AN ABSTRACT OF THE THESIS OF

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Title: DEVELOPING A LEARNING PACKAGE THAT WILL HELP
HIGH SCHOOL HOME ECONOMICS STUDENTS DEVELOP THEIR CREATIVE POTENTIAL.

Abstract approved: ____________________________ / Dr. Sylvia L. Lee

Every student has a creative potential. An atmosphere needs to be maintained in the classroom that motivates and encourages the student to use and to develop this potential. Evidence indicates that teachers need help in freeing and in stimulating each student's creative potential. A learning package on design principles was developed to motivate students and develop their creative potential as evidenced by the results of a pre and a post test, Figural Forms A and B of Torrance Tests of Creative Thinking.

Three lists were compiled from a review of current literature concerning creativity: (1) characteristics of the creative person, (2) guidelines for developing learning experiences to develop creative potential, and (3) guidelines for teachers who wish to develop the creative potential of their students.
The first two lists were utilized in the construction of the behavioral objectives and learning experiences in the package. Each behavioral objective was designed to incorporate two of the five main categories of characteristics of the creative person. Two of the seven categories on the list of guidelines for developing learning experiences were used in each learning experience.

The learning package contained five sections, Emphasis, Balance, Rhythm, Proportion, and Harmony, and "Idea Sheets." Using a questionnaire, 27 home economists evaluated the package rating from one to five how well each behavioral objective or learning experience satisfied its criteria.

A mean rating was computed for each item on the questionnaire. If the mean was lower than 3.5, the writer either justified or revised the behavioral objective or learning experience.

The package was used by the writer's high school advanced clothing class of 12 members. Before beginning the package the students were divided in half. One half was given Figural Form A and the other half was given Figural Form B of Torrance Tests of Creative Thinking as a pretest. The forms were reversed in the post test so the students did not take the same test twice.

After initial confusion and frustration most of the students indicated verbally and demonstrated their interest and enjoyment in the package. A test focused on the subject matter of the package seemed
to be quite difficult as evidenced by low mean scores for each section and for the total test.

A t test revealed no significant difference between the group which was given Figural Form A followed by Figural Form B and the group which was given Figural Form B followed by Figural Form A. Therefore, the data were combined and a t test of the mean gain in score was significant at the one percent level for fluency, flexibility, and originality. Mean gain for elaboration was not significant.

Results reveal that even though the students scored poorly on the learning package subject matter test, they did develop creativity in the areas of fluency, flexibility, and originality. One needs to recall that the purpose of the learning package was not acquisition of subject matter information, but development of creativity.

Because of the nature of creativity, characteristics of the creative person, and guidelines that should be followed in creative development, the writer was not able to give some types of assistance to students while they were working on the package. The writer feels that if this help had been given, more subject matter information would have been acquired. However, this action might have resulted in less creativity.

The importance of the teacher in this learning experience is quite obvious. The teacher must have the knowledge and the ability to create and to maintain an environment conducive to the development of creativity if creative development is to be fostered.
Developing a Learning Package That Will Help
High School Home Economics Students
Develop Their Creative Potential

by

Melody Ann Field

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DEVELOPING A LEARNING PACKAGE THAT WILL HELP HIGH SCHOOL HOME ECONOMICS STUDENTS DEVELOP THEIR CREATIVE POTENTIAL

CHAPTER I

INTRODUCTION

Need for the Study

Every student has a creative potential. Teachers need to maintain a classroom atmosphere in which students are motivated and free to use this potential. The total person needs to be involved as much as is possible in every learning experience. Making use of each student's creative potential is one more step in reaching this goal. When this is accomplished, the entire concept being taught becomes clearer, much more meaningful, and lasting. Therefore, teaching, as well as learning, is greatly facilitated.

It is the writer's belief that teachers may hamper the development of creativity without knowing that they are doing so. Highly structured classrooms where the student has little voice in the planning or management of his learning experiences may be one example of a situation in which a student "learns" to suppress his creative potential. Teachers need help in arousing and in freeing the creative potential of their students.

When creative potential is stagnant for a period of time, it
becomes very difficult to arouse. Even when ample opportunities for creative expression are placed before the student, he cannot make use of them. Many students do not know how to use their creative potential. Critical thinking, ingenuity, curiosity, imagination, and spontaneity may be foreign to them. The student needs to be helped to stimulate his creative potential in a new and different way.

Since 1950 there has been much emphasis on the topic of creativity. However, there have been few studies dealing with ways in which to develop creativity in the classroom. In some instances teachers do not realize they are now using techniques which stimulate creativity. Such techniques as brainstorming, popcorn sessions, role playing, projective techniques, buzz groups, and problem solving are all believed to stimulate the use of creative potential. The writer believes that a learning package would be an innovative method for stimulating creativity.

Purpose of the Study

The writer has found that although there has been a great deal of emphasis on the topic of creativity in the past several years, there is still little research done on the topic in home economics. The writer believes she can build upon what has been done concerning creativity in the field of home economics and still inject an original approach to the subject. The original approach the writer
suggests is the use of a learning package for the development of creativity.

The major purpose of this study is to develop a learning package on design principles in which it is hoped students will be motivated to be creative in their thinking and problem solving as evidenced by the results of a pre and post test using Figural Form A and Figural Form B of Torrance Tests of Creative Thinking.

In order to fulfill this purpose the following objectives need to be fulfilled:

(1) To develop from the literature, the qualities of a creative person.

(2) To develop from the literature, guidelines a teacher needs in order to check learning experiences for bringing out creativity in students.

(3) To further review current literature concerning creativity to answer the following questions:

A. What is the definition of creativity?

B. What is the nature of creativity?

C. What are the steps in the creative process?

D. What are the conditions under which creativity is developed?

E. What kind of a teacher can further development of creativity?

F. What are the blocks to creativity?
G. What are Torrance Tests of Creative Thinking? Are they considered valid and reliable?

