.* Englewood Cliffs, N. J.: Prentice-Hall, 1965, Chap. 3 and Appendix A.

Torrance, E. P. "Scientific Views of Creativity and Factors Affecting Its Growth." *Daedalus,* Summer, 1965, *94,* 663–681.

PREPARING FOR THE TEST

The figural forms of the *Torrance Tests of Creative Thinking* re-
quire responses that are mainly drawing or pictorial in nature. Use
of the Figural Test batteries is recommended in kindergarten through
graduate school. A small amount of writing is required of the exami-
nees when they are directed to label or name some of the pictures they
have drawn. With children who are not yet writing, this part of the
test is accomplished by the examiner. It is usually desirable to have
one or more assistants available to help with this task when children
in kindergarten or the early primary grades are being tested.

Before administering the tests, the examiner should read com-
pletely through the directions, familiarizing himself with all aspects
of the mechanics of administration. No accessories are required for
giving the figural tests.

Examiners should note that the word "test" has not been used on
the booklet nor in the printed instructions. If the examinees' materials
must be referred to, the use of a word like "booklet" or "exercises" is
suggested. However, if examiners follow the procedures in the section
"Administering the Figural Tests," the proper language and non-test
atmosphere can be developed. It is recommended that, in general, a
game-like, thinking, or problem-solving atmosphere be created. Try to
avoid the threatening situation frequently associated with testing.
Create the expectation that examinees will enjoy the activities and in-
vite them to "have fun." The psychological climate, both preceding
and during the use of the tests, should be as comfortable and stimulating
as possible. The only exception to this principle would be the condi-
tion under which the examiner is conducting some controlled experi-
ment involving stress.

The format of the test booklet was designed deliberately to facilitate
the "warm-up" process necessary for any kind of creative behavior.
The design on the cover consists of apparently unrelated combinations
of elements and usually evokes curiosity, imaginative activity, and
interest. Such a format may strike some test experts as unorthodox and
untestlike. The author, however, considers this feature an essential
part of the testing procedure.

The examiner should also assure that the physical conditions for
testing are good. Make certain that an adequate supply of test book-
lets is at hand, that everyone has a pencil (ordinary pencils will do)
or crayon, that room temperature is as comfortable as weather condi-
tions and existing facilities for the control of temperature and atmos-
phere permit.

Examinees need no equipment other than their booklets and pencils
or crayons. (It is recommended that teachers and examiners follow
whatever is normal classroom policy or procedure in giving pupils
access to boxes of crayons.) Examiners will need a copy of this manual,
a copy of the test booklet for reference, and an accurate timing device,
preferably a stop watch.

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Testing in large groups of combined classes in lunch rooms, auditoriums, and the like should be avoided. In most cases, the usual class size of 15 to 35 is all right. Where practical, however, it is suggested that children in kindergarten through fourth grade be tested in smaller groups. For example, it might be possible to split a class of 30 into two groups of 15 each and test them in different rooms. Or, the testing activity could be alternated with some other activity. It is not necessary to administer the figural form individually to children after they have learned to draw with pencil or crayon.

The actual pupil working time on the figural tests is 30 minutes. To cover preliminary instructions, handing out papers, etc., no less than 45 minutes free of interruptions should be scheduled for the test. Usually, pupil interest in the tests is so high that fatigue is no problem and the entire booklet can be completed in one sitting. Should fatigue become evident, however, the examiner may give the group a short break between any two of the activities in the booklet.

If both the figural and the verbal tests are to be administered, it is recommended that they be accomplished in two different sittings. At the very least, a break should intervene between the two testings.

ADMINISTERING THE FIGURAL TESTS

The following section contains the directions for administering the Figural Tests of the *Torrance Tests of Creative Thinking* battery, including the wording of comments and directions the examiner makes to the pupils. Preliminary comments are enclosed in quotation marks and may be modified somewhat to fit appropriately the special conditions of testing. Specific instructions to pupils for procedures on the three activities of the test booklet are printed in **bold face** type. These instructions in **bold face** should be read from this manual, precisely as written, without modification.

It is realized that slight modifications will always have to be made in administration procedures, depending upon the purposes and conditions of the testing. Since this battery may be used from kindergarten through graduate school, slight modifications have to be made on account of differences in writing ability, vocabulary, and the like. This is especially true of the initial orientation or warm-up. Timing and other instructions given by the examiner, however, should be as uniform as possible. Some workers may want to give more liberal time limits for elementary school children who are handicapped in recording their ideas by limited drawing skills. Such workers, however, should recognize that the norms given in this manual will not be applicable. Changes in time limits may also affect the reliability and validity of the measures but a great deal more developmental work needs to be done before the precise nature of these changes can be determined.

Preliminary Instructions to Pupils

If one of the figural forms is given alone or before the verbal form, an orientation similar to that outlined in the paragraph below should be used. If given after a verbal form, little added explanation or orientation will be needed. The examiner might simply indicate that in the first booklet, pupils had to express their ideas in words. In this booklet, they will express their ideas in other ways.

Before passing out the test booklets, the teacher or administrator should give a brief orientation that will make sense to the particular group, be honest, arouse interest and motivate performance. Some modification of the following might be used:

> "I believe you will have a lot of fun doing the activities we have planned for this period. We are going to do some things that will give you a chance to see how good you are at thinking up new ideas and solving problems. They will call for all of the imagination and thinking ability you have. So I hope that you will put on your best thinking cap and that you will enjoy yourself."

If there are to be successive administrations of the test or an alternate form, it is usually a good idea to set up this expectation even in the initial administration. Successive administrations are frequently planned in experimental programs designed to evaluate the relative

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effectiveness of methods, materials, organizational innovations, and the like, and can be explained along with the purpose of the entire program. An explanation such as the following might be made:

"One of the things we would like to find out is how much you improve between now and later in your ability to think up new ideas, use your imagination, and solve problems. You know, if we wanted to know how much you grow in weight or height during a particular period, we would weigh you or measure your height now and again at the end of that period of time. This is what we want to do regarding your ability to think of ideas. We are going to take a measurement today and another at the end of the school year (quarter, month, etc.). We want to get as accurate a measurement today as we can. So use your best thinking cap and do your best."

Within the context of the situation, the activity should be made as non-threatening as possible, unless some stress factor is a deliberate part of the experimental design.

Specific Instructions for Administering Test Activities

At this point, pass out the booklets. Next, have each individual fill in the blanks at the top of the page quite carefully. Make certain that the year is entered as part of the date so there will be no confusion or needless loss of data in longitudinal studies or studies involving pre-test and post-test designs.

Children in kindergarten and the primary grades will need some help with their writing or spelling. Or, the information on the face of the booklet may be filled in by the teacher or test administrator in advance from the school records and each pupil given his "very own" booklet.

After the identifying information has been provided, read these instructions:

In this booklet are three interesting things for you to do. All of them will give you a chance to use your imagination to think of ideas and to put them together in various ways. In each activity, we want you to think of the most interesting and unusual ideas you can—ideas that no one else in this group will think of. After you think of an idea keep adding to it and build it up so that it will tell the most interesting and exciting story possible.

You will be given a time limit on each activity, so make good use of your time. Work fast but don't rush. Try to keep thinking of ideas, but if you run out of ideas before time is called, sit quietly and wait until you are told to turn to the next page.

If you have any questions after we start, don't speak out loud. Raise your hand and I shall come to your desk and try to answer your questions.

If there are no questions at this point, proceed with the first activity. If there are questions concerning the instructions, attempt to satisfy them by repeating the instructions in words that the person will understand or by elaborating upon the instructions in the printed booklet. Avoid giving examples or illustrations of "model responses." This tends to reduce originality and in some cases it even reduces the number of responses produced. Above all, attempt to maintain a friendly, comfortable, warm relationship with the group.

Ask the class to turn to page 2, Activity 1, PICTURE CONSTRUC-TION. Ask those who can to read the instructions with you, continuing as follows:

Below is a piece of colored paper in the form of a curved shape. Think of a picture or an object which you can draw with this piece of paper as a part. On the back of these shapes you will find a thin layer of paper that can be peeled away. Look. (Examiner demonstrates, holding a test booklet so examinees can watch, how the shape is to be removed from page 2, the protective layer peeled off the back, and the shape affixed to page 3. Examiner should avoid actually placing the shape on page 3 since this could influence the pupils in the positioning of their shapes.)

Now you can stick your colored shape wherever you want it to make the picture you have in mind. Stick yours on the next page where you want it and press down on it. 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 exciting 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 you tell your story. (Examiners and teachers will write down the titles for children who need such help.)

Go ahead with your picture, making it different from anyone else's and making it tell as complete and as interesting a story as possible. You will have ten minutes.

Most examinees will be anxious to begin, so answer questions as expeditiously as possible and permit them to begin working. At the end of about nine minutes, pupils who have not yet entered a title for their drawing on the line at the bottom of page 3 may be reminded that they are to do so and encouraged to accomplish it.

Using a stop watch, allow **TEN MINUTES** before calling time. Ask the group to turn to page 4, Activity 2, PICTURE COMPLETION. Again, ask the group to read the instructions as you read them aloud (except of course with younger children who cannot read):

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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.

All right, go ahead! You will have ten minutes.

If some examinees are upset by the fact that they did not finish, reassure them very simply by saying something like the following:

"I notice that you work in different ways. Some of you finished all ten of your drawings very quickly and then went back and added other ideas. Some of you finished only a few of the drawings but you made each of them tell a very complete story. Continue to work in whatever way is natural and comfortable for you."

Using a stop watch, allow **TEN MINUTES** before calling time. Ask the pupils to turn to page 6, Activity 3, LINES. Again, have the group read the instructions as you read them aloud:

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—wherever you want to in order to make your 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.

All right, go ahead. You have ten minutes.

Although instructions have indicated that the activity includes three pages and instructions are given at the bottom of the page 6 to "go on to next page," some children will not grasp this fact and will ask about it or have to be reminded. This may occur even in testing college students and adults, so be alert to this possibility. Time the Activity very carefully, using a stop watch, if possible.

After **TEN MINUTES**, call time and collect booklets. If the children were unable to write their own titles or labels, be prepared to interview each child briefly to obtain titles or labels. Otherwise reliable scoring will not be possible. It is usually desirable to have one or more assistants available to help with this task, when testing children in the kindergarten and primary grades.

Who Can Score Creative Thinking Tests.

Studies of scorer reliability have shown that individuals specially trained and experienced in the scoring of the *Torrance Tests of Creative Thinking* are capable of scoring them with a very high degree of reliability. To answer the question about the reliability of results derived by *untrained* scorers, an experiment was conducted in which regular classroom teachers and educational secretaries scored tests without benefit of any training other than the study of the scoring manuals. Results available for six teachers and one educational secretary indicate that *when the scoring guide is carefully studied and accepted,* scores of acceptable reliability are obtained. The mean Pearson product-moment coefficients between the scoring of trained scorers and untrained teachers for the figural tests are: fluency, .96; flexibility, .94; originality, .86; and elaboration, .91. The mean reliability coefficients for the verbal tests are: fluency, .99; flexibility, .95; and originality, .91. The results for the one educational secretary are: fluency, .99; flexibility, .98; originality, .76; and elaboration, .87. The lower reliability for originality seems to occur when the scorer rejects the scoring guide and substitutes his own concept of what is original. A more complete analysis of the scorer reliability study will be found in the Norms-Technical Manual.

These findings suggest that it is not necessary to have special training in scoring these tests to assure reliable results. What does appear to be necessary is that the scorer *read and follow the scoring guide as precisely as possible, accepting the standards of the guide as a basis for judgment.*

Procedures for Scoring.

1. Read the scoring guide, noting its organization. If the examiner does not yet have an understanding of the concepts of fluency, flexibility, originality, and elaboration, he should do some supplementary reading * of the rationale of the *Torrance Tests of Creative Thinking.* He should also familiarize himself with the rationale for the three figural test tasks contained in this battery.

2. Reread the scoring guide with a completed record, locating the responses on it in the lists of scoring categories and originality weights. First, however, determine whether the response is scoreable, i.e., has relevance to the test task. No entries or tabulations are made on the scoring worksheets for responses that are considered "not scoreable."

3. Now, the examiner should be ready to begin the scoring. A scoring worksheet (see reproduction, page 40) has been designed to

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* Reading the introductory sections of the Norms-Technical Manual is especially recommended. See also publications listed in the Introduction of this manual and in the extended bibliography of the Norms-Technical Manual.

reduce the amount of time required to score a test and to increase the reliability of scoring. After entering the desired identifying information, it is suggested that he proceed as follows:

Step 1. Scoring Picture Construction Activity. Determine from the Scoring Guide the originality weight for the response and place this score in the box labeled "Orig." under "Activity 1." Next, determine the elaboration score and place this number under the "Elab." column for "Activity 1."

Step 2. Scoring Picture Completion. Using the Guide, determine the originality weight and flexibility category for the first response and enter these numbers in the "Categ." and "Orig." columns under "Activity 2." If the response is a zero or one-credit response, the flexibility category will be found in parentheses at the left of the response as listed in the originality scoring guide. It will be necessary to find the category of the two-credit responses in the list of flexibility categories. Now, determine the elaboration score of the first response and enter it in the "Elab." column under "Activity 2." Continue in this way for each scoreable response in Activity 2. To indicate omissions enter a dash in the appropriate blanks.

Step 3. Scoring Parallel Lines. Using the Guide, determine for each scoreable response the flexibility category, the originality weight, and the elaboration score and record in the appropriate boxes of the scoring worksheet. It is suggested that the examiner start with the guide for scoring originality. In this guide, the most frequent responses are listed alphabetically with both their originality weights and flexibility categories. It is then an easy matter to look up the category numbers of the less frequent or three-credit responses.

Step 4. Summarizing the Results. The examiner is now ready to summarize his scoring in the "Score Summary" box on the right side of the scoring worksheet. Since there is only one response for Activity 1 and it is not scored for flexibility and fluency, simply transfer the originality and elaboration scores to the score box, entering them in the "Orig." and "Elab." columns for "Act. 1." The fluency score for Activity 2 can be read directly by noting the marginal number adjacent to the last response, if there were no omissions or unscoreable responses. Otherwise, it will be necessary to count the number of scoreable responses. To determine the flexibility score, strike out category duplications under the "Categ." column and count the remaining responses. To obtain the originality score, simply add the weights recorded in the "Orig." column under Activity 2. The elaboration score is obtained in the same manner. The scores for Activity 3 are determined in the same manner as for Activity 2. The bonus points for originality awarded for combining two or more figures in Activity 3 should be added in with the other originality credits. The procedures for awarding bonus credits are described on page 30–31.

Now the examiner should be ready to compute the totals for each of the four columns of the "Score Summary" box. These are the raw

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scores for fluency, flexibility, originality, and elaboration for the Figural test. In many cases one will not need to go further. For certain purposes, however, the examiner will want to convert the raw scores to standard scores or T-scores.* This should be done whenever he finds it necessary to combine scores for some kind of composite or total score, whenever he wants to determine the relative strengths of the four kinds of ability (fluency, flexibility, originality, and elaboration) of a given individual or group, or whenever he wants to compare an individual's performance with some of the comparison groups for which data are given in the technical manual. The data for converting raw scores into standard (T) scores are included in the Norms-Technical Manual.

4. Both immediately and from time to time, the examiner will want to obtain some indication of the reliability of his scoring. If possible, he should have someone else score four or five of the same records he has scored and then discuss any discrepancies. Then, with a sample of 20 to 40 records, he might want to compute reliability coefficients † for each of the four scores. Another useful kind of reliability check is to rescore a set of tests after a lapse of one or more weeks. If the scoring worksheets are used, these kinds of checks will be easy.

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* See standard statistics or tests-and-measurement text for explanation of these scores.

† This coefficient is found by computing the correlation between the scores found by two scorers on the same set of tests. Most statistics texts explain the computational methods.

SCORING GUIDE FOR THE FIGURAL TESTS, FORM A

Each of the three tasks will be scored for *originality* and *elaboration* and Picture Completion and Parallel Lines will be scored also for *fluency* and *flexibility*. The pages that follow contain the guides for determining these scores.

Activity 1: PICTURE CONSTRUCTION

Originality

The scoring guide for originality on the Picture Construction Test is based on the responses of 381 subjects ranging from kindergarten through high school. Scoring is accomplished on a scale ranging from zero to five according to frequency of occurrence in the 381 records analyzed. Responses occurring on five per cent or more of the records receive no credit. Other obvious responses such as "tear drop," "blob," "pear," and the like are also scored zero. Responses occurring in from 4.00 per cent to 4.99 per cent receive one point; responses found in 3.00 to 3.99 per cent of the records are scored two; those occurring in 2.00 to 2.99 per cent of the cases are awarded three credits; those found in from 1.00 to 1.99 of the records receive four credits. All other responses showing imagination and creative strength are credited with five points. The guide given below lists the responses falling in each of the first five categories, but the responses falling in the sixth category are relatively unique and numerous and no listing is attempted.

NOTE: The concept of "creative strength" is an important one and the examiner should attempt to master the idea well. Possibly the best way to accomplish this is to study the originality weights assigned responses for the various activities in the scoring guide, noting the differences between examples of zero-credit (not original) and one- or two-credit responses which are the ones showing creative strength. It may also prove helpful to think of responses showing no creative strength as being characterized by requiring little intellectual energy; that is, little intellectual energy is necessary to give obvious, common, and learned responses. In contrast, more intellectual energy is required to give responses characterized by being beyond what is learned, practiced, habitual, and away from the obvious and commonplace. Hence, these latter kinds of responses are thought of as "showing creative strength."

Zero Credit (5% or more of responses)

Easter egg
Egg (not Easter)
Man (all kinds not from outer space)

One Credit (4% to 4.99%)

Bunny (Rabbit)
Monster, including Frankenstein, Dracula, etc.
Rabbit

Two Credits (3% to 3.99%)

Man from outer space, including Martians, Moon Men, etc.

Three Credits (2% to 2.99%)

Balloon (s)
Bird (s)
Clown
Easter basket
Girl
Horse

Four Credits (1% to 1.99%)

Bug
Cat
Chicken
Flower, including flower in pot
Humpty Dumpty or Mrs. Humpty Dumpty
Rain drop
Rocket
Spaceship, Sputnik
Turtle

Five Credits (Less than 1%)

All other responses showing imagination and creative strength.

Title Originality (Optional. May be counted as a part of the Verbal Score.*)

The titles are evaluated on a scale ranging from zero to three on originality or cleverness according to the following criteria:

0   Obvious class titles, such as "Man," "Egg," "Rabbit," etc.

1   Simple descriptive title at a concrete level, involving a modifier plus a class, such as "Man with a Big Ear," "A Speckled Egg," "An Easter Rabbit," etc.

2   Imaginative, descriptive title in which the modifier goes beyond concrete, physical description, such as "Uncle John's Frozen Ear," "The Speckled Egg of Mars," "The Rabbit that Tricked Uncle Remus," etc.

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* See the Norms-Technical Manual for an explanation of this point.

3 Abstract but appropriate title, going beyond what can be seen
and telling a story, such a "Mighty Giovanni of the Frozen
Alps," "A Bird in a Cage with a Thousand Eyes," "Princess
Mona's Golden Bunny," etc.

Elaboration

Two assumptions underlie the scoring of elaboration for the Picture
Construction Test. The first is that the minimum and primary response
to the stimulus figure is a single response. The second is that the
imagination and exposition of detail is a function of creative ability,
appropriately labeled elaboration.

Therefore, in scoring elaboration, credit is given for each pertinent
detail (idea) added to the original stimulus figure itself, to its bounda-
ries and/or to the surrounding space. However, the basic response
itself must be meaningful before elaboration has any worth, or can
be scored.

One point is given for:

1. Each essential detail of the total response, but once that class of
detail is scored, further evidence of the same class is not counted.
(In other words, each additional idea that contributes to the
story the picture tells is credited with a point, but the repetition
of an idea does not count.)

2. Color, when it adds an idea to the basic response.

3. Deliberate shading (not just going over the lines again).

4. Decoration, only when meant as such.

5. Each major variation (not of quantity) of design which is mean-
ingful with reference to the total response.

6. Each elaboration in the title beyond the minimum descriptive
label.

If a line breaks one part of the picture into two, count the two parts.
If the line has meaning (e.g., belt, cuff, seam, neck scarf, window piece,
etc.) give an additional point for that item.

The following examples of three levels of elaboration are offered
as illustrations:

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Example 1

—✳ stem
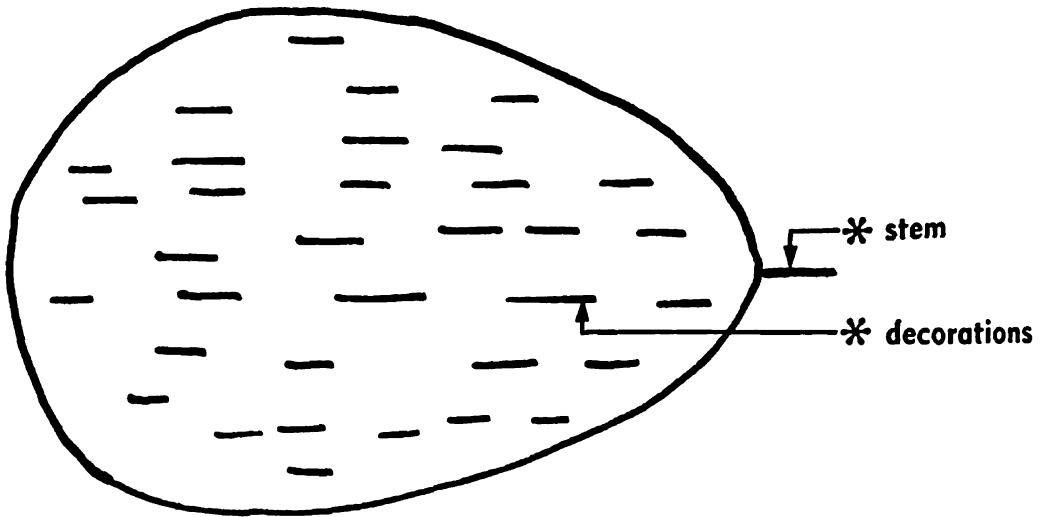
—✳ decorations

Title: Pear   Points shown by asterisk (*).   Elaboration Score: 2

Example 2

✳ ears

✳ mouse

✳ tail

✳ holes in cheese

✳ cheese crust

✳ thickness of cheese
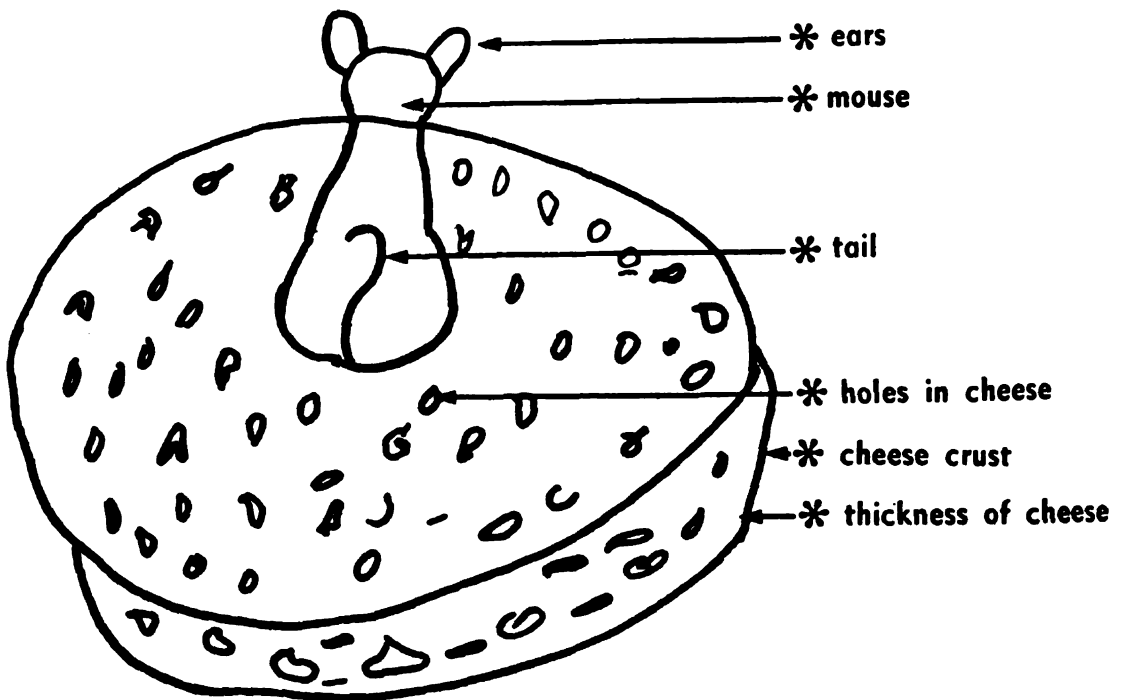
Title: A Fat Mouse in Cheese Heaven   Elaboration Score: 8

Note: The basic object is the block of cheese made from the stimulus. Credit is for ideas added to basic object.