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(4) To develop a learning package on design principles incorporating the characteristics of the creative person in the behavioral objectives and using guidelines for developing learning experiences to develop creative potential in the formulation of the learning experiences.

(5) To develop a questionnaire which would be used in the evaluation of the learning package.

(6) Evaluation of the learning package by home economics teachers.

(7) To test the learning package on one high school home economics class and assess whether the students further developed their creativity through the use of the package.

Limitations of the Study

One limitation of this study is that it will cover only the development of creativity in one small aspect of the subjects' lives, that connected with the learning package. Utilizing the creative potential of every student should be applied not only to design principles, but to every subject in school as well as to real life. The writer believes the learning package developed for this study can serve as a guide
for the development of other learning experiences and additional packages emphasizing the creative potential of every student.

The subjects for this study are high school home economics students. Transferring the results and conclusions of this study to another age group might not be warranted. Further research would need to be conducted. The characteristics and needs of the age level in question would need to be studied carefully.

Creativity can be stimulated by learning experiences other than by the use of a learning package. The learning package itself contains learning activities that can appropriately be used separately from the package. The teacher should not hesitate to use a variety of techniques. Zirbes (1959) as well as the writer believes it is a false assumption that creativity can only be stimulated by one specific method or device such as by the use of a learning package.

Goodale (1970) and the writer believe development of creativity by the use of a learning package is also limited to the extent that teachers understand the character of creative persons and the creative process. Some understanding of the guidelines used in developing learning experiences to develop creative potential is also necessary. If a teacher either does not have this information or does not incorporate it into her teaching, she may actually inhibit instead of encourage the development of creative potential.
Definition of Terms

Throughout this study the following definitions are used:

Behavioral Objective: A behavioral objective directs learning and consists of three parts. According to Mager, one must

First, identify the terminal behavior by name; we can specify the kind of behavior which will be accepted as evidence that the learner has achieved the objective.

Second, try to further define the desired behavior by describing the important conditions under which the behavior will be expected to occur.

Third, specify the criteria of acceptable performance by describing how well the learner must perform to be considered acceptable (1962, p. 12).

Creativity: Creativity is a process of forming new or adapted ideas or hypotheses, testing them, and communicating the results (Torrance, 1966c). Creativity as a process involves the person, the environment, and a product.

Learning Package: An instrument through which a student is able to individualize and to pace his own learning while engaging in the same types of activities that would be conducted in a regular classroom. A package consists of a student section and teacher section through which the activities of both are directed.

Learning Experience: An activity the student engages in to accomplish a behavioral objective.

Individualized Instruction: Instruction in which the needs, abilities, and other individual differences of each student are
considered which may mean that the instruction is conducted on a one to one basis.

**Assumptions of the Study**

(1) A learning package can give a student the freedom to be creative.

(2) The learning package made up of creative experiences will be used in a creative way by every teacher.

(3) The creative potential in every individual can be stimulated by a learning package.

(4) If teachers teach to develop creativity, the creative potential of students will be developed more adequately than in the regular classroom situation.

(5) In order to insure the use of the learning package in such a way as to develop creativity in the students, the teacher needs to understand the characteristics of creative persons and the guidelines for development of creativity.
CHAPTER II

REVIEW OF LITERATURE

Definition of Creativity

What is creativity? This question puzzles even the most notable scholars on the topic. Definitions of creativity are as numerous as the many books written concerning the topic. Some authors, while trying to define creativity, actually describe characteristics of the creative person or discuss guidelines to be used in developing creative potential. The latter two types of definitions will not be discussed in this section.

Classification of Definitions of Creativity

Rhodes (1961) developed a method of classifying definitions of creativity. He studied approximately 50 definitions to lead him to the realization that there actually are four strands of definitions of creativity. Definitions of creativity can be written in terms of:

1. the creative person, 2. the process of creativity, 3. the press (the interaction between the individual and his environment), and 4. the products of the creative process.

The writer of this paper will now attempt to classify various definitions of creativity by notable authorities in the field according
to the classification developed by Rhodes. These definitions focus on different aspects of creativity as well as different behaviors associated with the topic.

Product Definitions

Gowan, Demos and Torrance (1967) suggest two dimensions to the classification of creativity as a product although their actual definition of creativity fits the classification of "the process of creativity." These two dimensions to creativity in the product classification are: (1) when the product is an expression of the person's inner self (such things as needs, perceptions, and evaluations are expressed), and (2) when the product is unrelated to the creator as a person. The creator "... operates on some aspect of his environment in such a manner as to produce a novel and appropriate product" (1967, p. 229). An example of the first product classification is an expressionistic painter, sculptor, poet, etc. An example of the second product classification is a research scientist or engineer.

There can actually be a third classification of creativity as a product. (3) This is a combination of the first two types whereby the product is: "... both an expression of the creator and thus a very personal product and at the same time an impersonal meeting of the demands of some external problem" (Gowan, Demos, Torrance, 1967, p. 230). An example of this classification would be a representational
painter or architect.

**Process Definitions**

Many writers concern themselves with the creative process.

MacKinnon's definition of creativity focuses on the process.

... true creativeness fulfills at least three conditions. It involves a response or an idea that is novel or at the very least statistically infrequent. But novelty or originality of thought and action, while a necessary aspect of creativity is not sufficient ... it must to some extent be adaptive to, or of, reality. It must serve to solve a problem, fit a situation, or accomplish some recognizable goal. And, thirdly, true creativeness involves a sustaining of the original insight, an evaluation and elaboration of it, a developing of it to the full (Goodwin and Klausmeier, 1966, p. 273).

Hall, another author advocating the process definition, describes creativity simply as "... originality in any type of activity" (Hall and Paolucci, 1970, p. 204).

The definition of creativity by Torrance, probably the most well-known and noteworthy researcher dealing with the topic, also refers to creativity as a process. Creativity according to Torrance is,

... a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results (1966c, p. 6).
Person Definitions

Definitions focusing on the person seem to be very popular in recent literature. Zirbes defines creativity as "... a general and distinctive human potentiality which may be developed and expressed in diverse ways and in diverse aspects of human endeavor" (1959, p. 36).

Two other authors state that,

Creativity implies a fresh response, unique to the creator; it is characterized by personal initiative and conscious effort; it involves thinking and doing according to self-applied tests; and is finally judged as an accurate expression by the initiator (Miel and Wiles, 1949, p. 121).

This definition is unique in that the completion of the creative act seems to be determined by the initiator. As stated previously many authors stated their definitions of creativity relating to the person in terms of characteristics of the creative person. The discussion of these traits is in one of the following sections of this chapter.

Press Definitions

May explains creativity in terms of the press or the interaction of the creator with his environment. May in Fleck's book, Toward Better Teaching of Home Economics (1968) states that creativity is producing something new. She also believes that creativity begins as an encounter with a situation, an idea, or an experience in which the creator involves himself.
Morse and Wingo state that creativity is "... seeing or expressing new relationships" (1962, p. 218). They also add that the idea must be original to the creator. In this way they actually combine two classifications, the person and the press.

Product, Person, and Press Definitions

Combinations of these three categories of definitions are quite logical when one considers the two dimensions proposed by Gowan, Demos and Torrance (1967) and the writer's third dimension to the definitions of creativity relating to the product as discussed previously. When a person expresses his inner self, works with his environment to create a product, or uses a combination of both of these, it seems logical to assume that he is utilizing definitions of creativity from both the person and press areas as well as from the product area.

Simpson and Yoakam (1948) combined the person and the product. They believe that the test of the ability to create is the accomplishment of a finished product. In addition to this idea they state that, "Creativeness lies in his doing the thing himself prompted by his own imagination and his own inventiveness" (1948, p. 114). To them an expression is creative to the creator even if it is not new to the world.

Ghiselin combines the product, the press, and the person in
one definition. She states that creativity is "... a process of change, development, and evolution in an individual's subjective life" (Fleck, 1968, p. 288). The product is taken as the final proof of creativity.

Product and Process Definitions

Guilford and Tenopyr see creativity as being a process with an end result of creating a product.

... creativity is any process or interrelated set of processes in which an individual generates information he did not have before... the word "generates" in the definition carries the implication that the individual must do more than recognize things such as structure or similarities in the information with which he starts (Guilford, Tenopyr, 1968, p. 29).

Only Simpson and Yoakam (1948) believe as does Guilford that the creative process only needs to be creative to the individual involved.

Person and Process Definitions

Osborn fits into this category. He divided the human mentality into different, although overlapping, areas to facilitate an understanding of what creativity actually is. These areas are:

1. ability to concentrate
2. accuracy in observation
3. retentiveness of memory
4. logical reasoning
5. judgment
6. sensitivity of association
7. creative imagination (1957, p. 98).
He also states that there are two broad classes of imagination, those that run themselves such as hallucinations and nightmares, and those that each person can control. The process is referred to when Osborn discusses the two functions of the creative imagination, to hunt and to change.

**Press and Process Definitions**

While discussing the process of creativity, Mason outlines four ideas concerning creativity. These ideas are:

a. **discovery** - The perception for the first time of something that has been in existence but not previously known.

b. **innovation** - Something new or novel applied to an existing way of doing something.

c. **synthesis** - A different mixture of known elements or parts to make a new whole.

d. **mutation** - An alteration in the form or the qualities of an existing entity or concept (1960, p. 17).

His statement that "... creativeness requires new and beneficial ideas put into action" (1960, p. 17), also identifies his definition with the process of creativity. However, Mason also makes reference to the press or the interaction of the creator with his environment.

Mason has a little different approach. In order to carry out his definition of creativity one would need to interact with the environment, press, and use the process of creativity. In Mason's words, creativeness, in the best sense of the word, requires two things; an original concept or "idea" and a benefit to someone. Now many people think up original concepts, but fail to follow through on them, so that no benefit ever results (1960, p. 16).
Conclusion

The classification of definitions by Rhodes is convenient for the writer's purposes. However, it must be noted that there is much overlapping of definitions into several categories. Therefore, in Torrance's words,

Thus, it seems inevitable to me that a thorough understanding of creativity must involve the study of all four aspects of creativity (person, process, product, and press) (1965b, p. 8).

**Writer's Definition of Creativity**

The writer agrees with Torrance's definition of creativity.

Creativity is a process of forming new or adapted ideas or hypotheses, testing them, and communicating the results (Torrance, 1966c). This definition does seem only to refer to the process of creativity. However, by using this definition, the writer believes as does Torrance that,

It enables one to begin defining operationally the kinds of abilities, mental functioning, and personality characteristics that facilitate or inhibit the process. It provides an approach for specifying the kinds of products that result from the process, the kinds of persons who can engage most successfully in the process, and the conditions that facilitate the process. The definition also seems to be in harmony with scientific, artistic, literary, dramatic, and interpersonal creativity (1966c, p. 7).

In this way the definition actually encompasses all main categories of creativity definitions, person, product, and process, except the
press. However, the writer believes that at times the press would be involved in the process.

It is advantageous for the writer to agree with this definition because it forms the philosophy that surrounds the Torrance Tests of Creative Thinking which will be administered in part by the writer.

The Nature of Creativity

Mason (1960) reports that in previous years some people believed that "creative" should never be applied to man. In their minds "creative" could only be used when referring to God. One must keep in mind that man was created "in the image of God." The Bible does not say this image refers to man in exclusion of his mental abilities.

Recent research has delved into the nature of creativity as it is applied to human beings. The most comprehensive research has been done since 1950.

Various assumptions can be made concerning creativity. Carter, Hansen, and McKim state that creativity is inherent in all aspects of human activity. It is present at all levels of intelligence and at all maturity levels. They also state that creativity "... is perhaps simply a matter of degree" (1962, p. 251).