Example 3

* nut
* eye
* eyebrow
* ear
* upraised paw
* tail
* second squirrel
* nut supply
* tree
* bark or decoration
* nuts
* root
* grass
* stem
* leaf
* veins of leaf
* leaf from different tree
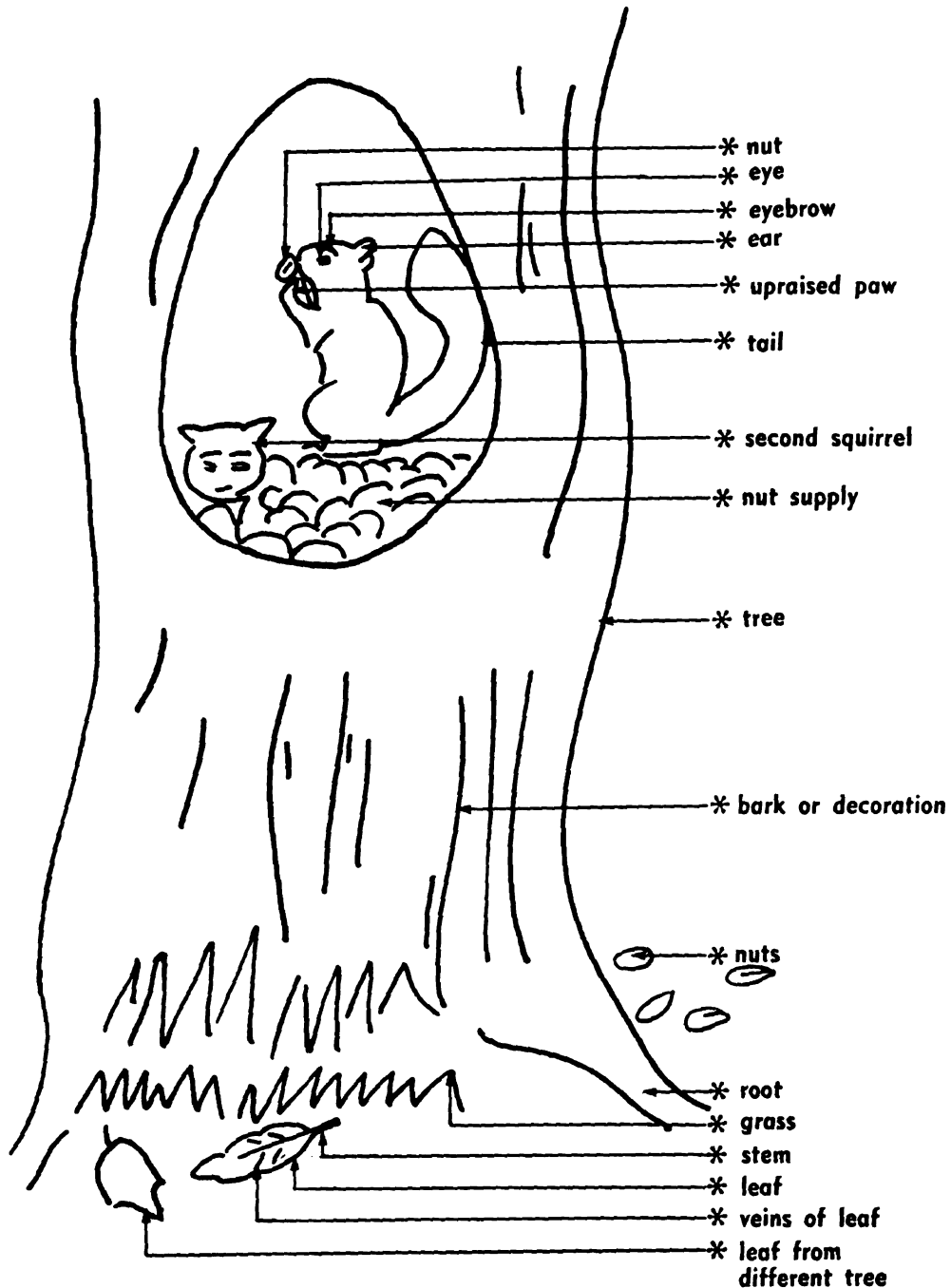
Title: Fall Festival in Squirrel Land

Elaboration Score: 19

Note: The basic response here is the Squirrel Hole or Nest.

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Activity 2: PICTURE COMPLETION

Fluency

The fluency score for Picture Completion is obtained by counting the number of figures completed. The maximum score is 10.

Flexibility

The flexibility score is obtained by counting the number of different categories into which the responses fall. Both the drawing and the title must be used in determining the category. Below is a list of categories that will best fit approximately 99 per cent of the responses given. New categories should be created for responses which cannot be classified into any of the categories listed here. This may be indicated on the scoring worksheet by "X1" for the first new category created, "X2" for the second new category, etc. Rarely should this be necessary, however. (These category numbers accompanying the zero and one-credit originality responses may be entered on the scoring worksheet at the same time originality weights are determined. The category number of the two-credit responses can then be looked up in the list below.)

1. **ACCESSORIES**: bracelet, crown, glasses, hat, monocle, necklace, purse, etc.

2. **AIRCRAFT**: airplanes, bombers, jets, rockets, space ships, etc.

3. **ANGELS**: other heavenly forms, including angel wings.

4. **ANIMAL**: including animal faces and heads: ape, bear, bull, camel, cat, crocodile, dog (including specific breeds, such as French Poodle, Collie, etc.), deer, elephant, frog, goat, horse, lion, mouse, pig, snail, etc.

5. **ANIMAL TRACKS**

6. **BALLS**: baseball, basketball, beach ball, football, mud ball, snow ball, etc.

7. **BALLOON**: singly or in bunch

8. **BIRD, FOWL**: chicken, crane, duck, flamingo, hen, peacock, penguin, sea gull, swan, turkey, woodpecker, etc.

9. **BOAT**: canoe, house boat, sail boat, ship, etc.

10. **BODY PARTS**: bone, ear, eye, feet, hands, heart, lips, mouth, nose, tongue, etc.

11. **BOOK**: singly or in case, magazines, newspapers, etc.

12. **BOX**: including packages, gifts, presents, etc.

13. **BUILDING**: apartment house, bee house, animal house, church, hotel, house, oriental house, pagoda, temple, etc.

14. **BUILDING MATERIAL**: brick, lumber, pipe, stone, etc.

15. **BUILDING, PARTS OF**: door, floor, walls, roof, window, etc.

16. **CAMPFIRE**

17. **CANE**: candy cane, walking cane, etc.

18. **CAR**: automobile, racer, tractor, truck, etc.

19. **CLOTHING**: bathing suit, blouse, coat, dress, hat, pants, shirt, shorts, skirt, etc.

20. **CLOTHES LINE**: washday and similar uses of clothes lines

21. **CLOUD**: any type of cloud or cloud formation, sky, etc.

22. **CONTAINER**: barrel, box, can, hat box, jug, tank, etc.

23. **CROSS**: Christian Cross, Red Cross, etc.

24. **DESIGN OR DECORATION**: any type of abstract design which cannot be identified as an object, mess, modern art, ribbon bow, etc.

25. **EGG**: including Easter egg, fried eggs, egg characters such as Humpty Dumpty, etc.

26. **ENTERTAINMENT**: circus, dancer, ringmaster, singer, etc.

27. **FISH AND SEA ANIMALS**: gold fish, guppies, whale, etc.

28. **FLOWER**: cactus, daisy, tulip, etc.

29. **FOOD**: bread (loaf), cake, candy, donut, hot dog, hamburger, ice cream, lollipop, marshmallow, nuts, sucker, toast, etc.

30. **FOOTWEAR**: boots, slippers, shoes, etc.

31. **FRUIT**: apple, banana, bowl of fruit, cherries, grapes, lemon, orange, pear, etc.

32. **FURNITURE**: bed, chair, desk, table, TV, etc.

33. **GEOGRAPHY**: beach, cliff, lake, mountain, ocean, river, volcano, waves, etc.

34. **GEOMETRIC FORMS OR DESIGNS**: circle, cone, cube, diamond, square, rectangle, triangle, etc.

35. **HEAVENLY BODY**: Big dipper, constellation, eclipse, moon, star, sun, etc.

36. **HOUSEHOLD ITEMS**: bowl, broom, brush, coffee pot, clock, coat rack, dipper, hanger, tea cup, tooth brush, silverware, etc.

37. **HUMAN BEING, HUMAN FORM**: including human faces, person, specific person such as Mitch Miller, Zsa Zsa Gabor, etc., cowboy, etc.

38. **INSECT**: ants, bee, beetle, bug, butterfly, caterpillar, firefly, flea, fly, praying mantis, spider, tarantula, worm, etc.

39. **KITE**

40. **LADDER**

41. **LETTERS**: of alphabet, singly or on blocks

42. **LIGHT**: candle, flood light, lamp, lantern, electric light, magic lamp, etc.

43. **MACHINE**: coke machine, robot, reducing machine, etc.

44. **MUSIC**: band instruments, bells, cymbal, drum, harp, music stand, musical notes, piano, treble clef, violin, stem of violin, whistle, etc.

45. **NUMERALS**: singly or on blocks

46. **OFFICE AND SCHOOL SUPPLIES**: envelope, paper, paper-weight, paper clip, notebook, etc.

47. **PLANT**: grass, shrubbery, etc.

48. **RECREATION**: fishing pole, tennis, Ferris wheel, slide, swing, surf board, roller coaster, swimming pool, ski jump, etc.

49. **ROAD AND ROAD SYSTEM**: bridge, highway, road, road map, turnpike, etc.

50. **ROOM OR PART OF ROOM**: floor, corner of room, wall, etc.

51. **SHELTER (not house)**: farm shed, fox hole, tent, tepee, etc.

52. **SNOWMAN**

53. **SOUND**: radar waves, radio sound waves, tuning fork, etc.

54. **SPACE**: space man, launching pad, rocket man, etc.

55. **SPORTS**: baseball diamond, goal post, race, race track, etc.

56. **STICK MAN** (see HUMAN FORM: do not use a new category)

57. **SUN AND OTHER PLANETS** (See HEAVENLY BODIES, not a new category)

58. **SUPERNATURAL BEINGS**: Aladdin, devil, ghost, Dracula, fairy, Hercules, monster, outerspace creature, witch, etc.

59. **SURFACE TRANSPORTATION** (See CAR: not a new category)

60. **SYMBOL**: badge, flag, question mark, Zorro's mark, etc.

61. **TIMER**: sand clock, hour glass, sundial, etc.

62. **TOOL**: axe, claw hammer, hammer, rake, etc.

63. **TOY**: jack-in-box, puppet, rocking horse, yo-yo, etc.

64. **TREE**: All kinds of trees, Christmas tree, holly tree, etc.

65. **UMBRELLA**

66. **WEATHER**: lightning, rain, rainbow, rain drops, snow storm, tornado, etc.

67. **WEAPON**: bow and arrow, cannon, gun, rifle, slingshot, etc.

68. **WHEELS**: inner tube, tire, cart wheel, wheel, etc.

Originality

The guide for scoring originality is based on a tabulation of the responses submitted by 381 subjects from kindergarten through high school. A separate guide has been prepared for each of the ten figures, since each tends to elicit different common responses. Zero and one-point responses are listed below. All other responses showing imagination and creative strength will be awarded *two points*. To facilitate scoring for flexibility, the category number has been placed in parentheses at the left of each response.

FIGURE 1
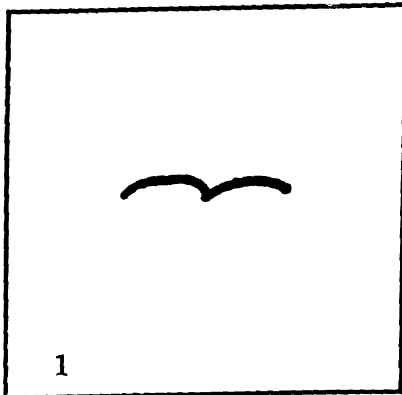
Zero points (5% or more of responses)

- (8) Bird, flying
- (37) Man (earth)
- (8) Sea gulls

One point (2% to 4.99%)

- (37) Boy
- (21) Cloud
- (37) Girl
- (1) Glasses
- (37) Face or head
- (28) Flower
- (10) Heart
- (37) Lady or woman
- (58) Monster, Dracula, Frankenstein, etc.
- (58) Man from outer space, including Mars, moon, Pluto, etc.

Two points (less than 2% of responses)

Other responses showing creative strength. Look up category in list.

FIGURE 2
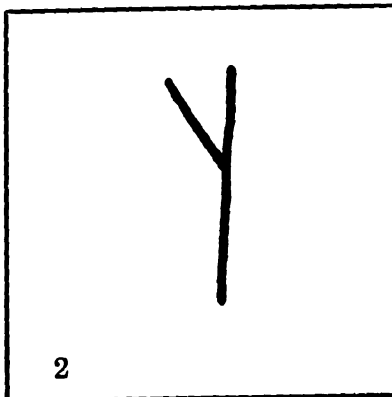
Zero points (5% or more of responses)

- (13) House
- (37) Human body
- (64) Tree
- (41) Y (letter)

One point (2% to 4.99%)

- (37) Boy, man
- (16) Campfire
- (20) Clothes line
- (24) Design
- (37) Face, human
- (28) Flower
- (37) Girl, woman
- (67) Sling shot

Two points (less than 2% of responses)

Other responses showing creative strength. Determine category from list.

FIGURE 3
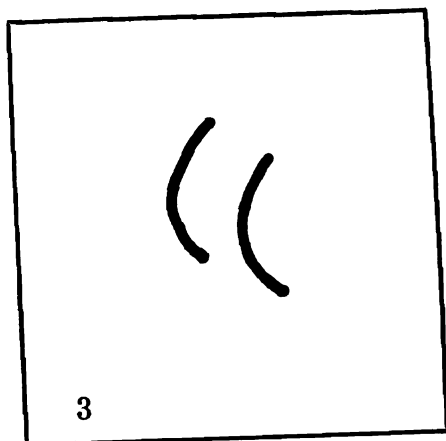
Zero points (5% or more of responses)

None

One point (2% to 4.99%)

(31) Banana
(67) Bows and arrows
(37) Boy
(10) Eyes, including big or popping eyes
(37) Girl
(37) Man, earth
(58) Man, outer space, including Mars, moon, etc.
(48) Slide
(58) Two-headed monster, two faces, twins
(37) Woman

Two points (less than 2% of responses)

Other responses showing creative strength. Look up categories in list.

FIGURE 4
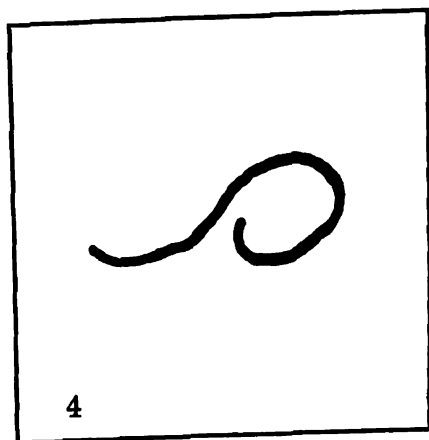
Zero points (5% or more of responses)

(4) Dog
(37) Face, human (woman, man, boy, girl, etc.
(37) Girl, woman
(4) Horse, flying horse, sick horse, etc.
(4) Snail
(38) Worm

One point (2% to 4.99%)

(8) Bird
(42) Candle
(24) Design
(8) Duck
(27) Fish
(1) Glasses
(58) Monster
(X) Smoke
(33) Waves

Two points (less than 2% of responses)

Other responses requiring creative strength. Check list for categories.

FIGURE 5
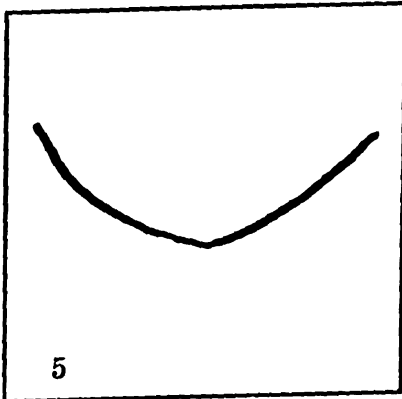
Zero points (5% or more of responses)

(9) Boat, sail
(36) Bowl, fruit bowl
(37) Face or head
(48) Hammock

One point (2% to 4.99%)

(37) Boy, including happy or smiling boy
(31) Banana
(25) Egg, Easter egg, egg out of shape, etc.
(37) Girl, funny girl, girl with string, etc.
(13) House, home
(37) Man, various types
(10) Smile
(9) Ship

Two points (less than 2% of responses)

Other responses requiring creative strength. Look up categories in list.

FIGURE 6
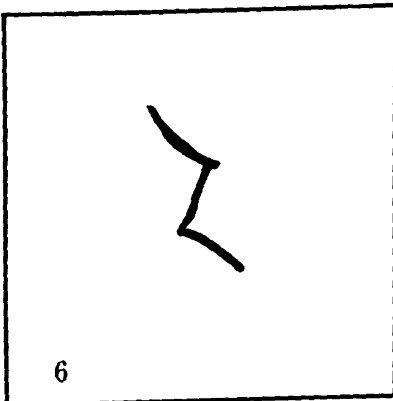
Zero points (5% or more of responses)

(37) Face, girl or woman
(37) Face, boy or man
(13) House, including floating house, etc.
(15) Stairs
(41) Z

One point (2% to 4.99%)

(37) Boy, man
(32) Chair
(24) Design
(37) Figure, figure jumping, walking, etc.
(39) Kite
(66) Lightning
(33) Mountains, hills
(64) Tree
(60) Zorro's sign, Zorro's cape, etc.

Two points (less than 2% of responses)

Other responses requiring creative strength. Determine category from list.

21

FIGURE 7

Zero points (5% or more of responses)

- (18) Car
- (36) Dipper
- (X) Key
- (60) Question mark (?)

One point (2% to 4.99%)

- (37) Figure, male
- (1) Pipe
- (26) Spoon

Two points (less than 2% of responses)

Other responses requiring creative strength. Look up categories in list.

FIGURE 8
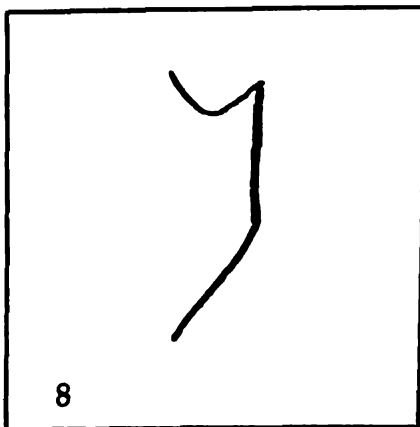
Zero points (5% or more of responses)

- (37) Boy, boy engaged in different activities
- (37) Man, stick

One point (2% to 4.99%)

- (19) Dress
- (37) Girl, including stick girls
- (37) Lady, maid, woman
- (37) Man, earth types but not stick
- (58) Man, outer space, Martians, Moon Men, etc.
- (2) Rocket
- (67) Shield
- (64) Tree

Two points (less than 2% of responses)

Other responses requiring creative strength. Look up categories in list.

FIGURE 9

9
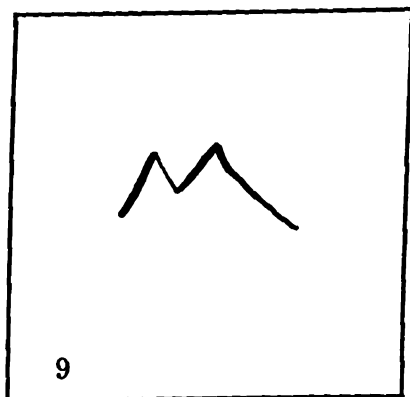
Zero points (5% or more of responses)

(41) M (letter)
(33) Mountains

One point (2% to 4.99%)

(4) Cat, cat face
(37) Face, human, including faces with distorted features
(37) Figure, human
(27) Fish

Two points (less than 2% of responses)

Other responses requiring creative strength. Check list for categories.

FIGURE 10

10
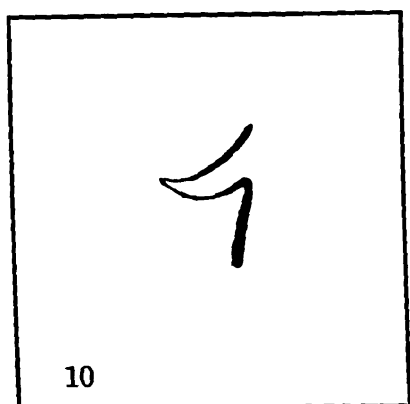
Zero points (5% or more of responses)

(8) Duck
(37) Face, human (man, woman, boy, girl)
(64) Tree

One point (2% to 4.99%)

(8) Bird
(8) Bird's head
(4) Dog
(37) Figure, human (man, woman, boy, girl)
(58) Witch
(8) Woodpecker

Two points (less than 2% of responses)

Other responses showing creative strength. Look up categories in list.

Title Originality (Optional. May be counted as part of Verbal Score —See Norms-Technical Manual)

The originality and cleverness of each title is scored according to the criteria outlined for scoring this aspect of performance on the Picture Construction task. The following examples of title for some of the common responses to Figure 1 will illustrate the scoring scheme:

0   Obvious class titles, such as "Bird," "Man," "Cloud," "Flower," etc.

1   Simple descriptive titles at a concrete level, involving a modifier plus a class, such as "Flying Bird," "Dancing Man," "Pink Cloud," "Tulip," etc.

2   Imaginative, descriptive title in which the modifier goes beyond concrete, physical description, such as "Swallows of Capistrano," "Babyless McGraw," "A Cloud Without a Silver Lining," "An Umbrella for a Grasshopper," etc.

3   Abstract but appropriate title, going beyond what can be seen and telling a story, such as "The Original Wings Over the World," "King of Hearts in Loveland," "Angel's Launching Pad," "Weeping Flowers of the Valley of Sorrow," etc.

Elaboration

The elaboration score for Incomplete Figures is obtained in the same way as the elaboration score was obtained for Picture Construction. The following three examples of responses to Incomplete Figure 1 will illustrate the rules outlined under Picture Construction, Elaboration:

Example 1

Title: Heart
Elaboration Score: 0

Example 2
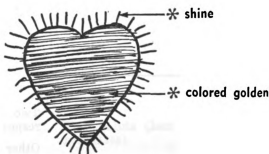
Title Heart of Gold   Elaboration Score: 3

24

Example 3

* mouth parts
* knob on feeler
* feeler (antenna)
* circle spot
* circle within circle
* division between wings

* dot pattern, lower wing
* deliberate shading, abdomen
* deliberate shading, wing
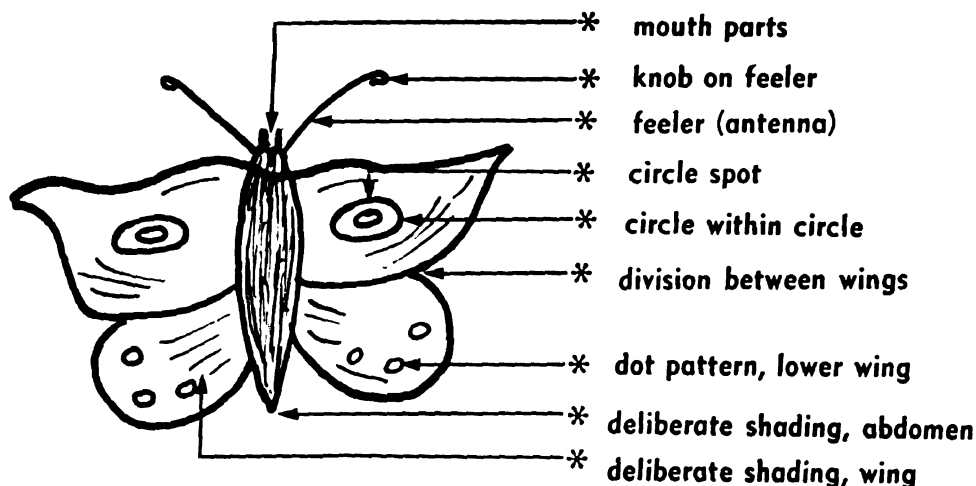
Title: The Two-Eyed Butterfly   Elaboration Score: 10

Activity 3: PARALLEL LINES

Fluency

Before beginning the scoring of the Parallel Lines Test, it is important that checks be made for repetitions and relevancy and that these responses be eliminated from consideration in all scoring. A relevant response is defined as one which contains or makes use in some way of the parallel lines (the stimulus element of the task). Responses which duplicate or repeat an earlier credited response are also eliminated.

The fluency score is simply the number of responses minus the number of duplications and irrelevant responses.

Flexibility

The flexibility score is obtained by counting the number of different categories into which the subject's responses can be classified. The following categories were derived from the responses of 381 subjects from kindergarten through high school. In cases where responses cannot be classified into any of the categories listed below, new categories should be created. They may be indicated on the scoring worksheet by "X1" for the first new category, "X2" for the second new category, etc. Rarely should this be necessary since these categories cover over 99 per cent of the responses given by the 381 subjects.

1. **AIR TRAVEL**: airplane, space ship, cone of space craft, airport, helicopter.

2. **AIR WEAPON**: arrows, atom bombs, bombs, rockets, etc.

3. **ALPHABET**: All letters of the alphabet—A, B, C, D, etc. and combinations of letters, such as IT.

4. **ANIMAL OR ANIMAL PART**: antlers, bat, cat, claws, dog, dog's face, donkey, elephant, giraffe, rabbit, horse, lion, monkey, mice, octopus, porcupine, pig's face, turtle, tiger, etc.

5. **APPAREL**: belt, boot, bow tie, coat, dress, button, hat, necktie, pants, shirt, shoe, skirt, shoe lace, socks, shorts, top hat, etc.

6. **ART AND ART MATERIALS**: art set, crayon, drawing board, design, Indian design, abstract design, modern art, paint, picture, etc.

7. **AUTOMOBILE ACCESSORIES**: inner tube, wheels, horn, etc.

8. **BODY OR BODY PART**: arm, ear, eye, face, figure, feet, bone, brain, legs, hair, hand, mouth, head, nose, male figure, female figure, teeth, torso, etc.

9. **BOOKS**: Bible, books, back of book, page of book, dictionary, library, newspaper, etc.

10. **BUILDING**: bank, barn, apartment house, capitol, ancient ruins, church, cabin, bird house, dog house, Empire State Building, Rand Tower, hotel, home, hut, house, skyscraper, fire house, gas station, garage, fort, igloo, lighthouse, London Tower, motel, palace, post office, restaurant, temple, train station, Taj Mahal, White House, etc.

11. **BUILDING ATTACHMENTS AND ACCESSORIES**: elevator, fence, gate, key hole, latch, mailbox, outhouse, smoke stack, swinging door, steeple, water hose, windmill, well, etc.

12. **BUILDING MATERIALS OR EQUIPMENT**: bricks, lumber, pole, steam shovel, stones, etc.

13. **BUILDING PART**: ceiling, chimney, door, fireplace, floor, roof, steps, stairs, window, etc.

14. **CLOCKS AND OTHER DEVICES FOR MEASURING TIME**: Big Ben, calendar, calendar clock, hour glass, sand clock, sundial, timer, etc.

15. **CONTAINERS**: bag, barrel, basket, bottle, box, bucket, cage, can, cereal box, cup, flour bag, flower pot, fish bowl, gas tank, garbage can, fruit jar, jar, lunch box, mug, pail, purse, shoe box, tank, trash can, trunk, etc.

16. **DECORATION**: bow, bunting, Indian headdress, ribbon, etc.

17. **DRINK**: beer, coke, milk, water, etc.

18. **FISH AND FISH COLLECTIONS**: aquarium, fish, sardines, tank of fish, etc.

19. **FLOWER**: flower, tulip, etc.

20. **FOOD**: breakfast, brownie, candy, cereal, cake, cheese, carrot, cookie, egg, fudge, groceries, hot dog, ice cream, lollipop, loaf of bread, lunch, mushroom, nuts, pie, popsicle, popcorn (box of), peanut butter, pickle, sizzling bacon, snack, soda, sandwich, suckers, sundae, sugar cane, shish-kabob, etc.

21. **FOWL**: bird, chicken, duck, flamingo, etc.

22. **FRAME**: picture frame, etc.

23. **FRUIT**: banana, raisin, tray of fruit, mango, etc.

24. **FURNITURE**: bed, bureau, chair, chest of drawers, cot, crib, cupboard, desk, desk top, ice box, Navy bunks, safe, table, etc.

25. **GAMES**: checkers, crossword puzzle, dominoes, Chinese game, hop scotch, pick up sticks, tag, tick-tack-toe, etc.

26. **GEOGRAPHY**: aerial view, crater, lake, lava, lover's leap, map, mountains, pyramid, river, road map, Bering Strait, seascape, volcano, waterfall, etc.

27. **GEOMETRIC SHAPES**: cube, cylinder, diamond, magic square, rectangle, square, semi-circles, etc.

28. **HEAVENLY BODIES**: comet, solar system, stars, etc.

29. **HOUSEHOLD ITEMS** (excluding furniture): bathroom scales, brush, bowl, broom, cookie jar, coat hanger, coffee pot, fly swatter, fork, heater, kettle, knife, mat, matches, mop, needle, oven, pan, play pen, pepper shaker, pot, refrigerator, rug, saucer, salt shaker, shower curtains, stool, shelf, stove, silverware, sink, soap, spool of thread, sprinkler, table mat, thread, teapot, tub, thermostat, utensils, vase, waste basket, washboard, etc.

30. **HUMAN BEINGS**: boy, clown, Chinese, children, cook, doctor, dancing girls, dunce, fireman, fisherman, girl, giant, Indian, Jew, lady, man, men, human figure, twins, woman, etc.

31. **INSECTS**: bee, bug, butterfly, spider, spider web, vampire, etc.

32. **LADDER**: house ladder, ladder, step ladder, etc.

33. **LEATHER GOODS**: billfold, brief case, luggage, etc.

34. **LIGHT**: candle, candlelight, lamp bulb, light, light switch, lighter, spotlight, street light, etc.

35. **LINEN**: table cloth, sheet, towel, etc.

36. **MACHINES**: camera, coke machine, cash register, computer, crane, dryer, electronic brain, mechanical man, robot, time machine, washing machine, etc.

37. **MEDICINE**: pills, etc.

38. **MONEY**: check, dollar, dollar sign, money, etc.

39. **MUSIC**: baton, bell, bugle, drum, flute, horn, harmonica, music box, musical notes, piano, phonograph, record player, treble clef, violin, cello, whistle, etc.

40. **NUMERALS**: Arabic (11, 77, 76, 99, etc.), Roman (II, IV, etc.)

41. **PACKAGE**: gift, package, parcel, present, etc.

42. **PLANTS**: cactus, grass, giant beans, hops, seeds, etc.

43. **POLE AND LINES**: clothes line, telephone poles and line, etc.

44. **PRISON**: bars, cage, hand cuffs, hideout, jail, etc.

45. **RECREATION AND ENTERTAINMENT**: bull's eye, exercise bars, monkey bars, movie screen, pool table, pool, ride, roller coaster, swimming pool, skis, skiing, skin diver, show, slide, stag, strong man, swing, target, etc.

46. **ROAD OR ROAD SYSTEM**: bridge, crossing, highway, road, etc.

47. **ROYALTY**: king, prince, princess, queen, throne, etc.

48. **SCHOOL**: blackboard, chalkboard, homework, spelling chart, poster, school, etc.

49. **SCHOOL AND OFFICE SUPPLIES**: eraser, envelope, folder, glue, ink, notebook, paper, pencil, pen, pencil sharpener, ruler, tablet, etc.

50. **SCIENCE**: magnet, microscope, mercury, oscilloscope, test tube, telescope, thermometer, etc.

51. **SHELTER** (not buildings): bomb shelter, cave, fallout shelter, dugout, tepee, etc.

52. **SOUND AND SOUND SYSTEMS**: radar, radio, sonar, switchboard, sound wave, tuning fork, etc.

53. **SPACE**: spaceman, space capsule, space suit, sputnik, etc.

54. **SPORTS**: badminton, ball, bat, boxing match, catcher, diamond (baseball), drag race, field goal, 50-yard dash, goal post, gym set, high dive, high jump, pitcher, pole vault, race track, scoreboard, stadium (football), soccer goal, etc.

55. **STORAGE**: elevator, silo, etc.

56. **STREET AND STREET SYSTEMS**: alley, city block, parking lot, parking meter, sidewalk, street, uptown, Wall Street, etc.

57. **SUPERNATURAL CREATURES**: angel, elf, fairy, ghost, Martian, Moon Man, Moon Woman, Santa Claus, witch, etc.

58. **SURFACE TRAVEL**: boxcar, bicycle, car, cart, covered wagon, convertible, cable car, railroad, railroad tracks, sled, stagecoach, tire tread, trailer, train, truck, van, wagon, etc.

59. **SYMBOLS AND SIGNS**: Army emblem, cross, barber pole, crown, flag, Nazi patch, NE, question mark, sign, signal, stop signal, swastika, symbol, totem pole, etc.

60. **TELEVISION**

61. **TOBACCO**: cigarette, cigar, pipe, etc.

62. **TOOLS**: axe, hammer, pitch fork, rake, shovel, etc.

63. **TOYS**: ball, blocks, firecracker, jack-in-the-box, jig saw puzzle, pea shooter, playhouse, potato head, puppet, Pinnochio, pin wheels, stilts, tin dog, tin man, toy, etc.

64. **TREE**: all kinds including Christmas, cedar, decorative, shade, forest, log, palm tree, pine, etc.

65. **WATER TRAVEL**: boat, canoe, sail, ship, snorkel, submarine, etc.

66. **WEAPONS OR TRAPS** (not air weapons): bear trap, bullet, cannon, dynamite, gun, magazine (ammunition), pistol, shield, TNT, torpedo, etc.

67. **WEATHER AND SEASONS**: rain, snow, snow storm, sun rays, sunset, spring, umbrella, etc.

68. **WINDOWS**: blinds, curtains, draped windows, windows, etc.

Originality

Scoring for originality is based on tabulations of the responses of 381 subjects from kindergarten through high school. Responses found in 20 per cent or more of the records are given no credit. Responses occurring in from 5 to 19 per cent of the records are scored one point; those occurring in 2 to 4 per cent of the records are awarded two points. All other responses showing imagination and creative strength are awarded *three* points. Determine the flexibility category of such three-credit responses by looking them up in the category list above.

Responses scored zero, one, and two points are listed below as a guide to obtaining the originality score for this activity. Flexibility categories are given in one column and originality weights in the second.

Response	Flex. Categ.	Orig. Wgt.	Response	Flex. Categ.	Orig. Wgt.
Airplane, aircraft ...	1	2	Bucket	15	2
Alphabet, letter(s) ...	3	0	Bunk beds	24	1
Apartment house	10	2	Butterfly	31	2
Aquarium	18	2	Cage	44	2
Automobile	58	2	Calendar	14	1
Bag	15	2	Can	15	1
Baggage	15	2	Candy	20	2
Ball	54,63	2	Car(s)	58	2
Barn	10	2	Chair(s)	24	1
Bat(s)	4	2	Chalkboard	49	2
Bed(s)	24	1	Chest of drawers	24	2
Blackboard	49	1	Chimney	13	1
Block(s)	63	2	Clock	14	1
Boat, sail, row, etc. ..	64	2	Crayon(s)	6	1
Bomb	2	2	Cross(es)	59	2
Book(s)	9	0	Cup	29	2
Bow (tie)	16	2	Design	6	1
Bow and arrow	2	1	Door(s)	13	1
Box(es)	15	0	Dresser	24	2
Boy(s)	30	0			
Brick(s)	12	2	Face, human	8	0
Bridge	46	2	Figure, human	8	0
Building	10	0	Figure, number	40	1

Response	Flex. Categ.	Orig. Wgt.	Response	Flex. Categ.	Orig. Wgt.
Flag	59	1	Photograph	6	1
Flowers	19	1	Picture	6	1
Frame, picture	22	2	Pole	43	2
			Prison	44	2
Game of tick-tack-toe	25	0			
Garbage can	15	2	Radio	52	2
Gift	41	1	Railroad tracks	58	1
Girl	30	0	Rectangle(s)	27	2
Glass, water, wine, etc.	29	2	Red Cross	59	2
Goal posts	54	2	Ribbon	16	2
			Robot	36	1
Hat	5	1	Rocket	2	0
Highway	56	2	Roman numeral	40	2
House	10	0			
Hour glass	14	2	Sand clock	14	2
			School	48	2
Ice cream cone	20	2	Shirt	5	2
			Signal, sign	59	2
Jack-in-the-box	63	2	Silo	55	2
Jail	44	2	Slacks	5	2
			Slide	45	2
Kite	63	2	Square(s)	27	1
			Star(s)	28	2
Ladder, step ladder	32	0	Stilts	63	2
Leg(s)	8	2	Stop sign, signal	59	2
Letter(s)	49	2	Swing(s)	45	1
Lines	43	0			
Lollipop	20	2	Table	24	1
			Telephone pole(s)	43	2
Man (men), incl. stick	30	0	Television	60	1
Missile	2	0	Tent, tepee(s)	51	2
Moon man (men)	57	2	Tick-tack-toe game	25	0
Monster	57	1	Tie (bow)	5	2
			Tower	10	2
Numeral(s)	40	1	Tree, all varieties)	64	0
			Trousers	5	2
Package	41	1			
Pail	15	2	Window(s)	68	0
Painting	6	1	Woman (women)	30	0
Pants	5	2			
Paper, piece of	49	1			
Pencil(s)	49	1			

Bonus Originality Scoring

There has always been a question about scoring responses for Activity 3 on Figural Form A when the pupil combines two or more sets of parallel lines to make a single response. It has always been recognized that such responses indicate a rather high level of originality. First, such responses are relatively rare and this is one reason why no provisions have been previously established for special scoring procedures. Second, such responses definitely represent a departure from the com-

monplace and established. The test instructions and format of the booklet definitely establish a set to make a separate object from each pair of parallel lines. Combining two or more pairs is not forbidden, however, and this strategy has been deliberate. The rationale for this position is that the creative person sees possibilities that others assume have been closed out. As results have come in from pre- and post-testing where there have been intervening experiences to facilitate creative development, this combining kind of behavior has become more frequent in the post-test. A re-evaluation of this problem in the light of evidence from such studies and in light of theoretical rationale makes it quite clear that bonus points for originality should be awarded for such combining responses. The following scheme has been adopted by the author and is recommended for general use:

> Combining two sets of parallel lines (as in a picket fence, neighboring houses, etc.), TWO BONUS POINTS
> Combining three to five sets of parallel lines, FIVE BONUS POINTS
> Combining six to ten parallel lines, TEN BONUS POINTS
> Combining eleven to fifteen sets of parallel lines, FIFTEEN BONUS POINTS
> Combining more than fifteen sets of parallel lines, TWENTY BONUS POINTS

Bonus points are added to whatever originality score the pupil has already been awarded for Activity 3 on the basis of the described procedures. This grand total then becomes his originality score for the activity.*

Responses showing truly exceptional originality may be given additional credit but this will be rare. These are the kinds of responses that the scorer recognizes immediately as "original beyond the scope of a scoring guide."

Title Originality

Experience has thus far indicated that scoring for Title Originality in this activity is not worthwhile.

Elaboration

The principles for scoring elaboration for the Parallel Lines Activity are the same as those that have been stated for the Picture Construction and Picture Completion Activities. The problem is to determine the number of ideas communicated by each object, IN ADDITION TO THE MINIMUM BASIC IDEA. (A guide to what constitutes the minimum basic idea for a number of the more frequent drawings is found directly below.) How much of a story does the response tell? No score is allowed for titles.