Zirbes (1959) makes other assumptions concerning creativity. This author indicates that creativity can be fostered in young children and youth, but only within limits with adults. Also stated is that
creativity is evident in many fields, different media, and in all aspects of human life.

Zirbes (1959) also says that there are conditions and circumstances that can foster the development of creativity and others that also can inhibit its development. Creative teaching and guidance are two conditions under which creative development is facilitated. The writer agrees with Zirbes that, "While creativity is a general potentiality, it needs to be encouraged, fostered, and developed on the way to maturity" (1959, p. 26).

Creativity in Zirbes' opinion, is a topic of serious concern in this day and age

... because of man's pressing need for an adaptive, integrative outlook in facing problems and conditions for which there are not precedents (1959, p. 3).

**Steps in the Creative Process**

Many authors suggest some sort of process through which creativity occurs. Osborn suggests a seven step process which is as follows:

1. Orientation: Pointing up the problem.
2. Preparation: Gathering pertinent data.
3. Analysis: Breaking down the relevant material.
4. Ideation: Piling up alternatives by way of ideas.
5. Incubation: Letting up, to invite illumination.
A more simplified form is set forth by many authors such as by Burton, Kimball, and Wing as well as by Hall and Paolucci. Burton, Kimball, and Wing (1960) list the steps as preparation, incubation, illumination, and revision while Hall and Paolucci (1970) list the steps the same, but change the name of the last step from revision to consolidation. Both sources seem to combine the orientation and preparation steps as listed by Osborn into one step: preparation. On the other hand, they appear to have divided the incubation step into both incubation and illumination. Illumination also seems to include synthesis. The last step in every classification, no matter what it is called, includes one or more of the following ideas: verification, evaluation, elaboration, polishing, and revision.

When analyzing the various lists of steps in the creative process, it becomes apparent that there is no "exact" list to follow. Perhaps this relates to the very nature of creativity. Creativity cannot be defined in any absolute terms, at least none on which notable scholars on the topic can agree. If creativity cannot be defined, it certainly would be difficult to arrive at a set pattern through which creativity develops. The lists described suggest certain steps various authors believe one might go through when developing a creative response. However, Osborn (1957) points out that even if a list is determined, one would not necessarily follow it exactly. Steps could be missed, others added, or the order of the steps changed. It has been stated
that the process of creativity,

... is necessarily a stop-and-go, catch-as-catch-can operation—one which can never be exact enough to rate as scientific (Osborn, 1957, p. 115).

**Blocks to Creativity**

Although some people believe that creativity is too mystical or vague to be approached, studied, or developed (Zirbes, 1959), there are some definite facts concerning the concept on which authorities in the field can all agree. The fact that there are blocks of various sorts that stifle and hinder the development of creativity has been agreed upon, although each authority in the field has his own idea of what the list of blocks should include.

Through a review of current literature Gade has compiled the following list of blocks to creativity as she sees them:

1. fear of criticism
2. fear of failure
3. negative attitude
4. conformity
5. not being observant
6. doing surface thinking, not digging deeply
7. a loser's limp, using handicaps as an excuse
8. lack of motivation
9. lack of curiosity
10. tomorrowitis, or procrastination
11. previous habits or fixations and focusing
12. self-discouragement, being timid and having a perfectionist attitude
13. emotion-mindedness
14. a poor environment - tradition and customs can also contribute to a poor or a stifling environment
Fleck (1968) cites tradition, habit and poor health as blocks to creativity as does Gade. Also cited are social approval (quite similar to conformity), fear of ridicule, worry (much related to emotions), and frustrations.

Mason's list, too, although not quite as lengthy, is quite similar to the list of blocks to creativity compiled by Gade. Like Gade, Mason (1960) lists emotional blocks (such as anger, fear, envy, dread, hate, greed, love, and lust), cultural blocks, fear of failure, timidity, and habits. Fear of ridicule (quite similar to fear of criticism), pressure, and perceptual blocks are also listed by Mason. Perceptual blocks or factors that prevent one from getting a clear picture of situations and events seem to be much related to the blocks of not being observant and doing surface thinking as listed by Gade.

Osborn (1957) agrees with Gade on three of his blocks to creativity: previous habits, self-discouragement, and timidity. He also lists discouragement from others and standardization as stifling creativity.

Hall and Paolucci (1970) also list overemphasis on conformity and failure to use all senses in observing (a perceptual block) as does Gade. They also list other perceptual blocks: difficulty in isolating a problem and the tendency to narrow a problem too much. Overemphasis on cooperation, competition, logic and reliance on authority are also considered hindrances to creativity.

Bolin and Davis (1963) in a summarizing article concerning
creativity taken from the Illinois Teacher of Home Economics not only list perfectionism, fear, timidity, restrictions on curiosity, and destructive criticism as blocks to creativity as does Gade, but also list insistent individualism (resisting conforming to other's ideas even though he has no ideas himself), rigidity, restrictions on manipulativeness, overemphasis or misplaced emphasis on sex roles, premature attempts to eliminate fantasy, misplaced emphasis on verbal skills, and coercive pressure from peers as definite blocks to the development of creativity.

Ralph Hallman (1967) in the Journal of Creative Behavior seems to have compiled a list of blocks to creativity quite different from that of Gade. Hallman only lists one block, conformity, that is also seen on Gade's list. Other hindrances to creativity he lists are authoritarian attitudes, rigidity and personality, overemphasis on rewards such as grades, excessive quest for certainty, overemphasis on success, hostility toward the divergent personality, and intolerance of the "play" attitude.