---

* Researchers using this test in a pre- and post-test design must be consistent in their test-retest originality scoring. If the bonus score was not computed for the pre-test, it should not be used in the post-test score that is used for inter-test comparisons. It is also possible to rescore the pre-test, adding the bonus points, in which case the bonus point scoring should also be used in the post-test.
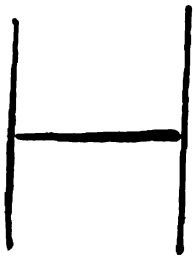
Alphabet
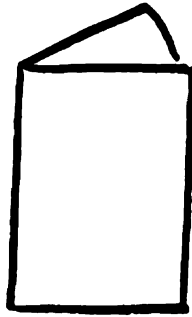
Book
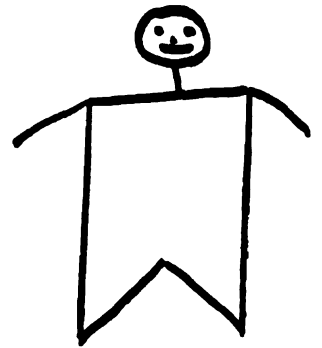
Boy
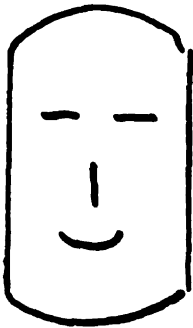
Face, Human
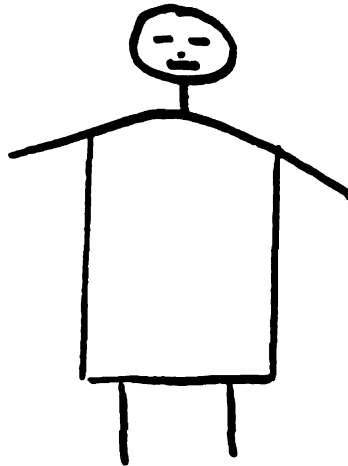
Figure, Human
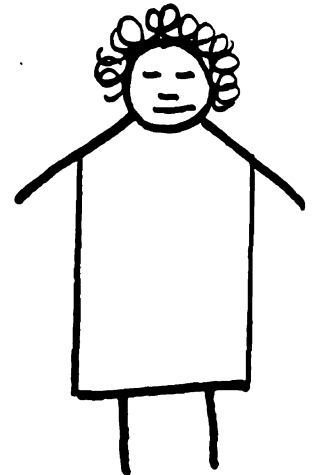
Girl
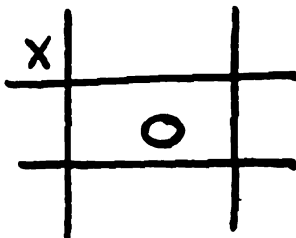
Game of Tic-tac-toe
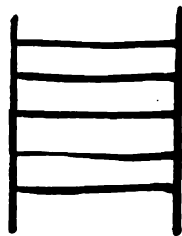
Ladder
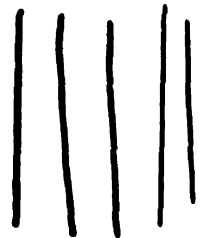
Lines
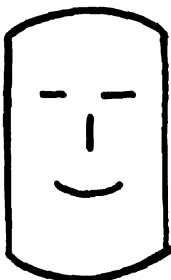
Man
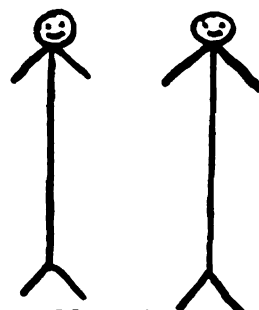
Men, Stick
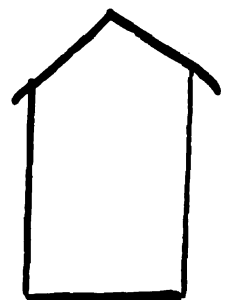
Missile
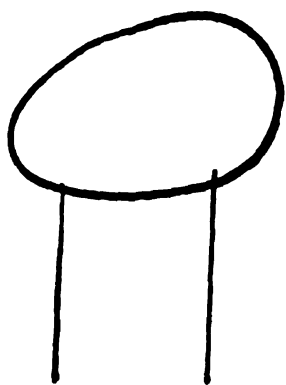
Tree
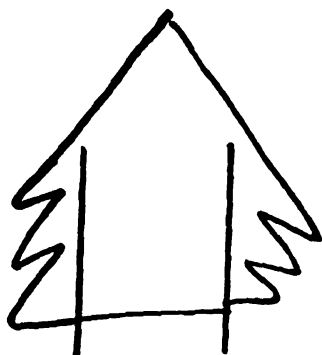
Tree

Trees
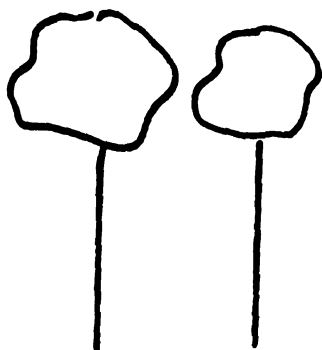
Trees
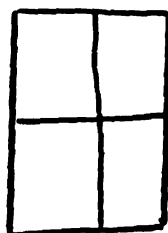
Window
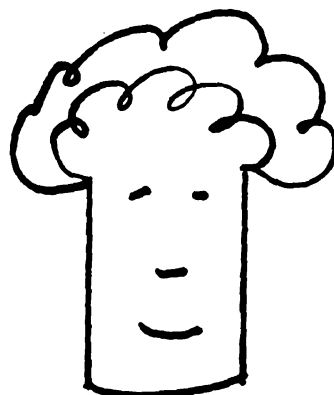
Woman

The following are additional scoring illustrations for the Parallel Lines Activity:

Example 1

Example 2

※ cat

※ colored black

Ladder

Cat on Ladder

Elaboration Score: 0

Elaboration Score: 2

33

Example 3

smoke
window blind
hair standing up
hands waving
person
man
climbing
bricks
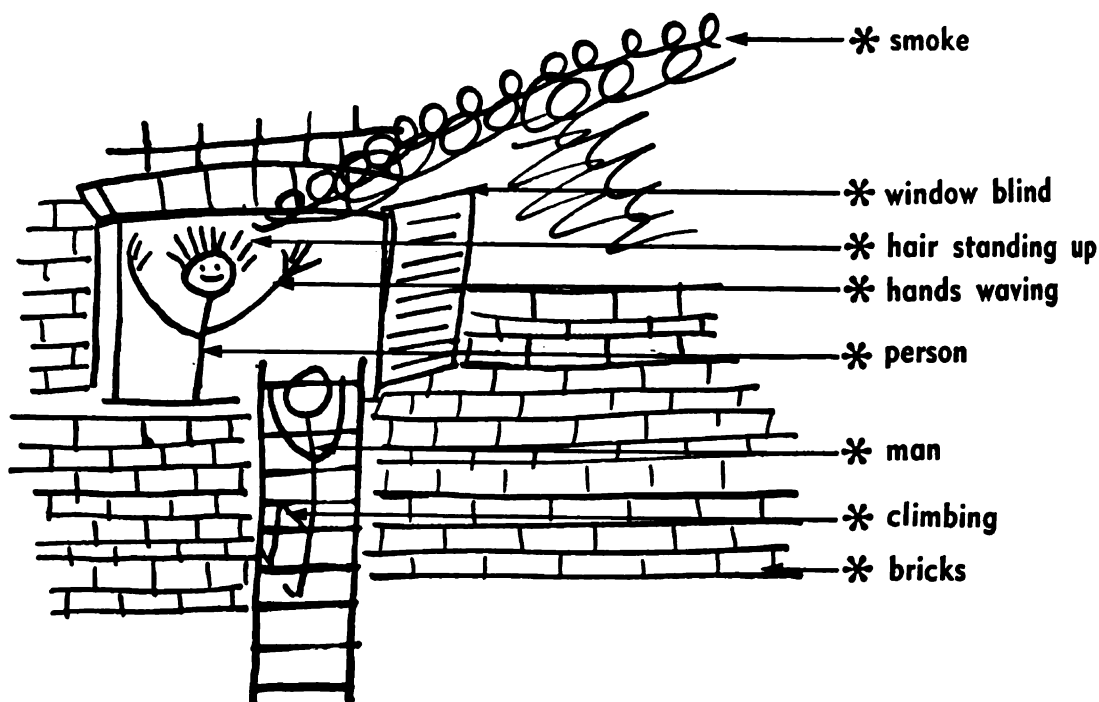
Fireman Rescuing Woman   Elaboration Score: 8

Example of Complete Scored Test Booklet

On the pages following is reproduced, for the guidance of examiners, a complete Figural A test booklet, as done by a fourth grade girl. Scoring marks and tabulations, as annotated by the examiner, have been left on the booklet "as-is".

On page 40 is reproduced the Scoring Worksheet for this booklet. On it, the examiner has transferred his annotations from the booklet and summarized them. Total raw scores for each scoring category were cumulated in the Score Summary box and transformed into T-Scores, using the norms table for Figural Booklet A from the *Norms-Technical Manual*.

Prior to scoring other tests, the examiner might wish to score this example, first covering the scoring notes.

Scoring Annotations

On Activity 1, an asterisk has been placed near each point of detail in the drawing which the examiner considered to be an elaboration over the basic drawing, a bird. The elaboration score was then determined by cumulating these points. The originality score was established by reference to the guide on pages 12–13 of this manual.

Following each response in Activities 2 and 3 will be found three numbers separated by dashes. The first number represents the flexibility *category* for the response, the second is the originality *weight*, and the third is the elaboration score. Titles given the drawings were used in elaboration scoring for Activities 1 and 2 but not for any other scoring.

34
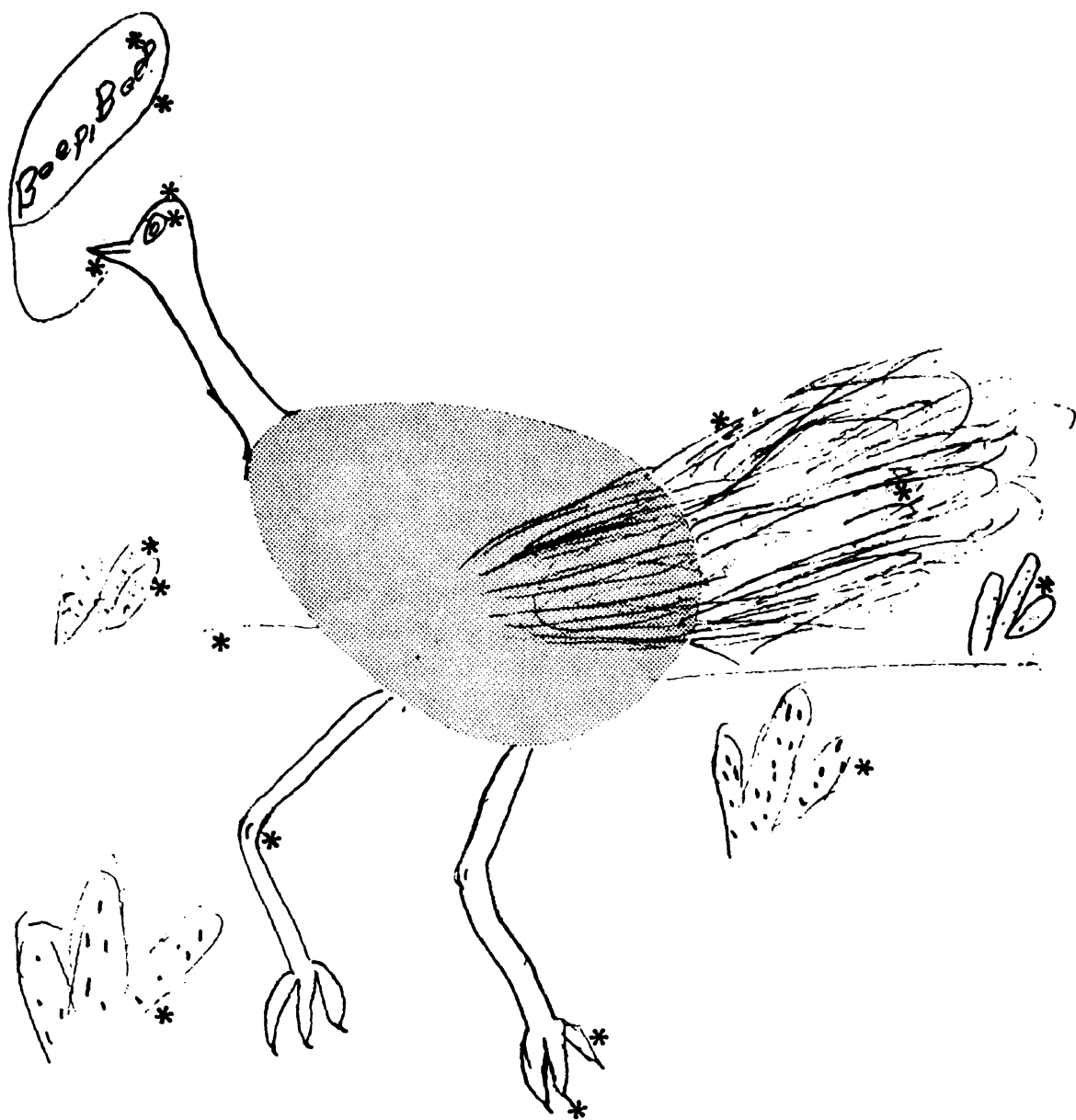
YOUR TITLE *The Desert Road Runner*

3

35

Activity 2. PICTURE COMPLETION

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.

4

36
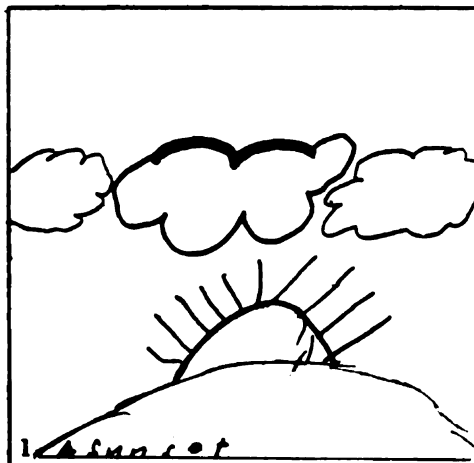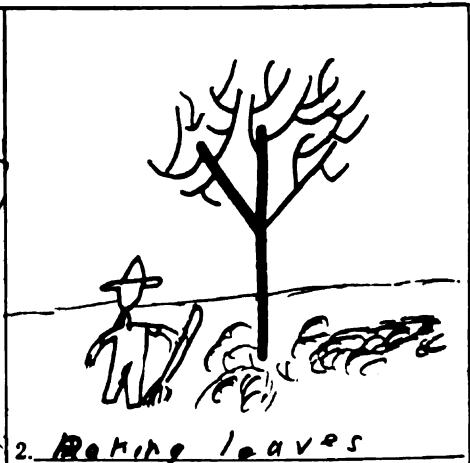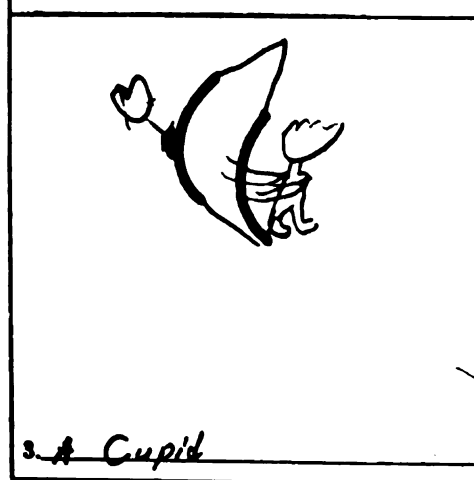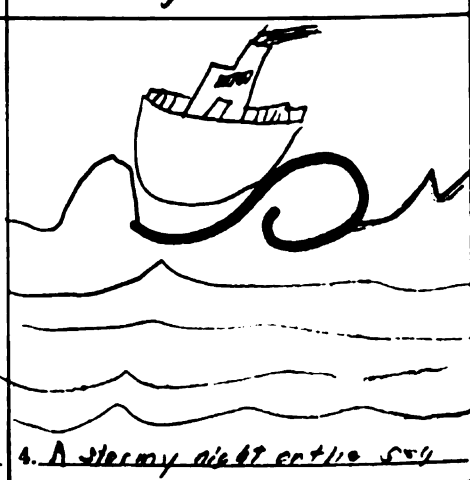
36-0-5

5. Bowl of gold fish

19-2-3
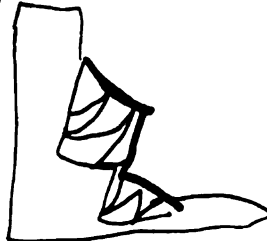
6. Old Lady that Killed in a shoe

X-0-6
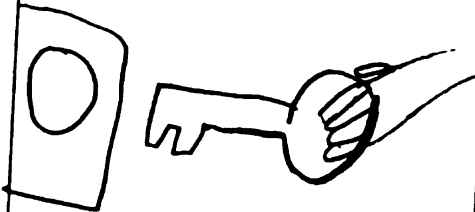
7. Unlocking a door

37-0-3

8. Reaching for the cookies

4-1-5
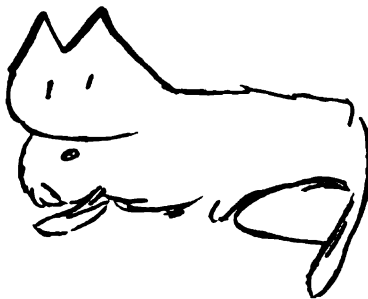
9. a cat

10.

Activity 3. LINES

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—wherever you want to in order to make your 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.
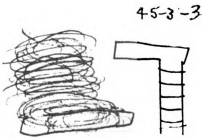
1. diving board

2. a piano

3. a castle little

4. the white house

5. a swing set

6. a little dog gift

45-3-3

39-3-1

15-3-1

2-7

10-0-3

45-1-2

41-1-2

6

7. a book
9 - 0 - 3
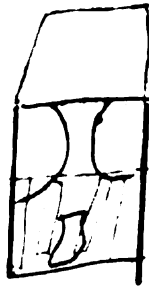
8. a window
68 - 0 - 2

9. intercome
52 - 3 - 3
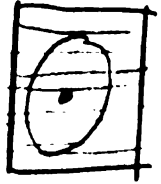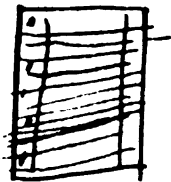
10. a street of pape
49 - 1 - 3

11. a bus
58 - 3 - 6

12. a church
18 - 3 - 5
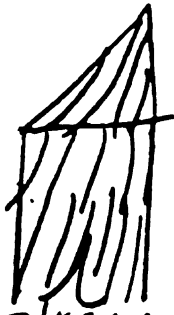
13. a circus
51 - 2 - 2
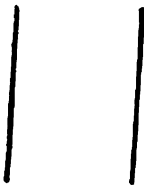
14. _____
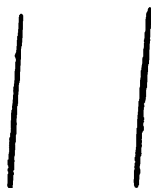
15. _____
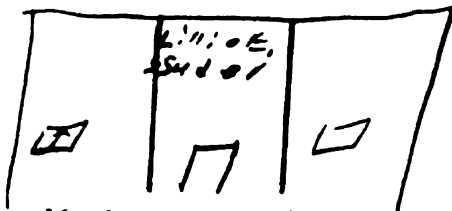
16. a school
48 - 2 - 5
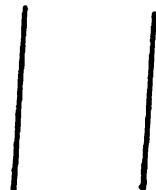
17. _____
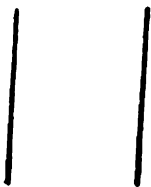
18. _____

7

39

SCORING WORKSHEET

TORRANCE TESTS OF CREATIVE THINKING, FIGURAL FORMS A and B

Pupil's Name **Bentwell, Alvina**   Sex **F**   Test Date **10/13/67**

School **Suder**   Age **9**   Grade **4**   Scorer **LEO**

Form **A**

Resp. No.	Activity 1 Orig.	Activity 1 Elab.	Activity 2 Categ.	Activity 2 Orig.	Activity 2 Elab.	Activity 3 Categ.	Activity 3 Orig.	Activity 3 Elab.
1	3	17	21	1	3	45	3	3
2			64	0	6	39	3	1
3			67	1	5	15	3	1
4			33	1	7	10	0	3
5			36	0	5	45	1	2
6			19	2	3	41	1	2
7			X	0	6	9	0	3
8			37	0	3	68	0	2
9			4	1	5	52	3	3
10						49	1	3
11						58	3	6
12						46	3	5
13						51	2	2
14						48	2	5
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SCORE SUMMARY

	FLU	FLEX	ORIG	ELAB
Act. 1	✕	✕	3	17
Act. 2	9	9	6	43
Act. 3	14	12	25	41
TOTAL	23	21	34	101
T SCORE	48	58	60	69

COMMENTS:

Test Date

Form 1

SUMMARY

X	2
9	6
2	12
	3
?	K

Thinking Creatively With Pic

By E. Paul Torrance

Name_____ Age_____ Sex _____

School _____ City_____ Date _____

Activity 1. PICTURE CONSTRUCTION

Below is a piece of colored paper in the form of a curved shape. Think of a picture or an object which you can draw with this piece of paper as a part. On the back of these shapes you will find a thin layer of paper that can be peeled away. Look. Now you can stick your colored shape wherever you want it to make the picture you have in mind. Stick yours on the next page where you want it and press down on it. 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.

YOUR TITLE:_____

Activity 2. PICTURE COMPLETION

adding lines to the incomplete figures on this and the next page, you can sketch some
:resting objects or pictures. Again, try to think of some picture or object that no one
: will think of. Try to make it tell as complete and as interesting a story as you can
adding to and building up your first idea. Make up an interesting title for each of your
wings and write it at the bottom of each block next to the number of the figure.

2._____

4._____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Activity 3. LINES

n minutes see how many objects or pictures you can make from the pairs of straight
below and on the next two pages. The pairs of straight lines should be the main
of whatever you make. With pencil or crayon add lines to the pairs of lines to com-
· your picture. You can place marks between the lines, on the lines, and outside the
—wherever you want to in order to make your picture. Try to think of things that
ne else will think of. Make as many different pictures or objects as you can and put
nany ideas as you can in each one. Make them tell as complete and as interesting a
y as you can. Add names or titles in the spaces provided.

2._____

3._____

5._____

6._____

7._____

8._____

9._____

10._____

11._____

12._____

13._____

14._____

15._____

16._____

17._____

18._____

7

20._____

21._____

23._____

24._____

26._____

27._____

29._____

30._____

TORRANCE TESTS
of
CREATIVE THINKING

by E. Paul Torrance, Ph.D.

DIRECTIONS MANUAL
AND
SCORING GUIDE

> **Figural Test**
> **Booklet B**
> **Research Edition**
> January, 1968 Revision

Personnel Press, Inc.

Princeton   *New Jersey*

A DIVISION OF GINN AND COMPANY

TABLE OF CONTENTS

INTRODUCTION

This manual includes directions for administering and scoring the *Torrance Tests of Creative Thinking*, Figural Form B. The Figural Test is appropriate for use in kindergarten through graduate school. Other tests in this series include an alternate Figural Test, Form A, and two Verbal Tests, Forms A and B. Verbal tests may be used with groups in fourth grade through graduate school and as an individual test in kindergarten through the third grade. For each test there is a manual designated as the Directions Manual and Scoring Guide, containing all information necessary to administer and score the test. A single Norms-Technical Manual, covering all four tests, includes the theoretical and statistical background material underlying testing of creative thinking. It also includes normative information.

Examiners should note that the test booklets are titled *Thinking Creatively With Pictures, Booklet B*. This is the "working title" for the Figural Test, Form B and it is employed in an attempt to reduce the examinee's perception of being tested when he is confronted with creative thinking materials. Although the booklets will be referred to as "tests" in the manuals and other material designed for the examiner, use of "tests" and testing terminology with the pupils is discouraged.

Examiners not familiar with Dr. Torrance's concepts of creative thinking and its measurement are urged to inform themselves before using this test. Much of this background material is to be found in the Norms-Technical Manual which also includes an extended bibliography of the author's publications. Three especially helpful references follow:

Torrance, E. P. *Guiding Creative Talent.* Englewood Cliffs, N. J.: Prentice-Hall, 1962, Chaps. 2, 3, Appendix.

Torrance, E. P. *Rewarding Creative Behavior: Experiments in Classroom Creativity.* Englewood Cliffs, N. J.: Prentice-Hall, 1965, Chap. 3 and Appendix A.

Torrance, E. P. "Scientific Views of Creativity and Factors Affecting Its Growth." *Daedalus,* Summer, 1965, *94,* 663–681.

PREPARING FOR THE TEST

The figural forms of the *Torrance Tests of Creative Thinking* require responses that are mainly drawing or pictorial in nature. Use of the Figural Test batteries is recommended in kindergarten through graduate school. A small amount of writing is required of the examinees when they are directed to label or name some of the pictures they have drawn. With children who are not yet writing, this part of the test is accomplished by the examiner. It is usually desirable to have one or more assistants available to help with this task when children in kindergarten or the early primary grades are being tested.

Before administering the tests, the examiner should read completely through the directions, familiarizing himself with all aspects of the mechanics of administration. No accessories are required for giving the figural tests.

Examiners should note that the word "test" has not been used on the booklet nor in the printed instructions. If the examinees' materials must be referred to, the use of a word like "booklet" or "exercises" is suggested. However, if examiners follow the procedures in the section "Administering the Figural Tests," the proper language and non-test atmosphere can be developed. It is recommended that, in general, a game-like, thinking, or problem-solving atmosphere be created. Try to avoid the threatening situation frequently associated with testing. Create the expectation that examinees will enjoy the activities and invite them to "have fun." The psychological climate, both preceding and during the use of the tests, should be as comfortable and stimulating as possible. The only exception to this principle would be the condition under which the examiner is conducting some controlled experiment involving stress.