Thus, it can be summarized that Gade's list of blocks to creativity seems to be quite extensive. However, one can see that to get two authorities in the field of creativity to agree on any one list of blocks to creativity seems to be quite impossible.
Characteristics of the Creative Person

In this section of the paper the writer will attempt to list the characteristics of the creative person as summarized from writings of authorities in the field of creativity. These characteristics have been compiled by the writer and placed in Appendix A. The list includes the following categories of characteristics which were also used by Edwards (1961) in her research: Thinking Ability, Experimentation, Concentration, Relationships with People, and Personality Traits of the Creative Student.

Mason (1960) is careful to point out that the presence of creative characteristics in any one person does not mean that the person is creative. It means, however, that the person has the potential to be creative. He also states that probably no one person would possess all the various characteristics of a creative person that authorities in the field have discussed. It is also important to remember at this point that authorities in the field cannot agree on the exact characteristics of a creative person as is exemplified by the following discussion.

Thinking Ability

Thinking ability or the generation and working with ideas is central to creativity. Therefore, experts state that a creative person
should have critical judgment (MacKinnon, 1967; Torrance, 1962),
a redefinition skill (Gowan, Demos, Torrance, 1967; Mason, 1960),
abstracting ability, synthesizing ability, and organizational ability
(Mason, 1960). The creative person should have the power for ques-
tioning (Mason, 1960; Torrance, 1962) and consider his own situ-
tional conditions as realities but also using them as challenges to his
thinking (Zirbes, 1959). The creative person also has the ability
for reorganization or seeing things in a challenging new light (Carter,
Hansen, McKim, 1962; Guilford, 1967).

While the creative person is thinking or working with ideas,
he should display discrimination (Fleck, 1968), inspiration (Torrance,
1962), reasoning power (Mason, 1960; Torrance, 1962), curiosity
(Gowan, Demos, Torrance, 1967; Mason, 1960; Torrance, 1962),
vivid imagery (Torrance, 1962), fluency of ideas (Fleck, 1968;
Guilford, 1967; Gowan, Demos, Torrance, 1967), problem sensi-
tivity (Fleck, 1968; Gowan, Demos, Torrance, 1967; Mason, 1960),
a good memory (Mason, 1960; Osborn, 1957), and ready suggestions
(Mason, 1960). Besides being able to think and to plan ahead (Fleck,
1968; Zirbes, 1959), the creative person should be able to see inter-
actions and relationships (Frazier, 1963; Gowan, Demos, Torrance,
Experimentation

In the process of avoiding ready made know how or patterns to which he could conform (Torrance, 1962; Zirbes, 1959), the creative person examines new situations with an unstructured look (Fleck, 1968). Rather than enjoying routine, he enjoys pace changes, routine bucking, and novelty (Mason, 1960). This illustrates the fact that the creative person strives to "do" something about his ideas (Zirbes, 1959). He has an urge to be inventive (Frazier, 1963; Gowan, Demos, Torrance, 1967), to take long range risks (Frazier, 1963; Torrance, 1962), to manipulate and feel form, shape and texture (Hallman, 1967; Hall, Paolucci, 1970; Torrance, 1964), to dramatize or to illustrate experiences (Carter, Hansen, McKim, 1962), to try out new ideas (Gowan, Demos, Torrance, 1967; Zirbes, 1959) and to try new ways for old by substituting, reversing, subtracting, modifying, adding, and by adapting (Fleck, 1968).

Concentration

Experts point out that sometimes creativity takes concentration (Osborn, 1957). A creative person is deeply involved, devoted, and determined (Torrance, 1962).
Relationships with People

Although the creative person tends to be unsociable at times and not popular (Torrance, 1962), he does have an urge to interact with the world (Fleck, 1968). He actually has wide interests (Gowan, Demos, Torrance, 1967), and is quite responsive to things around him (Torrance, 1962). Because of his sensitivity to external stimuli, he values accurate observations (Frazier, 1963). The creative person also has quite a sense of personal destiny and identity (Torrance, 1962). Although he has the capacity to tolerate tension that strong opposing values create in him (Torrance, 1962), he feels the need to reconcile the opposing values at times (Rubin, 1969).

Personality Traits of the Creative Person

Also listed in current literature on creativity are numerous adjectives describing the actual personality of the creative person. He is said to be flexible (Gowan, Demos, Torrance, 1967; Guilford, 1967; Mason, 1960), desirous of facts (Williams, 1967), responsible (Fleck, 1968), independent (Gowan, Demos, Torrance, 1967; MacKinnon, 1967; Torrance, 1962) as well as dependent (Williams, 1967), tolerant of chaos (Frazier, 1963; Torrance, 1962), self-directive, courageous (Torrance, 1962), confident (MacKinnon, 1967), conscientious (MacKinnon, 1967; Torrance, 1962), and
assertive and persevering (Gowan, Demos, Torrance, 1967; Torrance, 1962).

The creative person exhibits freedom from responsibility at times (Williams, 1967), spontaneity (Fleck, 1968), initiative (Torrance, 1962), individuality (MacKinnon, 1967, Torrance, 1962), originality (Fleck, 1968; Mason, 1960), and imagination and cleverness (Gowan, Demos, Torrance, 1967). The creative person has an urge to express himself (Torrance, 1965a) and can express himself freely (Torrance, 1962). The creative person is nonconforming to the group (Gowan, Demos, Torrance, 1967; Torrance, 1962) which is exemplified by spirited disagreements at times (Torrance, 1962). This person has the ability to find open channels if others are blocked (Zirbes, 1959). He has the need to create order out of chaos and the need for recognition and achievement (Frazier, 1963). He demonstrates resilience or persistence (Torrance, 1962) and imposes limitations on himself at times (Fleck, 1968; Alamshah, 1967) displaying discipline and self-control (Rubin, 1969). The creative person is certainly ambitious (Mason, 1960), enthusiastic, and industrious (Torrance, 1962). When in the appropriate learning environment, he can be observed laughing, playing and having fun (Fleck, 1968).
Incongruities Among Characteristics of the Creative Person

Contradictory traits can be observed on the writer's list of characteristics of the creative person. As discussed in the previous section, the creative person is described as one desirous of facts and at the same time flexible. He has been characterized as exhibiting responsibility and also freedom from responsibility. He is dependent and independent. He tolerates chaos and yet needs to make some order out of it at times. He can also tolerate opposing values but often tries to reconcile these values. Williams (1967) in the Journal of Creative Behavior also cites the existence of contradictory traits among characteristics of the creative person using some of the same examples.

Bauer (1971) adds some light to this dilemma. She describes a continuum from conformity at one end to creativity at the other. She states that a person does not have to be either a conformist or a creative person. According to her research there are several other categories between the extremes.

She defines two categories between the conformist and the creative person, congruent conformist and incongruent conformist. Congruent conformity means

... acting in accord and harmony with self and others, which expresses the need both to belong and to develop apart from others (1971, p. 14).
On the other hand,

Incongruent conformity has been defined as that kind of conformity to which most research people refer when they qualify extreme conformity as a negative behavior of human beings to attempt to fit into a group by suppressing personal values and desires (1971, p. 28).

By inclusion of these two classifications Bauer suggests that the distinction between conformists and people who are highly creative is not absolutely defined. Her research suggests that there is much overlapping between these two extremes, hence the contradictory characteristics. Bauer states as examples that the congruent conformer is both independent and dependent, tolerant of chaos, but striving for order, both curious and indifferent, objective and subjective, and divergent and convergent in thinking. Therefore, by listing characteristics of the congruent conformer Bauer further exemplifies the reason for confusion and contradictions among characteristics of the creative person.

**Creative Learning Experiences**

Hinton states in the *Journal of Creative Behavior* that,

Creative potential . . . becomes creative behavior only under favorable circumstances; potential is a necessary, but not a sufficient condition for creative output (1970, p. 216).

This section of the review of literature will attempt to uncover what these favorable circumstances or conditions are. What needs to be
added to creative potential to stimulate creative output? What types of learning activities stimulate the development of creative potential? These were the questions that directed the writer's investigation in this area.

By conducting a thorough search of current literature on creativity the writer was able to devise a list of guidelines for developing learning experiences to develop creative potential. The guidelines on this list were divided into seven categories: types of learning activities, characteristics of learning activities, development of specific characteristics of students, development of critical thinking, expectations of students, evaluation of students, and atmosphere for learning experiences, Appendix B.

To be a creative learning experience the activity does not necessarily have to fulfill all of the qualifications on the list. However, the more qualifications it satisfies, the more creative the experience will be according to current knowledge compiled by experts involving creativity.

Types of Learning Activities

The creative learning experience can take different forms. An exploratory experience (Bolin, Davis, 1963; Carter, Hansen, and McKim, 1962; Mason, 1960), or an open ended experience (Frazier, 1963; Goodale, 1970; Hallman, 1967; Hall and Paolucci, 1970) are
These learning experiences may be active or quiet (Hall and Paolucci, 1970; Torrance and Gupta, 1964), and, generally provide freedom for exploration and experimentation with a variety of media and materials (Bolin and Davis, 1963; Carter, Hansen, McKim, 1962; Hall and Paolucci, 1970; Torrance and Gupta, 1964). Discovery methods are used (Christie, 1970) and, quite often the learning experience is a situation with no pat answer (Bolin and Davis, 1963). By giving the student a choice of learning experiences (Bolin and Davis, 1963) much freedom is allowed.

**Characteristics of Learning Activities**

Creative types of learning activities are best if devised with definite goals in mind. For example, creative learning experiences should be challenging and life-related (Fleck, 1968). They should create problem awareness, encourage the acquisition of knowledge in a variety of areas (Torrance and Gupta, 1964), cultivate sound value judgments on which responsible self-direction and fulfillment depend, motivate the student to "want to" be creative (Frazier, 1963), and encourage manipulation of media (Hallman, 1967; Torrance and Gupta, 1964). Finally, a creative learning experience should foster mature self-appraisal and continuous evaluation.
Development of Specific Characteristics of Students

Since the main purpose of a creative learning experience is to develop creative potential, it is logical that one would focus upon specific characteristics of the developing creative personality. Research indicates that experts do tend to advocate the development of some creative characteristics more than others.

A summary indicates that creative activities should give the student faith in his own potentialities, confidence and freedom to break away from set patterns of action (Goodale, 1970), and freedom to fail (Mason, 1960). This type of experience should also show the student how to utilize his errors (Goodale, 1970; Mason, 1960), make the student more sensitive and open to environmental stimuli, foster habits of constructive criticism in the student (Torrance and Gupta, 1964), and promote originality and encourage spontaneous expression (Burton, Kimball, Wing, 1960). Many experts seem to agree that creative learning experiences should provide for self-initiation (Hallman, 1967; Hall and Paolucci, 1970; Torrance and Gupta, 1964).

Development of Critical Thinking

Critical thinking is also a creative characteristic and correctly could be included in the previous subdivision. The writer found so many guidelines for creative learning experiences relating to critical
thinking that a new subdivision needed to be made indicating more emphasis by the experts. Creative learning experiences should permit the student time to think and to contemplate (Bolin and Davis, 1963; Mason, 1960), foster vivid imagery, individuality of expression and perceptive awareness (Osborn, 1957), provide for questioning (Hall and Paolucci, 1970; Mason, 1960; Burton, Kimball, Wing, 1960), bring out vague ideas (Fleck, 1968), encourage risk taking (Bolin and Davis, 1963; Frazier, 1963; Torrance, 1962), and encourage unusual variations of the usual (Bolin and Davis, 1963; Fleck, 1968). The experience should provide for over-learning or saturation with information, imagery, and meanings (Hallman, 1967), encourage the creative thought processes of association, imagination, and guessing (Hallman, 1967), and enable the student to understand relationships between ideas, materials, and events (Bolin and Davis, 1963). The student should also be taught to tolerate new or divergent ideas (Torrance and Gupta, 1964). Above all the creative learning experience should provide for part or all of the four phases of the creative act: preparation, incubation, illumination, and revision (Burton, Kimball and Wing, 1960; Torrance and Gupta, 1964).