The format of the test booklet was designed deliberately to facilitate the "warm-up" process necessary for any kind of creative behavior. The design on the cover consists of apparently unrelated combinations of elements and usually evokes curiosity, imaginative activity, and interest. Such a format may strike some test experts as unorthodox and untestlike. The author, however, considers this feature an essential part of the testing procedure.

The examiner should also assure that the physical conditions for testing are good. Make certain that an adequate supply of test booklets is at hand, that everyone has a pencil (ordinary pencils will do), and that room temperature is as comfortable as weather conditions and existing facilities for the control of temperature and atmosphere permit.

Examinees need no equipment other than their booklets and pencils or crayons. (It is recommended that teachers and examiners follow whatever is normal classroom policy or procedure in giving pupils access to boxes of crayons.) Examiners will need a copy of this manual,

a copy of the test booklet for reference, and an accurate timing device, preferably a stop watch.

Testing in large groups of combined classes in lunch rooms, auditoriums, and the like should be avoided. In most cases, the usual class size of 15 to 35 is all right. Where practical, however, it is suggested that children in kindergarten through the fourth grade be tested in smaller groups. For example, it might be possible to split a class of 30 into two groups of 15 each and test them in different rooms. Or, the testing activity could be alternated with some other activity. It is not necessary to administer the figural form individually to children after they have learned to draw with pencil or crayon.

The actual pupil working time on the Figural Tests is 30 minutes. To cover preliminary instructions, handing out papers, etc., no less than 45 minutes free of interruptions should be scheduled for the test. Usually, pupil interest in the tests is so high that fatigue is no problem and the entire booklet can be completed in one sitting. Should fatigue become evident, however, the examiner may give the group a short break between any two of the activities in the booklet.

If both the Figural and the Verbal Tests are to be administered, it is recommended that they be accomplished in two different sittings. At the very least, a break should intervene between the two testings.

ADMINISTERING THE FIGURAL TESTS

The following section contains the directions for administering the Figural Tests of the *Torrance Tests of Creative Thinking* battery, including the wording of comments and directions the examiner makes to the pupils. Preliminary comments are enclosed in quotation marks and may be modified somewhat to fit appropriately the special conditions of testing. Specific instructions to pupils for procedures on the three activities of the test booklet are printed in **bold face** type. These instructions in **bold face** should be read from this manual, precisely as written, without modification.

It is realized that slight modifications will always have to be made in administration procedures depending upon the purposes and conditions of the testing. Since this battery may be used from kindergarten through graduate school, slight modifications have to be made on account of differences in writing ability, vocabulary, and the like. This is especially true of the initial orientation or warm-up. Timing and other instructions given by the examiner, however, should be as uniform as possible. Some workers may want to give more liberal time limits for elementary school children who are handicapped in recording their ideas by limited drawing skills. Such workers, however, should recognize that the norms given in this manual will not be applicable. Changes in time limits may also affect the reliability and validity of the measures but a great deal more developmental work needs to be done before the precise nature of these changes can be determined.

Preliminary Instructions to Pupils

If one of the figural forms is given alone or before the verbal form, an orientation similar to that outlined in the paragraph below should be used. If given after a verbal form, little added explanation or orientation will be needed. The examiner might simply indicate that in the first booklet, pupils had to express their ideas by writing. In this booklet, they will express their ideas in other ways.

Before passing out the test booklets, the teacher or administrator should give a brief orientation that will make sense to the particular group, be honest, arouse interest and motivate performance. Some modification of the following might be used:

"I believe you will have a lot of fun doing the activities we have planned for this period. We are going to do some things that will give you a chance to see how good you are at thinking up new ideas and solving problems. They will call for all of the imagination and thinking ability you have. So I hope that you will put on your best thinking cap and that you will enjoy yourself."

If there are to be successive administrations of the test or an alternate form, it is usually a good idea to set up this expectation even in the initial administration. Successive administrations are frequently planned in experimental programs designed to evaluate the relative

effectiveness of methods, materials, organizational innovations, and the like, and can be explained along with the purpose of the entire program. An explanation such as the following might be made:

> "One of the things we would like to find out is how much you improve between now and later in your ability to think up new ideas, use your imagination, and solve problems. You know, if we wanted to know how much you grow in weight or height during a particular period, we would weigh you or measure your height now and again at the end of that period of time. This is what we want to do regarding your ability to think of ideas. We are going to take a measurement today and another at the end of the school year (quarter, month, etc.). We want to get as accurate a measurement today as we can. So use your best thinking cap and do your best."

Within the context of the situation, the activity should be made as non-threatening as possible, unless some stress factor is a deliberate part of the experimental design.

Specific Instructions for Administering Test Activities

At this point, pass out the booklets. Next, have each individual fill in the blanks at the top of the page quite carefully. Make certain that the year is entered as part of the date so there will be no confusion or needless loss of data in longitudinal studies or studies involving pre-test and post-test designs.

Children in kindergarten and the primary grades will need some help with their writing or spelling. Or, the information on the face of the booklet may be filled in by the teacher or test administrator in advance from the school records and each pupil given his "very own" booklet.

After the identifying information has been provided, read these instructions:

> In this booklet are three interesting things for you to do. All of them will give you a chance to use your imagination to think of ideas and to put them together in various ways. In each activity, we want you to think of the most interesting and unusual ideas you can—ideas that no one else in this group will think of. After you think of an idea keep adding to it and build it up so that it will tell the most interesting and exciting story possible.

> You will be given a time limit on each activity, so make good use of your time. Work fast but don't rush. Try to keep thinking of ideas, but if you run out of ideas before time is called, sit quietly and wait until you are told to turn to the next page.

> If you have any questions after we start, don't speak out loud. Raise your hand and I shall come to your desk and try to answer your questions.

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If there are no questions at this point, proceed with the first activity. If there are questions concerning the instructions, attempt to satisfy them by repeating the instructions in words that the person will understand or by elaborating upon the instructions in the printed booklet. Avoid giving examples or illustrations of "model responses." This tends to reduce originality and in some cases it even reduces the number of responses produced. Above all, attempt to maintain a friendly, comfortable, warm relationship with the group.

Ask the class to turn to page 2, Activity 1: PICTURE CONSTRUC-TION. Ask those who can to read the instructions with you, continuing as follows:

> **Below is a piece of colored paper in the form of a curved shape. Think of a picture or an object which you can draw with this piece of paper as a part. On the back of these shapes you will find a thin layer of paper that can be peeled away.** (Examiner demonstrates, holding a test booklet so examinees can watch, how the shape is to be removed from page 2, the protective layer peeled off the back, and the shape affixed to page 3. Examiner should avoid actually placing the shape on page 3 since this could influence the pupils in the positioning of their shapes.) **Now you can stick your colored shape wherever you want it to make the picture you have in mind. Stick yours on the next page where you want it and press down on it. 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 exciting 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 you tell your story.** (Examiners and teachers will write down the titles for children who need such help.)
>
> **Go ahead with your picture, making it different from anyone else's and making it tell as complete and as interesting a story as possible. You will have ten minutes.**

Most examinees will be anxious to begin, so answer questions as expeditiously as possible and permit them to begin working. At the end of about *nine minutes,* pupils who have not yet entered a title for their drawing on the line at the bottom of page 3 may be reminded that they are to do so and encouraged to accomplish it.

Using a stop watch, allow **TEN MINUTES** before calling time. Ask the group to turn to page 4, Activity 2: PICTURE COMPLETION. Again, ask the group to read the instructions as you read them aloud (except of course with younger children who cannot read):

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.

All right, go ahead! You will have ten minutes.

If some examinees are upset by the fact that they did not finish, reassure them very simply by saying something like the following:

"I notice that you work in different ways. Some of you finished all ten of your drawings very quickly and then went back and added other ideas. Some of you finished only a few of the drawings but you made each of them tell a very complete story. Continue to work in whatever way is natural and comfortable for you."

Using a stop watch, allow **TEN MINUTES** before calling time. Ask the pupils to turn to page 6, Activity 3: CIRCLES. Again, have the group read the instructions as you read them aloud:

In ten minutes see how many objects or pictures you can make from the circles below and on the next page. The circles should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. You can place marks inside the circles, outside the circles, or both inside and outside the circles—wherever you want to in order to make your 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 below the objects.

All right, go ahead. You have ten minutes.

Although instructions have indicated that the activity includes two pages, some children will not grasp this fact and will ask about it or have to be reminded. This may occur even in testing college students and adults, so be alert to this possibility. Time the activity very carefully, using a stop watch, if possible.

After **TEN MINUTES**, call time and collect the booklets. If the children were unable to write their own titles or labels, be prepared to interview each child briefly to obtain titles or labels. Otherwise, reliable scoring of the pictures will not be possible. It is usually desirable to have one or more assistants available to help with this task, when testing children in the kindergarten and primary grades.

HOW TO USE THE SCORING GUIDE

Who Can Score Creative Thinking Tests.

Studies of scorer reliability have shown that individuals specially trained and experienced in the scoring of the *Torrance Tests of Creative Thinking* are capable of scoring them with a very high degree of reliability. To answer the question about the reliability of results derived by *untrained* scorers, an experiment was conducted in which regular classroom teachers and educational secretaries scored tests without benefit of any training other than the study of the scoring manuals. Results available for six teachers and one educational secretary indicate that *when the scoring guide is carefully studied and accepted,* scores of acceptable reliability are obtained. The mean Pearson product-moment coefficients between the scoring of trained scorers and untrained teachers for the figural tests are: fluency, .96; flexibility, .94; originality, .86; and elaboration, .91. The mean reliability coefficients for the verbal tests are: fluency, .99; flexibility, .95; and originality, .91. The results for the one educational secretary are: fluency, .99; flexibility, .98; originality, .76; and elaboration, .87. The lower reliability for originality seems to occur when the scorer rejects the scoring guide and substitutes his own concept of what is original. A more complete analysis of the scorer reliability study will be found in the Norms-Technical Manual.

These findings suggest that it is not necessary to have special training in scoring these tests to assure reliable results. What does appear to be necessary is that the scorer *read and follow the scoring guide as precisely as possible, accepting the standards of the guide as a basis for judgment.*

Procedures for Scoring.

1. Read the scoring guide, noting its organization. If the examiner does not yet have an understanding of the concepts of fluency, flexibility, originality, and elaboration, he should do some supplementary reading * of the rationale of the *Torrance Tests of Creative Thinking.* He should also familiarize himself with the rationale for the three figural test tasks contained in this battery.

2. Reread the scoring guide with a completed record, locating the responses on it in the lists of scoring categories and originality weights. First, however, determine whether the response is scoreable, i.e., has relevance to the test task. No entries or tabulations are made on the scoring worksheets for responses that are considered "not scoreable."

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* Reading the introductory sections of the Norms-Technical Manual is especially recommended. See also publications listed in the Introduction of this manual and in the extended bibliography of the Norms-Technical Manual.

3. Now, the examiner should be ready to begin the scoring. A scoring worksheet (see reproduction, next page) has been designed to reduce the amount of time required to score a test and to increase the reliability of scoring. After entering the desired identifying information, it is suggested that he proceed as follows:

Step 1: Scoring Picture Construction Activity. Determine from the Scoring Guide the originality weight for the response and place this score in the box labeled ''Orig.'' under ''Activity 1.'' Next, determine the elaboration score and place this number under the ''Elab.'' column for ''Activity 1.''

Step 2: Scoring Picture Completion. Using the Guide, determine the originality weight and flexibility category for the first response and enter these numbers in the ''Categ.'' and ''Orig.'' columns under ''Activity 2.'' If the response is a zero or one-credit response, the flexibility category will be found in parentheses at the left of the response as listed in the originality scoring guide. It will be necessary to find the category of the two-credit responses in the list of flexibility categories. Now, determine the elaboration score of the first response and enter it in the ''Elab.'' column under ''Activity 2.'' Continue in this way for each scoreable response in Activity 2. To indicate omissions enter a dash in the appropriate blanks.

Step 3: Scoring Circles. Using the Guide, determine for each scoreable response the flexibility category, the originality weight, and the elaboration score and record in the appropriate boxes of the scoring worksheet. It is suggested that the examiner start with the guide for scoring originality. In this guide, the most frequent responses are listed alphabetically with both their originality weights and flexibility categories. It is then an easy matter to look up the category numbers of the less frequent or three-credit responses.

Step 4: Summarizing the Results. The examiner is now ready to summarize his scoring in the ''Score Summary'' box on the right side of the scoring worksheet. Since there is only one response for Activity 1 and it is not scored for flexibility and fluency, simply transfer the originality and elaboration scores to the score box, entering them in the ''Orig.'' and ''Elab.'' columns for ''Act. 1.'' The fluency score for Activity 2 can be read directly by noting the marginal number adjacent to the last response, if there were no omissions or unscoreable responses. Otherwise, it will be necessary to count the number of scoreable responses. To determine the flexibility score, strike out category duplications under the ''Categ.'' column and count the remaining responses. To obtain the originality score, simply add the weights recorded in the ''Orig.'' column under Activity 2. The elaboration score is obtained in the same manner. The scores for Activity 3 are determined in the same manner as for Activity 2. The bonus points for originality awarded for combining two or more figures in Activity 3 should be added in with the other originality credits. The procedures for awarding bonus credits are described on pages 30 and 31.

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FIGURE 1. SCORING WORKSHEET FOR FIGURAL TESTS

SCORING WORKSHEET

TORRANCE TESTS OF CREATIVE THINKING, FIGURAL FORMS A and B

Pupil's Name _____ Sex _____ Test Date _____

School _____ Age _____ Grade _____ Scorer _____

Form _____

Resp. No.	Activity 1		Activity 2			Activity 3		
	Orig.	Elab.	Categ.	Orig.	Elab.	Categ.	Orig.	Elab.
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SCORE SUMMARY

	FLU	FLEX	ORIG	ELAB
Act. 1	X	X		
Act. 2				
Act. 3				
TOTAL				
T SCORE				

COMMENTS:

PERSONNEL PRESS, INC.

PRINCETON, N.J.

Printed in the U.S.A.

Now the examiner should be ready to compute the totals for each of the four columns of the "Score Summary" box. These are the raw scores for fluency, flexibility, originality, and elaboration for the Figural Test. In many cases one will not need to go further. For certain purposes, however, the examiner will want to convert the raw scores to standard scores or T-scores.* This should be done whenever he finds it necessary to combine scores for some kind of composite or total score, whenever he wants to determine the relative strengths of the four kinds of ability (fluency, flexibility, originality, and elaboration) of a given individual or group, or whenever he wants to compare an individual's performance with some of the comparison groups for which data are given in the technical manual. The data for converting raw scores into standard (T) scores are included in the Norms-Technical Manual.

4. Both immediately and from time to time, the examiner will want to obtain some indication of the reliability of his scoring. If possible, he should have someone else score four or five of the same records he has scored and then discuss any discrepancies. Then, with a sample of 20 to 40 records, he might want to compute reliability coefficients † for each of the four scores. Another useful kind of reliability check is to rescore a set of tests after a lapse of one or more weeks. If the scoring worksheets are used, these kinds of checks will be easy.

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* See standard statistics or tests-and-measurement text for explanation of these scores.

† This coefficient is found by computing the correlation between the scores found by two scorers on the same set of tests. Most statistics texts explain the computational methods.

Three points (2% to 2.99% of respondents)

SCORING GUIDE FOR THE FIGURAL TESTS, FORM B

Each of the three tasks will be scored for *originality* and *elaboration* and Picture Completion and Circles Tests will be scored for *fluency* and *flexibility*. The pages which follow contain the guides for determining these scores.

Activity 1: PICTURE CONSTRUCTION

Originality

The scoring guide for originality on the Picture Construction Test is based on the responses of 223 subjects ranging from kindergarten through high school. Scoring is accomplished on a scale ranging from zero to five according to frequency of occurrence in the 223 records analyzed. Responses occurring on five per cent or more of the records receive no credit. Other obvious responses such as "jelly bean," "blob," and the like are also scored zero. Responses occurring from 4.00 per cent to 4.99 per cent receive one point; responses found in 3.00 to 3.99 per cent of the records are scored two; those occurring in 2.00 to 2.99 per cent of the cases are awarded three credits; those found in from 1.00 to 1.99 of the records receive four credits. All other responses showing imagination and creative strength are credited with five points. The guide given below lists the responses falling in each of the first five categories, but the responses falling in the sixth category are relatively unique and numerous and no complete listing is attempted.

Zero credit (5% or more of respondents)

Boat (all types, sailboats, canoes, row boats, etc.)
Body of person
Body of animal
Car
Cloud
Dog
Hat on head
Hot dog, weiner, etc.
Roof of house

One point (4% to 4.99% of respondents)

Bus
Crown of tree, foliage part of tree
Face of person

Two points (3% to 3.99% of respondents)

Fantasy animal, imaginary animal
Horse, head (body classified as body of animal and scored zero)
Mouth, lips
Lake, pond, water

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Airplane
Helmet or hat not on head
Hot dog animated
Sleigh

Four Points (1% to 1.99% of respondents)

Garden
Head of animal, other than horse
Human body, part of
Neck of person, collar
Potatoes
Steamboat, steamship
Submarine
Table

Five points (less than 1% of respondents)

All other responses showing imagination and creative strength. The following are some examples:

Animal ear	Dragonfly
Bathtub	Dress
Bee	Flag
Bone	Flagpole base
Bread	Flowerpot
Butterfly	Glasses, eye
Cage	Golf course
Cake	Helicopter
Candle, candleholder	Highway
Caterpillar	Jack knife
Circus car	Octopus
Dinosaur	Pancake

NOTE: The concept of "creative strength" is an important one and the examiner should attempt to master the idea well. Possibly the best way to accomplish this is to study the originality weights for the various activities in the scoring guide, noting the differences between examples of zero-credit responses (not original) and one-credit responses which are the ones showing some creative strength. It may also prove helpful to think of responses showing no creative strength as being characterized by requiring little intellectual energy; that is, little intellectual energy is necessary to give obvious, common, and learned responses. In contrast, more intellectual energy is required to give responses characterized by being beyond what is learned, practiced, habitual, and away from the obvious and commonplace. Hence, these latter kinds of responses are thought of as "showing creative strength."

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Title Originality (Optional. May be counted as a part of the Verbal Score *)

The titles are evaluated on a scale ranging from zero to three on originality or cleverness according to the following criteria:

0 Obvious class titles, such as "Man," "Hat," "Dog," etc.

1 Simple descriptive title at a concrete level, involving a modifier plus a class, such as "Man with a Big Ear," "A Heavy Hat," "A Dangerous Dog," etc.

2 Imaginative, descriptive title in which the modifier goes beyond concrete, physical description, such as "Uncle John's Frozen Ear," "The Latest Style from Mars," "The Dog They Named King," etc.

3 Abstract but appropriate title, going beyond what can be seen and telling a story, such as "Mighty Giovanni of the Frozen Alps," "A Hat with a Thousand Eyes," "Princess Mona's Golden Hound," etc.

Elaboration

Two assumptions underlie the scoring of elaboration for the Picture Construction Test. The first is that the minimum and primary response to the stimulus figure is a single response. The second is that the imagination and exposition of detail is a function of creative ability, appropriately labeled elaboration.

Therefore, in scoring elaboration, credit is given for each pertinent detail (idea) added to the original stimulus figure itself, to its boundaries and/or to the surrounding space. However, the basic response itself must be meaningful before elaboration has any worth, or can be scored.

One point is given for:

1. Each essential detail of the total response, but once that class of detail is scored, further evidence of the same class is not counted. (In other words, each additional idea that contributes to the story the picture tells is credited with a point, but the repetition of an idea does not count.)

2. Color

3. Deliberate shading (not just going over the lines again)

4. Decoration, only when meant as such

* See the Norms-Technical Manual for an explanation of this point.

5. Each major variation (not of quantity) of design which is meaningful with reference to the total response

6. Each elaboration in the title beyond the minimum descriptive label.

If a line breaks one part of the picture into two, count the two parts. If the line has meaning (e.g., belt, cuff, seam, neck scarf, window piece, etc.) give an additional point for that item.

The following examples of three levels of elaboration are offered as illustrations:

Example 1
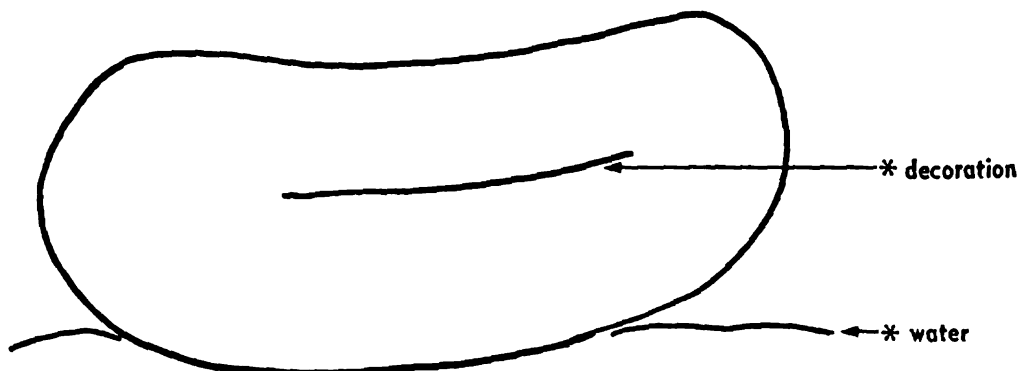
Title: Boat   Points shown by asterisk (*).   Elaboration Score: 2
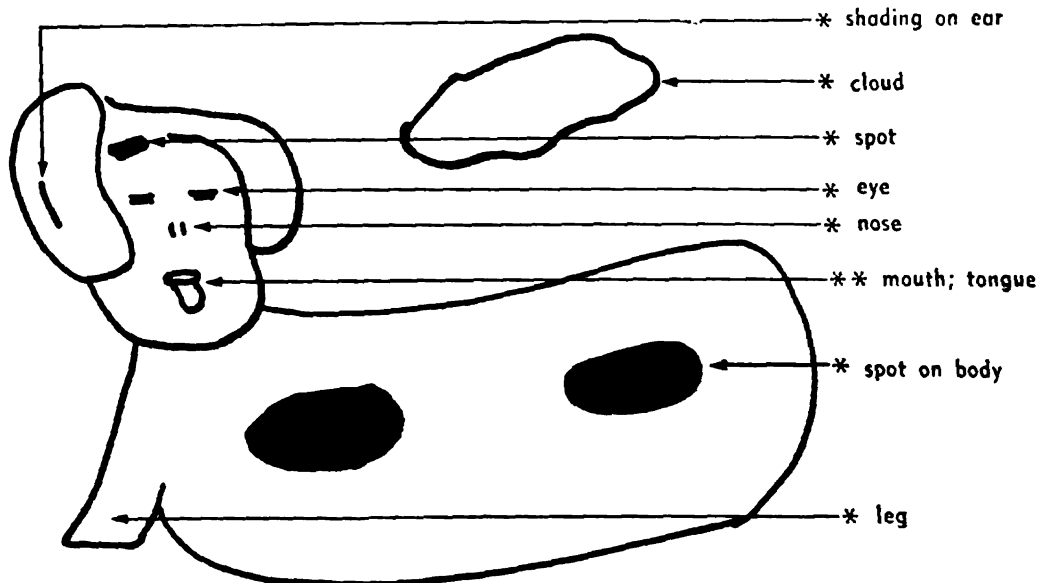
Example 2

Title: A Hungry Dog   Elaboration Score: 9

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Example 3

* plant stem
* point on antenna
* antenna
* head
* eye
* eyeball
* mouth
* neck
* body marking
* leg
* foot
* leaf
* leaf vein
* flower
* stamen
* stem
* foliage
* grass
* grass shading
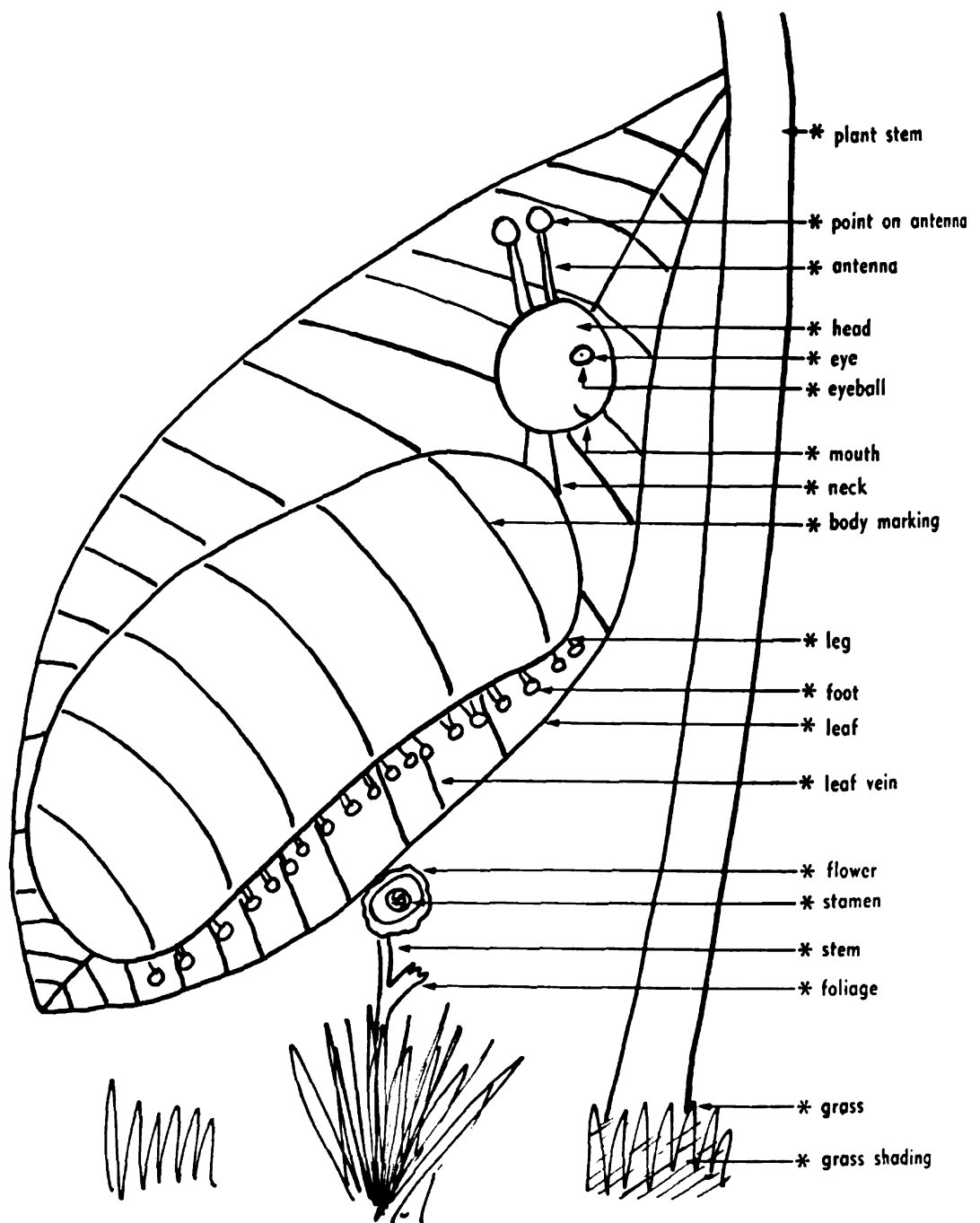
Title: The Caterpillar with Too Many Legs
Elaboration Score: 20

Activity 2: PICTURE COMPLETION

Fluency

The fluency score for Picture Completion is obtained by counting the number of figures completed. The maximum score is 10.

Flexibility

The flexibility score is obtained by counting the number of different categories into which the responses fall. Both the drawing and the

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title must be used in determining the category. Below is a list of categories which will fit approximately 99 per cent of the responses given. New categories should be created for responses which cannot be classified into any of the categories listed here. This may be indicated on the scoring worksheet by "X1" for the first new category created, "X2" for the second new category, etc. Rarely should this method be necessary, however. (These category numbers accompanying the zero and one-credit originality responses may be entered on the scoring worksheet at the same time the originality weights are determined. The category number of the two-credit responses can then be looked up in the list below.)

1. **ACCESSORIES**: bracelet, crown, glasses, hat, monocle, necklace, purse, etc.

2. **AIRCRAFT**: airplanes, bombers, jets, rockets, space ships, etc.

3. **ANGELS** and other heavenly forms, including angel wings

4. **ANIMAL,** including animal faces and heads: ape, bear, bull, camel, cat, crocodile, dog (including specific breeds, such as French poodle, collie, etc.), deer, elephant, frog, goat, horse, lion, mouse, penguin, pig, snail, etc.

5. **BALLS**: baseball, basketball, beach ball, football, mud ball, snow ball, etc.

6. **BALLOON**: singly or in bunch

7. **BIRD, FOWL**: chicken, crane, duck, flamingo, goose, hen, peacock, sea gull, swan, turkey, woodpecker, etc.

8. **BOAT**: canoe, house boat, sail boat, ship, etc.

9. **BODY PARTS**: bone, ear, eye, feet, hands, heart, lips, mouth, nose, tongue, etc.

10. **BOOK**: singly or in case, magazines, newspapers, etc.

11. **BOX**: including packages, gifts, presents, etc.

12. **BUILDING**: apartment house, bee house, animal house, church, hotel, house, oriental house, pagoda, temple, etc.

13. **BUILDING MATERIAL**: brick, lumber, pipe, stone, etc.

14. **BUILDING, PARTS OF**: door, floor, walls, roof, window, etc.

15. **CAMPFIRE**

16. **CANE**: candy cane, walking cane, etc.

17. **CAR**: automobile, carriage, racer, tractor, truck, wagon, etc.

18. **CLOTHING**: bathing suit, blouse, coat, dress, pants, shirt, shorts, skirt, etc.

19. **CLOTHES LINE**: washday and similar uses of clothes lines

20. **CLOUD**: any type of cloud or cloud formation, sky, etc.

21. **CONTAINER**: barrel, box, can, hat box, jug, tank, etc.

22. **CROSS**: Christian Cross, Red Cross, etc.

23. **DESIGN OR DECORATION**: any type of abstract design which cannot be identified as an object; mess, modern art, ribbon bow, etc.

24. **EGG,** including Easter egg, fried eggs, egg characters such as Humpty Dumpty, egg hatching, etc.

25. **ENTERTAINMENT**: circus, dancer, ringmaster, singer, etc.

26. **FISH**: gold fish, guppies, shark, whale, etc.

27. **FLOWER**: cactus, daisy, rose, tulip, etc.

28. **FOOD**: bread (loaf), cake, candy, donut, hot dog, hamburger, ice cream, lollipop, marshmallow, nuts, sandwich, sucker, toast, etc.

29. **FOOTWEAR**: boots, slippers, shoes, etc.

30. **FRUIT**: apple, banana, bowl of fruit, cherries, grapes, lemon, orange, pear, etc.

31. **FURNITURE**: bed, chair, desk, table, TV, etc.

32. **GEOGRAPHY**: beach, cliff, lake, mountain, ocean, river, volcano, waves, etc.

33. **GEOMETRIC FORMS OR DESIGNS**: circle, cone, cube, diamond, square, rectangle, triangle, etc.

34. **HEAVENLY BODY**: Big Dipper, constellation, eclipse, moon, star, sun, etc.

35. **HOUSEHOLD ITEMS**: bowl, broom, brush, coffee pot, clock, coat rack, dipper, hanger, tea cup, tooth brush, silverware, etc.

36. **HUMAN BEING, HUMAN FORM**: including human faces, person, specific person such as Mitch Miller, Zsa Zsa Gabor, etc., cowboy, etc.

37. **INSECT**: ants, bee, beetle, bug, butterfly, caterpillar, firefly, flea, fly, praying mantis, spider, tarantula, etc.

38. **KITE**

39. **LADDER**

40. **LETTERS** of alphabet, singly or on blocks

41. **LIGHT**: candle, flood light, lamp, lantern, electric light, magic lamp, etc.

42. **MACHINE**: coke machine, robot, reducing machine, etc.

43. **MUSIC**: band instruments, bells, cymbal, drum, harp, horn, music stand, musical notes, piano, treble clef, violin, stem of violin, whistle, etc.

44. **NUMERALS,** singly or on blocks

45. **OFFICE AND SCHOOL SUPPLIES**: envelope, paper, paperweight, paper clip, notebook, etc.

46. **PLANT**: bud, grass, leaves, shrubbery, sea plant, etc.

47. **RECREATION**: fishing pole, tennis, Ferris wheel, swing, surf board, roller coaster, swimming pool, ski jump, etc.

48. **RELIGIOUS SYMBOLS** (excluding Cross): chalice, altar, pulpit, spire, church bells, rosary

49. **ROAD AND ROAD SYSTEM**: bridge, highway, road, road map, turnpike, etc.

50. **ROOM OR PART OF ROOM**: floor, corner of room, wall, etc.

51. **SHELTER** (not house): farm shed, fox hole, tent, tepee, etc.

52. **SOUND**: radar waves, radio sound waves, sound spiral, tuning fork, etc.

53. **SPACE**: space man, launching pad, rocket man, etc.

54. **SPORTS**: baseball diamond, boxing gloves, goal post, race, race track, etc.

55. **STICK MAN** (see HUMAN FORM; do not use a new category)

56. **SUN AND OTHER PLANETS** (see HEAVENLY BODIES; not a new category)

57. **SUPERNATURAL BEINGS**: Aladdin, devil, ghost, Dracula, fairy, Hercules, monster, outerspace creature, witch, etc.

58. **SURFACE TRANSPORTATION** (see CAR; not a new category)

59. **SYMBOL**: badge, flag, question mark, Zorro's mark, etc.

60. **TIMER**: sand clock, hour glass, sundial, etc.

61. **TOOL**: axe, claw hammer, hammer, rake, etc.

62. **TOY**: Jack-in-box, puppet, rocking horse, rocking duck, yo yo, etc.

63. **TREE**: all kinds of trees, Christmas tree, holly tree, stump, etc.

64. **UMBRELLA**

65. **WEATHER**: lightning, rain, rainbow, rain drops, snow storm, tornado, wind, etc.

66. **WEAPON**: bow and arrow, cannon, gun, pistol, rifle, slingshot, sword, etc.

Originality

The guide for scoring originality is based on a tabulation of the responses submitted by 500 subjects from grades one through twelve. A separate guide has been prepared for each of the ten figures, since each tends to elicit different common responses. Zero and one-point responses are listed below, together with examples of two-point responses. All other responses showing imagination and creative strength will be awarded *two points*. To facilitate scoring for flexibility, the category number has been placed in parentheses at the left of each response.

FIGURE 1
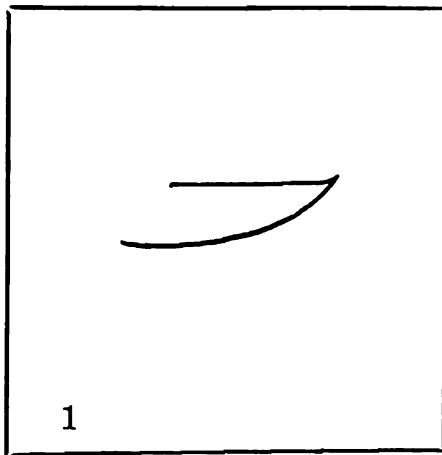
Zero credit (5% or more of responses)

(8) Boat, canoe, sail boat, ship
(35) Bowl or dish (fruit, cereal, chicken, etc.)

One point (2% to 4.99% of responses)

(30) Banana
(7) Bird
(41) Candle holder
(7) Duck
(36) Head of person

Two points: All other responses showing imagination and creative strength. Examples:

(17) Carriage
(4) Dog
(5) Football
(41) Lamp
(28) Loaf
(61) Medical instrument
(34) Moon
(28) Pie
(28) Sandwich
(66) Sword

FIGURE 2
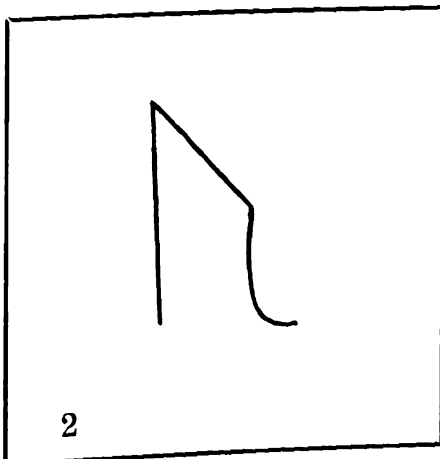
Zero credit (5% or more of responses)

(29) Boot, shoe
(12) House, home
(51) Tent

One point (2% to 4.99% of responses)

(7) Bird
(8) Boat, sailboat, ship
(12) Building, apartment, hotel
(41) Candle
(12) Castle
(12) Church
(48) Church steeple
(14) Door
(2) Rocket
(36) Person, man, girl, etc.
(47) Ski slope
(63) Stump
(63) Tree

Two points: All others showing creative strength. Examples:

(66) Boomerang   (4) Shark
(47) Fishing pole   (4) Snail
(42) Guillotine   (59) Throne
(47) Horseshoe   (32) Waterfall
(48) Pulpit

20

FIGURE 3

3
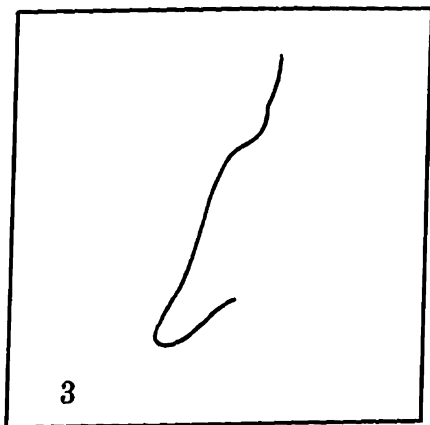
Zero credit (5% or more of responses)

(23) Design, abstract
 (7) Duck, head
(36) Face or head of person
 (9) Hand, finger, nose, thumb
 (4) Horse head, pony head
(36) Person (body)

One point (2% to 4.99% of responses)

(7) Bird
(4) Dog
(9) Legs (dancing, funny, etc.)

Two points: All others having creative strength. Examples:

 (4) Cat
 (4) Deer head
(35) Fork
(57) Ghost
(51) Hole underground
(28) Peanut
 (4) Seal
(35) Teakettle
 (4) Weasel
(65) Wind

FIGURE 4

4
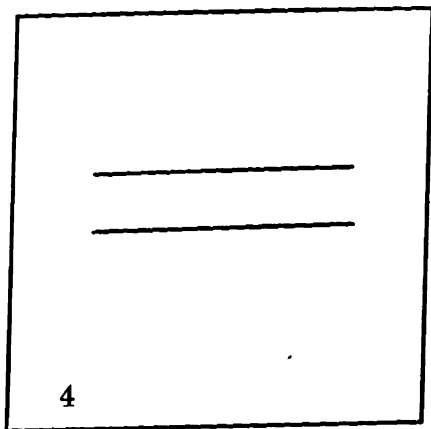
Zero credit (5% or more of responses)

(11) Box
(47) Game (tick-tack-toe)
(49) Highway, street, road
(43) Music, notes, staff
(31) Table

One point (2% to 4.99%)

(31) Bed
(12) Building
(X) Fence
(39) Ladder
(12) House, home
(45) Paper, letter
(49) Railroad tracks

Two points: All others showing creative strength. Examples:

(49) Bridge	(2) Jet
(48) Chalice	(61) Saw (cross cut)
(14) Closet	(62) Spinning top
(4) Dog	(37) Web
(61) Hammer	

21

FIGURE 5
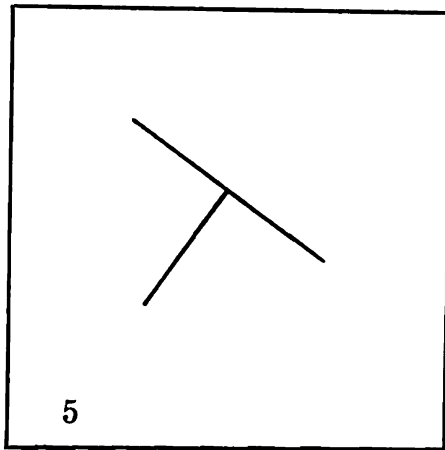
Zero credit (5% or more of responses)

(38) Kite
(40) Letter "X"
(40) T (letter t)
(59) × (multiplication sign)
(62) Teeter-totter, seesaw

One point (2% to 4.99% of responses)

(2) Airplane
(8) Boat
(11) Box
(49) Highway, road, street
(14) House, part of
(34) Star
(33) Triangle
(14) Window

Two points: All others showing creative strength. Examples:

(49) Airfield	(1) Hat
(66) Cannon	(49) Parking ramp
(35) Cup	(47) Ski jump
(43) Drum	(64) Umbrella
(66) Flash gun	

FIGURE 6
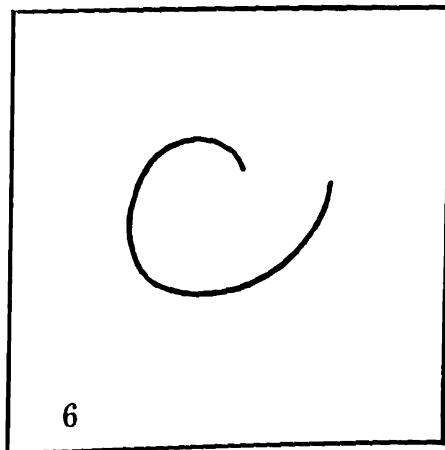
Zero credit (5% or more of responses)

(23) Design, abstract
(36) Face of person
(9) Heart
(4) Snail
(33) Spiral, swirl
(40) Letters "e" or "c"

One point (2% to 4.99% of responses)

(30) Apple	(34) Moon
(9) Ear	(4) Sea shell
(26) Fish	(4) Snake

Two points: All others showing creative strength. Examples:

(37) Bee
(4) Cat's paw
(35) Cup
(4) Dinosaur head
(24) Egg, cracking
(18) Mitten
(9) Nose
(47) Roller coaster
(47) Ski
(7) Turkey
(32) Waves
(4) Worm

22
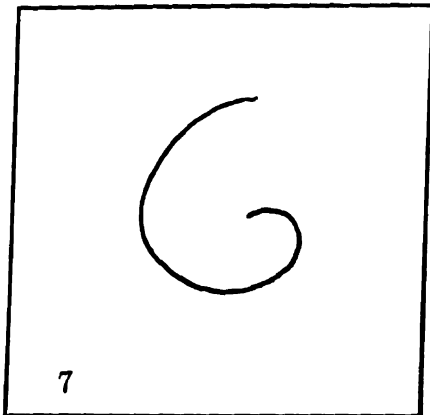
FIGURE 7

Zero credit (5% or more of responses)

(23) Design, abstract
(36) Face or head of person
(44) Figure "6"
(40) Letter "G"

One point (2% to 4.99% of responses)

(54) Boxing glove
(31) Chair
(34) Moon (half)
 (4) Snail

Two points: All others showing creative strength. Examples:

(30)	Banana	(26)	Fish
(31)	Cradle	(51)	Hole
(4)	Dog's face	(28)	Peanut
(65)	Drop of water	(28)	Popcorn
(7)	Duck	(4)	Ram

FIGURE 8
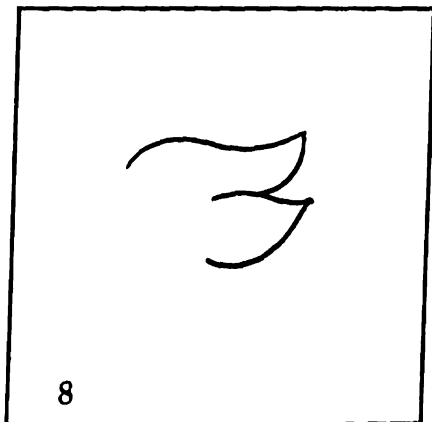
Zero credit (5% or more of responses)

(7) Bird
(23) Design, abstract
(27) Flower, tulip, rose, etc.
(46) Leaf, leaves

One point (2% to 4.99% of responses)

 (4) Dog
 (7) Duck
 (9) Hair (face)
 (4) Hoof, of pig, deer, etc.
(36) Person
 (4) Pig head
 (4) Rabbit
(29) Shoes
(X) Wings

Two points: All others showing creative strength. Examples:

 (1) Charm (for bracelet, etc.)
(57) Dragon
(59) Flag
(28) Fortune cookie
 (9) Mouth, lips
(46) Pea pod
 (4) Rabbit
 (7) Swan

23
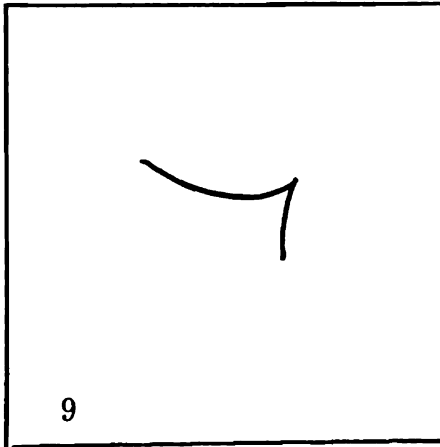
FIGURE 9

Zero points (5% or more of responses)

(23) Design, abstract
(36) Head, girl, man, etc.