**Expectations of the Students**

Mason (1960) was the only authority specifically stating a guideline for developing creative learning experiences that seemed to fit
into this category. He stated that learning experiences should be paced to the level of realistic involvement and maturing aspirations of the students.

Evaluation of Students

Learning experiences involve evaluations. The evaluations of a creative learning experience should be based on student and teacher set goals which were cooperatively agreed upon (Carter, Hansen, McKim, 1962). The learning experience evaluations should be of many different kinds, not just exams (Goodale, 1970), and be evaluated cooperatively (Carter, Hansen, McKim, 1962).

Atmosphere for Learning Experiences

The conditions under which learning experiences are administered need to be carefully considered, since the climate of the learning environment may stifle learning and creativity. The atmosphere should be warm and friendly where regimented routines do not take priority over human values (Torrance, 1962). The atmosphere should be non-threatening (Fleck, 1968), free from pressure (Frazier, 1963), and non-authoritarian (Hallman, 1967). Freedom and privacy for developing ideas should be provided (Bolin and Davis, 1963). There should be a delicate balance between permissiveness and structure (Bolin and Davis, 1963; Fleck, 1968). A change of pace
Creativity in Relation to the Taxonomy of Educational Objectives

In recent years educational objectives have been classified as belonging to one or more of three domains or classifications as seen by Krathwohl, Bloom, and Masia. The classifications were devised to organize objectives for teaching purposes. These domains are the cognitive, affective, and the psychomotor. The largest number of educational objectives fall into the cognitive domain, which emphasizes "... remembering and reproducing something which has presumably been learned ..." (1964, p. 6). The affective domain emphasizes a "... feeling tone, an emotion, or a degree of acceptance or rejection" (1964, p. 7). The psychomotor domain which has not yet been completed emphasizes "... some muscular or motor skill, some manipulation of material and objects, or some act which requires a neuromuscular coordination" (1964, p. 7). Within each domain objectives range from basic (requiring less effort) to fairly complex (requiring more planning and thought).

Cognitive Domain

After considerable reading and research on the topic of creativity had been done, the writer was able to conclude that creative
activities and behaviors can generally be classified into the higher mental processes that are represented in the cognitive domain on the more complex end of the scale in the taxonomy of educational objectives. The cognitive domain is composed of six categories: knowledge, comprehension, application, analysis, synthesis, and evaluation. Knowledge is the simplest level to achieve while evaluation is the most complex (Bloom, 1956).

Knowledge. Creativity cannot develop when the student has no contact or experience on the more simplified level of the domain. For example, the most basic level of the cognitive domain is knowledge (recall and recognition). Parnes (1966) believes some basic knowledge is needed on which to base one's imagination or creativeness. Loree (n.d.) also believes that while it is not creative to memorize, it is necessary to acquire this knowledge in order to be creative.

Comprehension. When involved in the comprehension level, one derives meaning from ideas presented. However, as stated in connection with the knowledge level of the domain, Loree believes, . . . the attaining of comprehensive objectives is a necessary but not a sufficient condition for the development of creative behavior (n.d., p. 4).

Application and Analysis. Application, being able to use knowledge to arrive at a new decision, as well as analysis, solving a problem by using acquired information to formulate judgments are both seen by Loree (n.d.) the same as knowledge and comprehension in
terms of creativity.

Synthesis. Synthesis is by far one of the most important levels in the cognitive domain in terms of creativity as stated by Loree.

Synthesis objectives involve putting together elements so as to form a unique whole. This is the category that gives widest scope to creative behavior on the part of the learner (n.d., p. 7).

Evaluation. Evaluation is based on all the other levels in the cognitive domain. It, too, is extremely important in the development of creative potential. Loree as well as the writer believes that evaluation is especially important, "... if novelty or uniqueness in addition to appropriateness are emphasized ..." (n.d., p. 7).

Creativity and Verbs Expressing Cognitive Levels. The idea that creativity is largely associated with the higher mental processes on the cognitive level can also be verified by analyzing words used to describe characteristics of the creative person, Appendix A, and verbs used to describe learning experiences that would develop creative potential, Appendix B, as compiled by the writer and discussed in another section of this paper. These words and verbs can be compared to verbs associated with the various levels of the cognitive domain as derived from the Taxonomy of Educational Objectives (Bloom, 1956).

Much similarity can be observed among the verbs in these two sources. On the knowledge level only two words were used both by Bloom (1956) and in the two lists of characteristics and guides as
compiled and combined by the writer. These words were define and memorize. On the comprehension level, again, only two words, recognize and express, were used both by Bloom (1956) and in the writer's two lists. On the application level three words, dramatize, illustrate, and use, were cited in both places, while on the analysis level five words, appraise, experiment, criticize, question, and examine were seen in both sources. On the synthesis level, four words, plan, create, organize, and prepare, were used in both sources. However, on the evaluative level, which is the most complex in the cognitive domain, six words, judge, appraise, evaluate, value, revise, and choose, were observed in both places. Therefore, from the comparison of these two sources most of the creative activities in the cognitive domain occur in the analysis, synthesis, and evaluation levels. This finding is in contrast to Loree's (n. d.) opinion that creativity only occurs in the synthesis and evaluation levels.

**Affective Domain**

It appears to the writer that many of the characteristics of the creative person relate to the affective domain. These similarities will be brought out in the following discussion of the levels of the affective domain. Receiving is the simplest level in the domain while characterization is the most complex level of the affective
domain (Krathwohl, Bloom, and Masia, 1964).