One point (2% to 4.99% of responses)

(8) Boat, sail boat, ship
(36) Body (person)
(11) Box
(36) Head, face or person
(38) Kite
(44) Figure "7"
(63) Tree

Two points: All others showing creative strength. Examples:

(4) Bat (animal)
(14) Chimney
(9) Elephant's trunk
(59) Flag
(57) Ghost
(46) Holly leaf
(21) Pitcher
(34) Star
(21) Watering can
(32) Wave

FIGURE 10
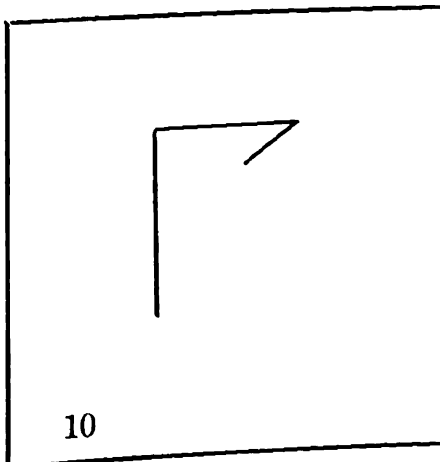
Zero credit (5% or more of responses)

(29) Boot, shoe
(23) Design, abstract
(59) Flag
(40) Letters, "F", "K", "R"

One credit (2% to 4.99% of responses)

(66) Arrow
(11) Box
(1) Crown
(36) Person

Two credits: All others showing creative strength. Examples:

(61) Axe
(21) Basket
(1) Diamond (in ring)
(66) Gun, pistol
(21) Jug
(38) Kite
(21) Pitcher
(42) Robot
(35) Teapot
(58) Train
(63) Tree
(17) Truck

Originality and Cleverness of Title (Optional. May be counted as a Verbal Score—See Norms-Technical Manual)

The originality and cleverness of each title is scored according to the criteria outlined for scoring this aspect of performance on the Picture Construction task. The following examples of titles for some of the common responses to Figure 1 will illustrate the scoring scheme:

0 Obvious class titles, such as "Boat," "Duck," and "Bowl."

1 Simple descriptive titles at a concrete level, involving a modifier plus a class name, such as "Blue Boat," 'Crippled Duck," and "Bowl of Soup."

2 Imaginative, descriptive title in which the modifier goes beyond concrete, physical description, such as "Bumpy Boat Down the Mississippi," "Glob-Blob the Duck that Wouldn't Quack," and "A Bowl for the Princess."

3 Abstract but appropriate title, going beyond what can be seen and telling a story, such as "The Haunted Boat of the Styx," "The Charming Lady of Quackery," and "Magic Bowl of the Bees."

Elaboration

The elaboration score for Picture Completion is obtained in the same way as the elaboration score was obtained for Picture Construction. The scoring procedures are illustrated in the scoring of the second page of the test taken from an actual record on the next page.

Activity 3: CIRCLES

Before beginning the scoring of the Circles Test, it is important to check for repetitions and relevancy and to eliminate these responses from consideration in all scoring. A relevant response is defined as one which contains the circle (the stimulus element of the test) as an integral part. Responses in which the circle is used as a frame are considered relevant only if the response is presented as a picture and the circle is used as a "picture frame." If the object contained in the frame involves the use of a circle as the main element and it seems likely that the subject misunderstood the instructions, one-half credit may be used.

Another scoring problem occurs when several circles or an entire page of circles is used for a single picture. For example, one first grade boy used the page of circles as a honey comb, adding only a very colorful and busy bee plus the frame of the honey comb. A kindergarten girl used the circles to draw a girl blowing bubbles and the unfinished circles were the soap bubbles the girl had blown. An older girl used the page of circles as an interesting jungle scene. The circles became parts of birds, animals, flowers, and the like. Such responses do not lend themselves to the usual scoring procedures and are, in fact, rare. Such responses frequently reflect a powerful ability to syn-

FIGURE 2. ELABORATION SCORING—PICTURE COMPLETION
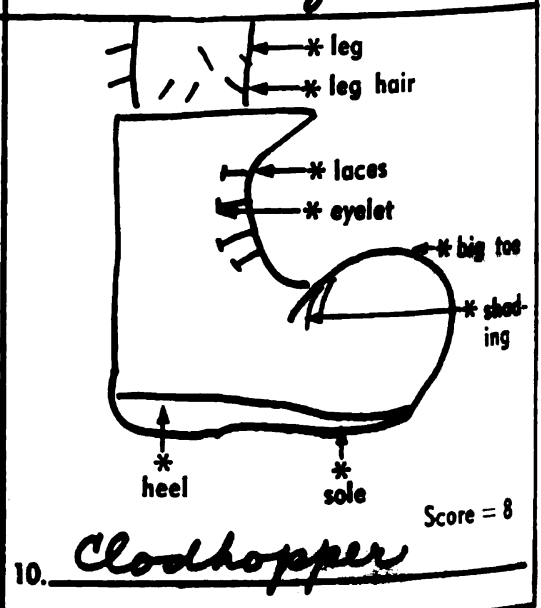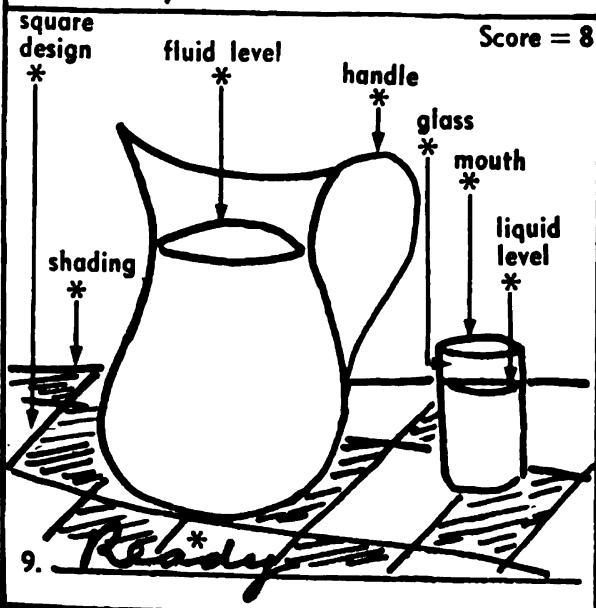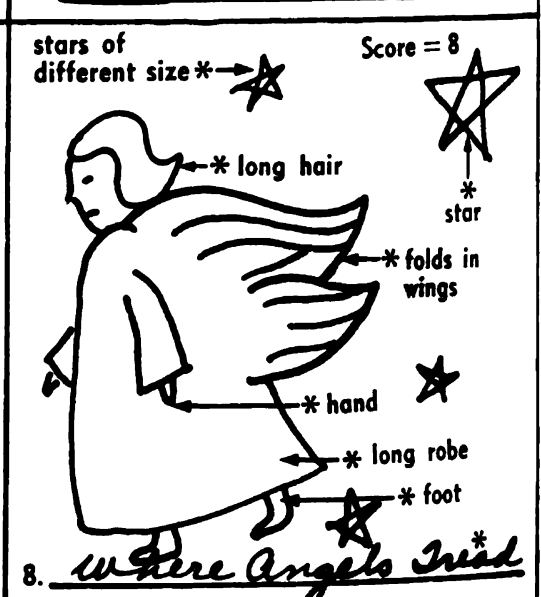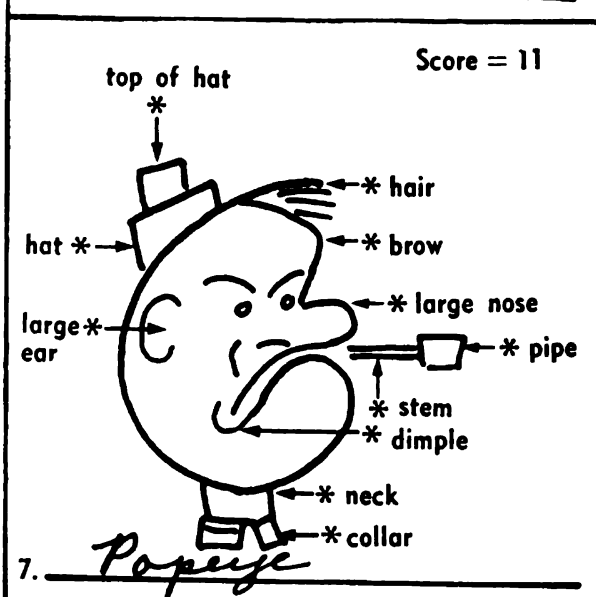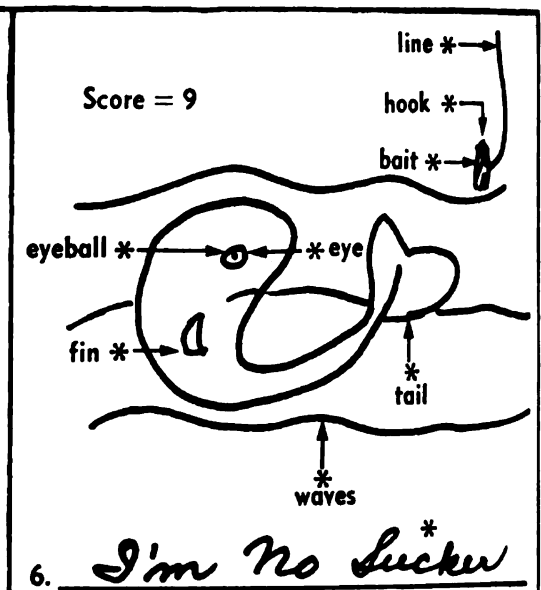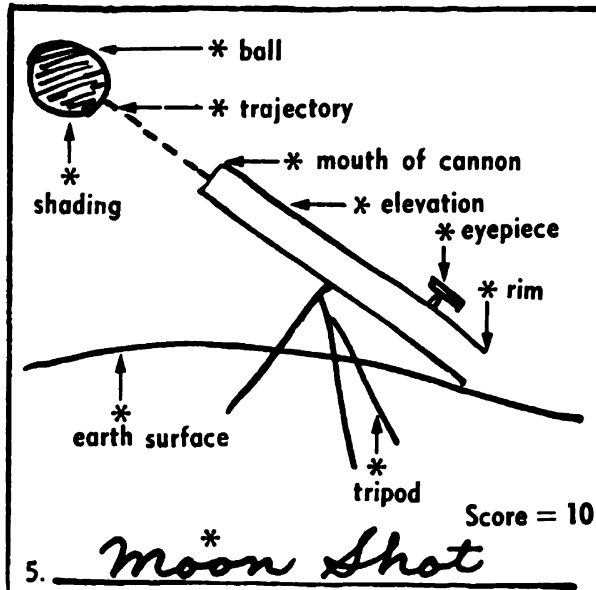
thesize and depart from the commonplace and expected and may be important clues concerning the child's ways of thinking. Insofar as possible adaptations should be made to reflect as true a picture as possible of the child's functioning. Usually such responses are quite elaborate and the usual scoring for elaboration is satisfactory. If the picture can be broken down into separate responses, each element can then be scored separately. Bonus scoring for originality is described on pages 30 and 31.

Fluency

Fluency is simply the number of responses minus the number of duplications and irrelevant responses.

Flexibility

The flexibility score is obtained by counting the number of different categories into which a subject's responses can be classified. The following categories were derived from an analysis and classification of the responses of a sample of 588 subjects from kindergarten through the college years. In cases where responses cannot be classified into any of the categories listed below, new categories should be created. They may be indicated on the scoring worksheet by "X1" for the first new category, "X2" for the second new category, etc. Rarely should this be necessary since these categories cover over 99 per cent of the responses given by the 588 subjects.

1. Animal or birds, including faces or heads
2. Animal or bird parts, other than face or head
3. Audio-visual equipment
4. Balls
5. Blemishes, smears, spots, etc.
6. Blots
7. Buildings, entire
8. Buildings, parts
9. Candy
10. Clocks and watches
11. Clothing, including hat, cane, umbrella, etc.
12. Coins/money
13. Containers
14. Cooking utensils
15. Covers of any kind
16. Decorations
17. Designs (including geometric forms and designs)
18. Dial instruments (speedometer, barometer, etc.)
19. Drugs

27

20. Elements for water, atom, etc.
21. Flowers
22. Food, except fruits and pastries
23. Fruits
24. Furniture
25. Games, parts of games
26. Glasses or spectacles
27. Heavenly bodies (excluding man-made ones)
28. Holes
29. Hoops
30. Household items, including lights
31. Human faces or heads, including clowns, fantasy figures, etc.
32. Human faces, parts of
33. Human body or figure
34. Human body, parts of other than face or head
35. Jewelry
36. Kitchen utensils
37. Letter of alphabet
38. Means of transportation or parts of
39. Mechanical devices
40. Musical instruments
41. Nails, screws, thumb tacks, etc.
42. Numerals
43. Optical instruments
44. Pastry, pie, cake, cookies, etc.
45. Picture frame
46. Plants
47. Satellites
48. Signs, signals
49. School supplies
50. Smoking utensils
51. Sports equipment
52. Symbols, emblems, etc.
53. Tableware
54. Tools
55. Toys
56. Vegetation, including trees, branches, shrubbery, etc., but excluding plants and flowers.
57. View through X-ray, microscope, telescope, etc.
58. Water, lake, puddles, wells, etc.
59. Weapon parts
60. Wheels

Originality

Scoring for Originality is based on tabulations of responses by 588 subjects. The responses have been assigned scale values on the basis of the statistical infrequency and/or obviousness. Scorers should soon memorize what responses carry weights of zero and one. Then all other responses showing imagination and creative strength are assigned values of 2 points.

Responses scored zero and one, together with some sample responses scored two, are listed below as a guide to obtaining the originality score for this activity. All other responses that show creative strength and get away from the obvious are awarded *two points*. Flexibility categories are given in the first column and originality weights in the second.

Response	Flex. Categ.	Orig. Wgt.	Response	Flex. Categ.	Orig. Wgt.
Animal, body of	2	0	Clock	10	0
Animal, face of	1	0	Clothing	11	0
Apparel, piece of clothing	11	0	Clown's face	31	1
Apple	23	0	Coin	12	1
Aquarium	13	2	Compass	18	1
Ash tray	30	1	Cookie	44	0
			Cylinder	13	2
Badge	52	2	Decoration	16	1
Ball	4	0	Design	17	0
Balloon	55	0	Dial instrument	18	1
Barrel	13	2	Dime	12	1
Basket	13	1	Dog, body or face	1	1
Basketball net/hoop	51	0	Doughnut	44	0
Bell/bell and buzzer	39	1	Earth	27	0
Bicycle	38	1	Egg	22	0
Bird, bird head	1	0	Expressive human face	31	1
Bolt	41	1	Eye, eye ball	32	0
Bowl	30	2			
Box	13	2	Fan	30	2
Boy's face	31	0	Figure (number)	42	0
Bubble	4	2	Fish	22	2
Bug	1	2	Flag	52	2
Button	30	0	Flower(s)	21	0
			Fruit, unidentified	23	0
Can	13	1			
Candy	9	1	Girl's face	31	0
Candy cane	9	1	Glass, water	13	2
Capsule	19	2	Glasses, spectacles	26	1
Car	38	0	Globe	49	0
Cat, face or body	1	1			
Chain, link of chain	35	2	Hat	11	0
Circle as frame	45	0	Holes (all kinds)	28	0

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Response	Flex. Categ.	Orig. Wgt.
Hoops 29		0
House (exluding other buildings) . 7		1
Human faces (excluding expressive or fantasy faces) 31		0
Hub cap 38		1
Human figure (boy, girl, man, etc.) ..33		1
Ice cream cone 22		1
Jack-o'-lantern 52		1
Jewelry 35		1
Lake 58		2
Lamp, lamp shade, lantern 30		1
Letter of alphabet ..37		0
Life saver 9		1
Light bulb 30		0
Lock 30		2
Lollipop, sucker ... 9		1
Man's face 31		0
Marble 55		2
Medal 16		2
Merry-go-round 55		2
Mirror 30		1
Moon 27		0
Nail 41		1
Necklace 35		1
Nickel 12		1
Numeral 42		0
Orange 23		1
Owl 1		2
Pan 14		0
Pear 23		2

Response	Flex. Categ.	Orig. Wgt.
Pie 44		0
Pill 19		2
Plate 30		1
Porthole 28		1
Pumpkin 23		1
Purse 11		1
Quarter 12		1
Rabbit, face or body 1		1
Record (disc) 40		1
Ring (jewelry) 35		1
Rocket 59		1
Saucer 30		2
Satellite 47		1
Screw 41		1
Signs (Stop, Go, etc.) ..48		1
Snow ball 4		2
Snow man 33		2
Sports equipment ..51		1
Sputnik 47		1
Steering wheel 60		0
Stop sign 48		1
Sun 27		0
Tableware 53		1
Target 51		0
Television set 30		1
Tire 38		0
Tomato 23		1
Tree 56		1
Turtle 1		1
Waffle 22		2
Washing machine ..30		2
Watch 10		0
Wheel 60		0
Window, window frame ... 8		1

Bonus Originality Scoring

There has always been a question about the scoring of responses of Activity 3 on Figural Form B when the subject combines two or more circles to make a single response. It has always been recognized that such responses indicate a rather high level of originality. First, such responses are relatively rare and this is one reason why no special provisions have been previously established for special scoring pro-

cedures. Second, such responses definitely represent a departure from the commonplace and established. The test instructions and format of the booklet definitely establish a set to make a separate object from each circle. Combining two or more circles, however, is not forbidden and this strategy has been deliberate. The rationale for this position is that the creative person sees possibilities that others assume have been closed out. As results have come in from pre- and post-testing where there have been intervening experiences to facilitate creative development, this combining kind of behavior has become more frequent in the post-test. A re-evaluation of this problem in the light of evidence from such studies and in the light of the theoretical rationale makes it quite clear that bonus points for originality should be awarded for such combining responses. The following scheme has been adopted by the author and is recommended for general use:

Combining two circles (as in eye glasses or bicycle),
TWO BONUS POINTS

Combining three to five circles,
FIVE BONUS POINTS

Combining six to ten circles,
TEN BONUS POINTS

Combining eleven to fifteen circles,
FIFTEEN BONUS POINTS

Combining more than fifteen circles,
TWENTY BONUS POINTS

Combining all circles on both pages into a unified structure,
TWENTY-FIVE BONUS POINTS

Bonus points are added to whatever originality score the pupil has already been awarded for Activity 3 on the basis of the described procedures. This grand total then becomes his originality score for the activity.*

Responses showing truly exceptional originality may be given additional credit but this will be rare. These are the kinds of responses that the scorer recognizes immediately as "original beyond the scope of a scoring guide."

Title Originality

Experience has thus far indicated that scoring for Title Originality in this activity is not worth while.

Elaboration

The principles for scoring elaboration for the Circles Activity are the same as those that have been stated for the Picture Construction

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* Researchers using this test in a pre- and post-test design must be consistent in their test-retest originality scoring. If the bonus score was not computed for the pre-test, it should not be used in the post-test score that is used for inter-test comparisons. It is also possible to rescore the pre-test, adding the bonus points, in which case the bonus point scoring should also be used in the post-test.

and Picture Completion Activity. The problem is to determine the number of ideas communicated by each object, IN ADDITION TO THE MINIMUM BASIC IDEA. How much of a story does the response tell? Titles are not scored in this activity.

Suppose the subject sees the circle as an *apple* and labels the circle thus with no further elaboration. This would merit a score of zero; nothing over and above the minimum basic ideas of an apple is communicated. If he colors the circle yellow, green, or red and labels it "apple" with no further elaboration, the response will be scored "1." Other possible elaborations would include: a stem, leaves, a rotten spot, a worm coming out of the apple, a pitted shape around the stem, a slight elevation on the side opposite the stem, mixed coloration such as red and green, etc. An additional point would be added for each of these ideas.

The following illustrations of what constitutes the minimum basic idea for some of the more frequently given responses may be used as a guide. The details necessary to convey the basic idea receive no credit for elaboration; additional details receive credit.

Responses Representing Minimum Basic Ideas
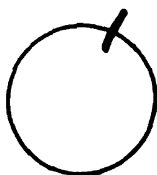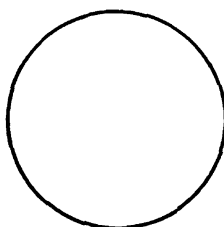
| Animal Face | Apple | Ball | Balloon | Basketball Net/Hoop |

| Button | Car | Circle as Frame | Clock | Clothing, i.e. Pants |

| Design * | Door Knob | Doughnut | Earth | Egg |
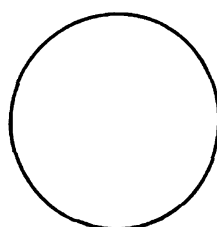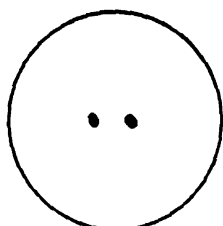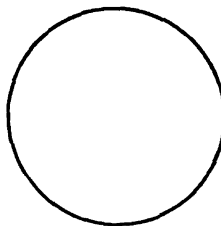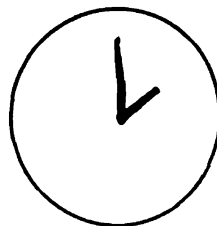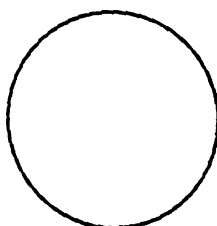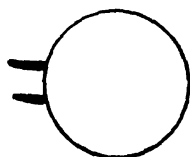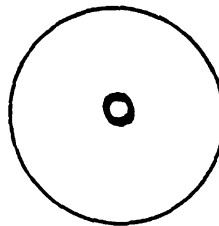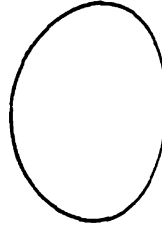
* Count only shadings, colors, communicative details; not random lines.

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Responses Representing Minimum Basic Ideas
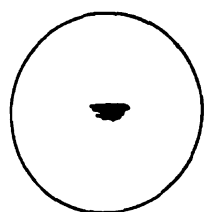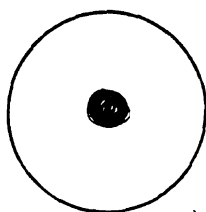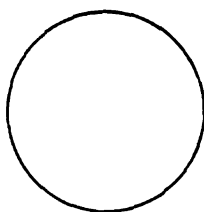
Eye/Eyeball	Flower	Frame (Picture)	Globe	Hole
Hoop	Human Face	Letter (Alphabet)	Light Bulb	Moon
Numeral	Orange	Pan	Pie	Sun
Steering Wheel	Target	Tire	Watch	Wheel
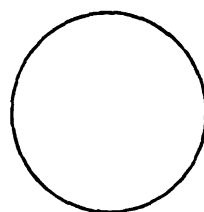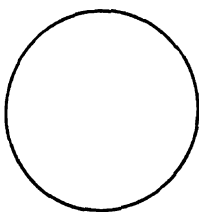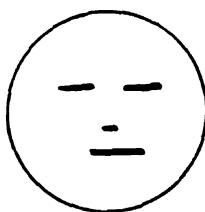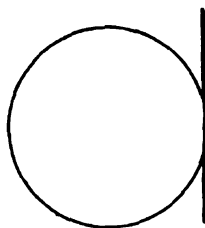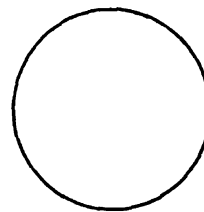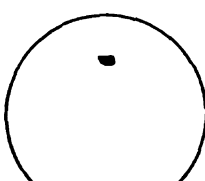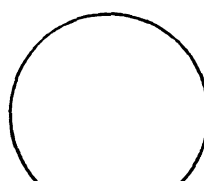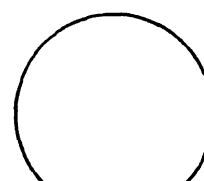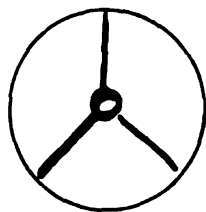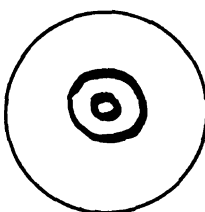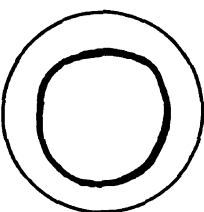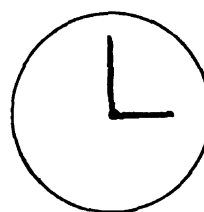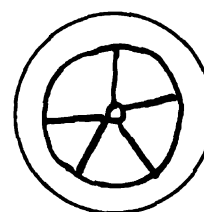
The following are additional scoring illustrations for the Circles Activity:

Example 1

See Bozo

→ * advertisement on balloon

→ * string on balloon

Elaboration Score: 2

Example 2

* rabbit ears on TV

* control knob

program in progress
* man running
* mountain
* road

* TV table
* leg of table
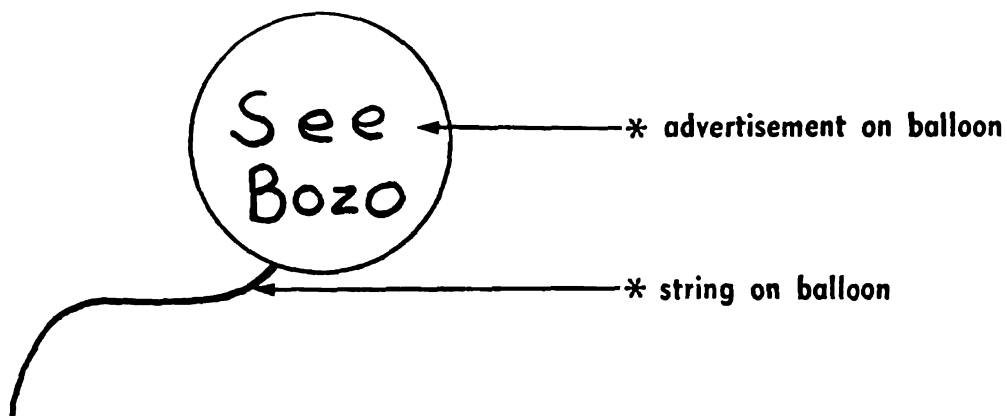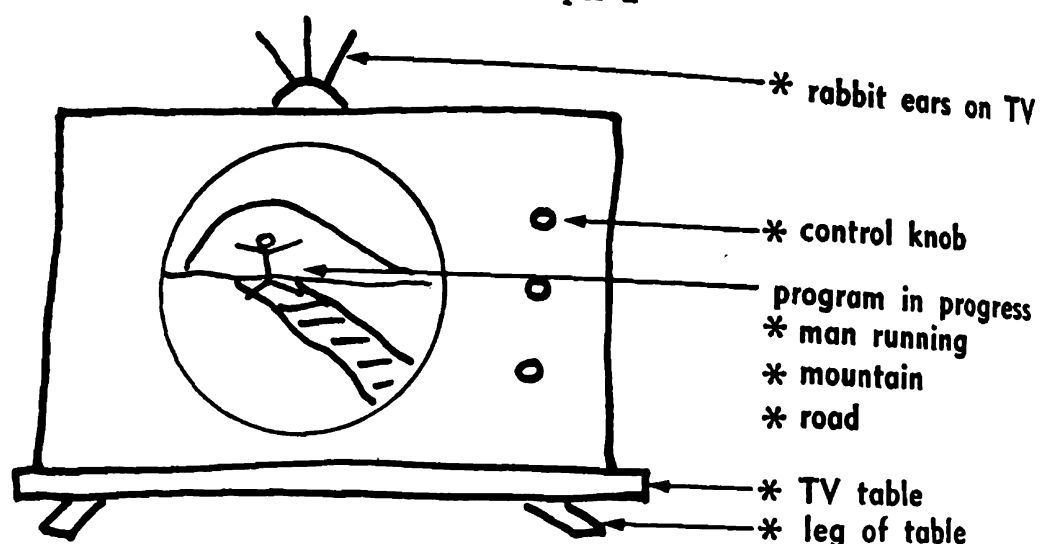
Elaboration Score: 7

Example of Complete Scored Test Booklet

On the pages following is reproduced, for the guidance of examiners, a complete Figural B test booklet, as done by a college student. Scoring marks and tabulations, as annotated by the examiner, have been left on the booklet "as-is."

On page 40 is reproduced the Scoring Worksheet for this booklet. On it, the examiner has transferred his annotations from the booklet and summarized them. Total raw scores for each scoring category were cumulated in the Score Summary box and transformed into T-scores, using the norms table for Figural Booklet B from the *Norms-Technical Manual*.

Prior to scoring other tests, the examiner might wish to score this example, first covering the scoring notes.

Scoring Annotations

On all activities, an asterisk has been placed near each point of detail in the drawing which the examiner considered to be an elaboration over the basic drawing. The elaboration score for each activity was determined by cumulating these points. Originality scores were established by reference to the appropriate guide for each activity.

Following each response in Activities 2 and 3 will be found three numbers separated by dashes. The first number represents the flexibility category for the response, the second number is the originality weight, and the third is the elaboration score. Titles given the drawings were used in elaboration scoring for Activities 1 and 2 but not for any other scoring.

34

YOUR TITLE: *Must I send my only son.*

Activity 2. PICTURE COMPLETION

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.

7-1-4

4-2-2

36-1-4

43-0-4

1. I float
2. grocery shopping
3. snake
4. face
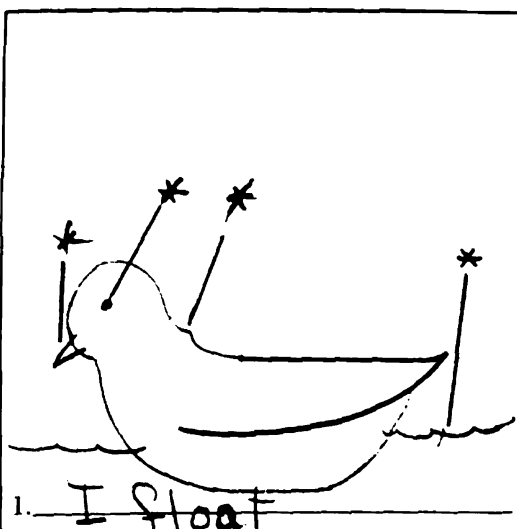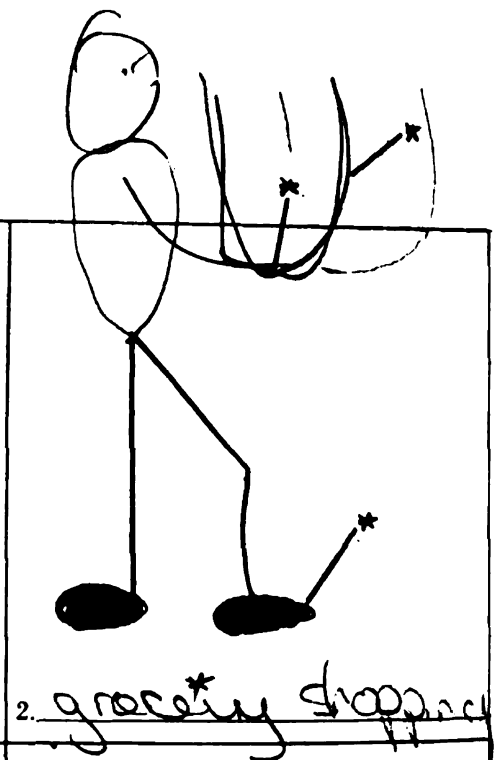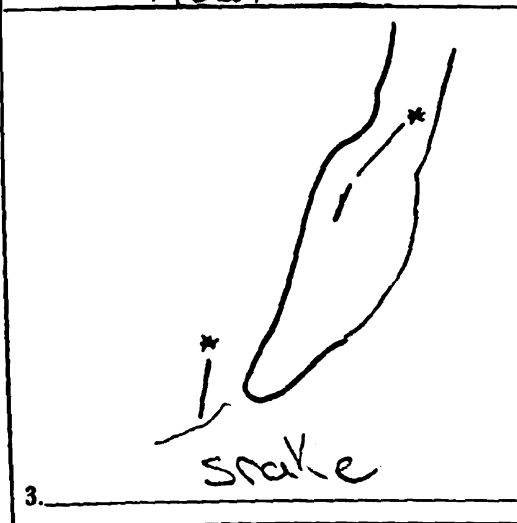
4
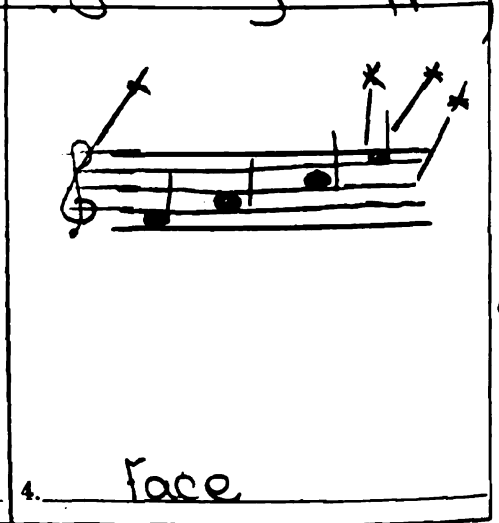
64-2-1
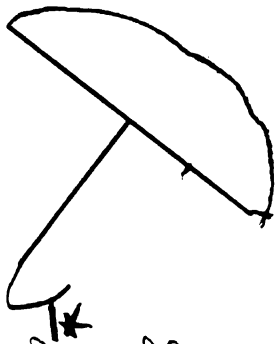
5. umbrella

29-2-1
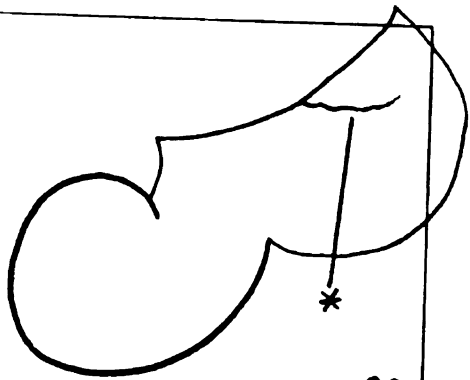
6. shoe

49-2-4
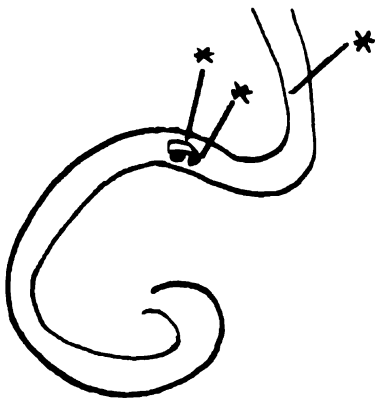
7. what a curvy road

7-0-4

8. whistle a happy tune

9. _____
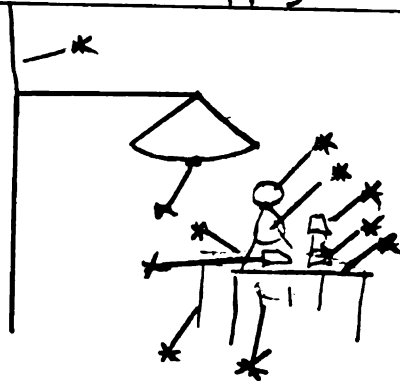
31-2-11

10. Exams

5

Activity 3. CIRCLES

In ten minutes see how many objects or pictures you can make from the circles below and on the next page. The circles should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. You can place marks inside the circles, outside the circles, or both inside and outside the circles—wherever you want to in order to make your 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 below the objects.

Response 1   Response 2   Response 3
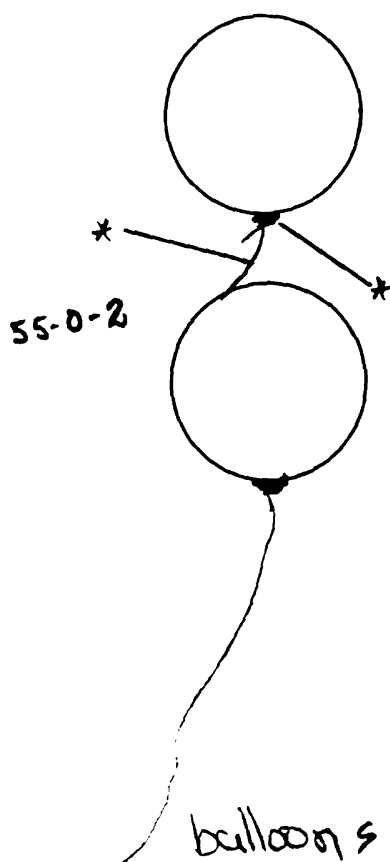
55-0-2

balloons

33-1-7

6

IT rained

I sleepy

31-0-2

Response 4

27-0-1

Sun

38

Response 5

38-2-0

head lights

Response 6

wall plug

30-2-1

Response 7

30-2-1

stove

Response 8

circus

X-2-2

Response 9

"I use Crest"

31-1-3

Response 10

would you believe a worm?

2-2-5

7
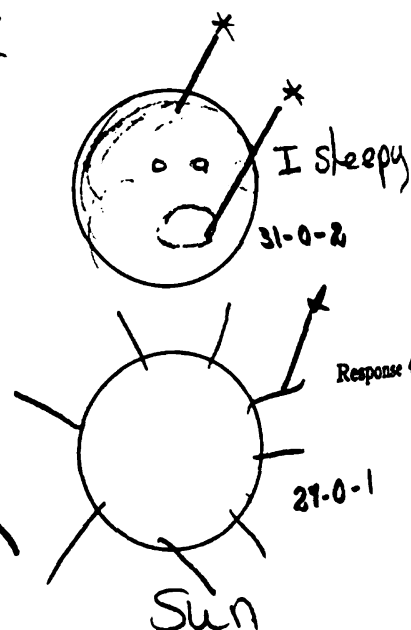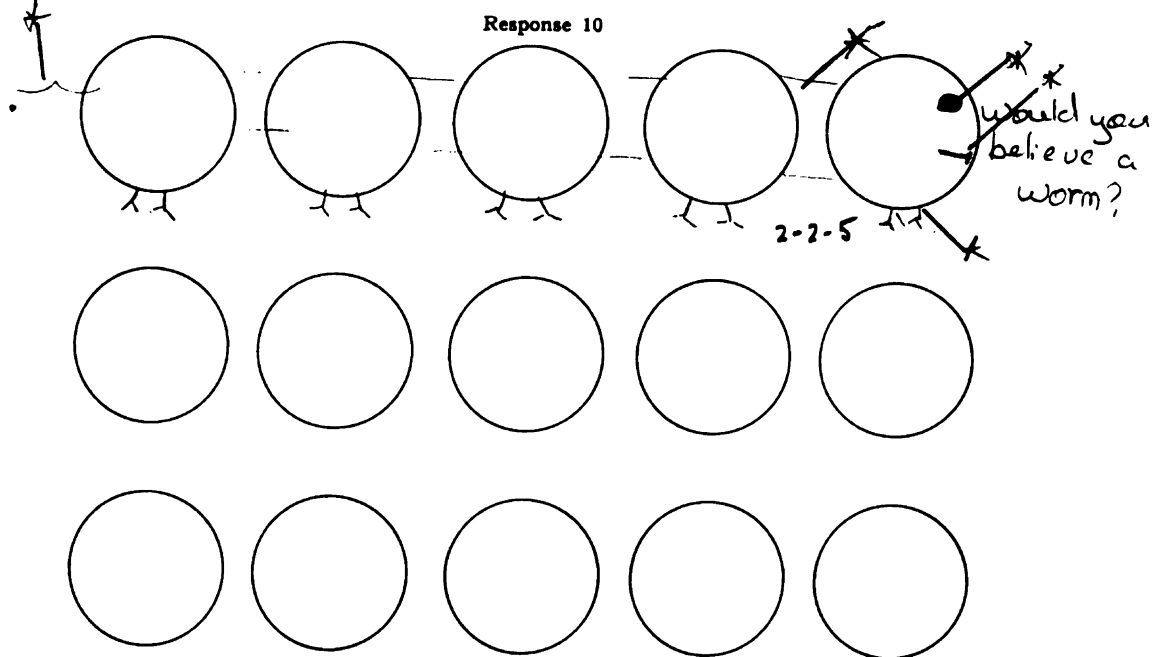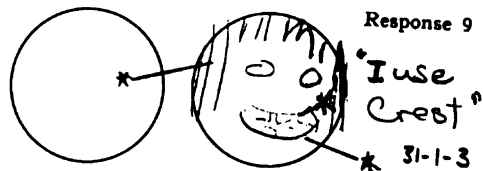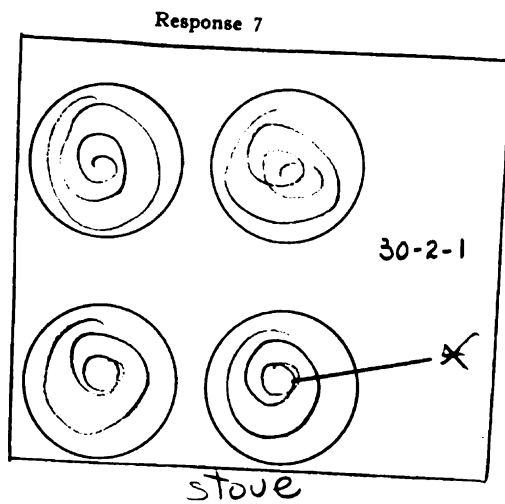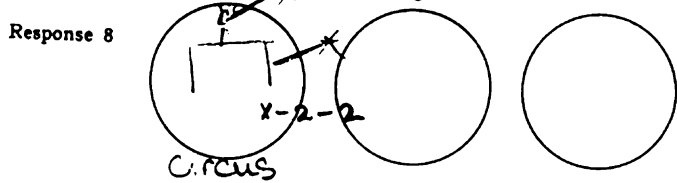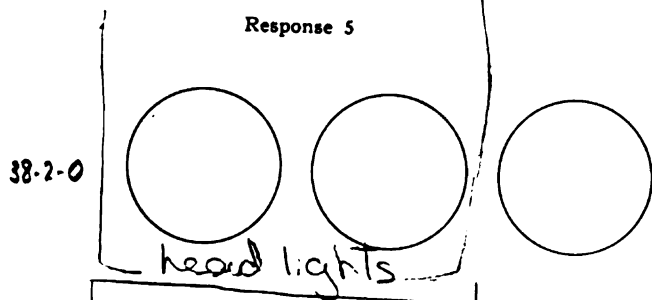
SCORING WORKSHEET

TORRANCE TESTS OF CREATIVE THINKING, FIGURAL FORMS A and B

Pupil's Name __Juliet Ellison__   Sex __F__   Test Date __5·26·66__

School __Univ. of Tenn.__   Age __21__   Grade __Sr.__   Scorer __JK__

Form __B__

Resp. No.	Activity 1 Orig.	Activity 1 Elab.	Activity 2 Categ.	Activity 2 Orig.	Activity 2 Elab.	Activity 3 Categ.	Activity 3 Orig.	Activity 3 Elab.
1	0	43	7	1	4	55	0	2
2			36	1	4	33	1	7
3			4	2	2	31	0	2
4			43	0	4	27	0	1
5			64	2	1	38	2	0
6			29	2	1	30	2	1
7			49	2	4	36	2	1
8			7	0	4	x	2	2
9			—	—	—	31	1	3
10			31	2	11	2	2	5
11								
12								
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16								
17								
18								
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21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SCORE SUMMARY

	FLU	FLEX	ORIG	ELAB
Act. 1	✕	✕	0	43
Act. 2	9	8	12	35
Act. 3	10	8	28	24
TOTAL	19	16	40	102
T SCORE	42	48	84	63

COMMENTS:

Bonus Originality

# 2	2 points
# 5	2
# 6	2
# 7	5
# 10	5

Total Bonus 16 points

Regular Total 12

Grand Total 28

Name

School

PER

Thinking Creatively With Pictures

By E. Paul Torrance

Name_____ Age_____ Sex _____ Grade _____

School _____ City_____ Date _____

Activity 1. PICTURE CONSTRUCTION

Below is a piece of colored paper in the form of a curved shape. Think of a picture or an object which you can draw with this piece of paper as a part. On the back of these shapes you will find a thin layer of paper that can be peeled away. Look. Now you can stick your colored shape wherever you want it to make the picture you have in mind. Stick yours on the next page where you want it and press down on it. 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.

YOUR TITLE:_____

Activity 2. PICTURE COMPLETION

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.

1.

2.

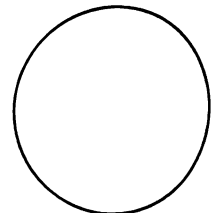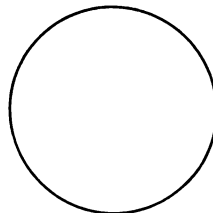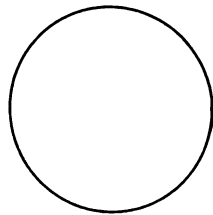3.

4.

5._____

6._____

7._____

8._____

9._____

10._____

Activity 3. CIRCLES

In ten minutes see how many objects or pictures you can make from the circles below and on the next page. The circles should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. You can place marks inside the circles, outside the circles, or both inside and outside the circles—wherever you want to in order to make your 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 below the objects.