**Receiving.** Receiving means one is receptive to such things as information, sound, etc. By scanning the list compiled by the writer of characteristics of the creative person, Appendix A, it was noted that there were several characteristics pertaining to the receiving level. The student who is receptive to ideas as well as to the other things has these characteristics: the ability to retain information and to memorize, a sense of awareness to things around him, the need and the value for accurate observations, and the need for facts. The writer believes the person that is creative will be the one who is the most open or receptive.

**Responding.** Responding takes place when a person does something about what he has received in the previous level of the affective domain. Characteristics relating to this level in the domain begin to describe the creative person quite well. This person would have initiative and inspiration as well as being able to express himself freely. From time to time he might choose to illustrate his experiences in an unusual way. The writer believes that the creative individual might even take some risks in responding.

**Valuing.** While engaged in the valuing level, one would develop values or see some things as having worth. A creative person fits into this level quite well also. A creative person does develop definite values that help him achieve the higher levels of this domain.
as illustrated in the discussions of the last two levels.

Organization. In the organization level of the affective domain one organizes his values developed in the previous level into a hierarchy of importance. Characteristics from the writer's list of characteristics of the creative person that pertain to this level are:

(1) being responsive to value combinations and conflicts, (2) reconciling opposing values, (3) tolerating tensions that opposing values create in him, (4) the need to find a subtle ordering principle, (5) possessing organizational ability, and (6) being at times non-conforming to the group. The writer has qualified this last characteristic by stating that "at times" the creative person would be nonconforming to the group since the writer found from the reading that sometimes the creative person is independent, while at other times he is also dependent.

The writer as well as Loree believes that the organizational level is quite important to the development of creativity and because of this, has certain implications for teaching.

Educational objectives within the "Organization" category are crucial to creative education. These objectives are concerned with the organization of values into a system. The teacher can best achieve these objectives if she permits the student to explore alternate value positions. This exploration of value positions can lead the student to the discovery of a creative role for herself. Education for conformity results when the teacher attempts to impose her own values upon the student (n.d., p. 10).
Characterization. When one has reached this level, he has achieved all of the other levels of the affective domain. Achieving characterization culminates learning in this level since it is the most complex task the affective domain presents. By accomplishing objectives on this level a student would become a unique individual since it would be one of the last steps in personality development. In other words, the student would finally know himself and have developed many personality characteristics. One of the traits in the list of characteristics of the creative person that the writer developed states that a creative person has a sense of personal identity. This certainly would be achieved by attaining this level of the affective domain.

Creativity and Verbs Expressing Affective Levels. It seems to the writer, that just as in the cognitive domain, the last two levels in the affective domain are really where creativity takes place. The first levels, receiving, responding, and valuing are, however, necessary to complete in order to attain the last two levels, organization and characterization. This idea can be verified by analyzing a combined list of words used to describe characteristics of the creative person, Appendix A, and verbs used to describe learning experiences that would develop creative potential, Appendix B, as compiled by the writer and discussed in another section of this paper. These words and verbs can be compared to verbs identified in relation to each level of the affective domain (Krathwohl, Bloom, Masia, 1964).
Similarity can be seen in all levels of the domain. In the responding level, only three verbs and participles, observes, being sensitive, and discriminating, were used both by Krathwohl, Bloom, and Masia (1964) and in the two lists of characteristics and guides as compiled by the writer. There were also three verbs, display, cooperate, and explore, in the responding level while the valuing level only had two verbs and participles, assuming responsibility, and examine, that were recorded in both sources.

Most of the similarity of the two sources can be seen in the last two levels of the domain, organization, and characterization. Verbs and verb phrases found on both lists in the organizational level were: form judgments, is realistic, and judge. The verbs and verb phrases compiled from the characterization level were numerous: revise, prepare or ready, change, plan, rely, examine, judge, and is conscientious. To the writer, this illustrates the point that most of the creativity in the affective domain does take place in the last two levels even though completion of the first three levels is necessary in order to attain the more complex level.

The Creative Teacher

The creative person has been discussed. How about the creative teacher? What particular traits does this type of teacher exhibit?

Torrance (1962) summarized the characteristics that he has
determined to be most descriptive of the creative teacher. The
general traits a creative teacher seems to exemplify are resource-
fulness, sensitivity, flexibility, and a willingness to get off the beaten
track. Characteristics that may tend to make the creative teacher
an unpopular faculty member are the tendency to tackle difficult tasks
with occasional failures, the drive to be hard working, a tendency to
overwork, and a nonconforming attitude at times. Torrance also
states that the creative teacher may at times be childish, deny con-
ventions of courtesy, and may seem uncultured and unsophisticated.
Traits that tend to conceal this teacher's creativeness are bashfulness,
quietness, and a tendency to seem withdrawn at times. Independence
in thinking is displayed by a haughty and self-satisfied attitude.
Although a creative teacher may be fault-finding, she should also
have the ability to suggest solutions or remedies for faulty or un-
corrected situations. The most important characteristic of the crea-
tive teacher, if she is to be effective, is her ability to form good
relationships with all students.

**Teacher Pupil Relations that Foster Creativity**

Much has been written about the relationship between the teacher
and the pupil in situations where creativity is the prime concern.
Authorities in the field of creativity usually discuss this aspect when
reviewing activities, learning experiences, or methods that will
develop creative potential. Therefore, most of the suggestions to the teacher have been listed and discussed in the section of this paper dealing with developing learning experiences that develop creative potential. Guidelines relating specifically to the teacher and her actions were compiled in another list, guidelines for teachers who wish to develop the creative potential of their students, and placed in the teacher section of the learning package, Appendix C. The items in this list will be discussed in this section of the paper.

Before all else a teacher who wishes to develop the creative potential of her students must value creativity (Gowan, Demos, Torrance, 1967) and create a friendly classroom environment (Torrance, 1962). Respecting each student as an individual with a developing personality, having dignity and worth, will facilitate making a stand for mutual understanding (Torrance, 1962).

The teacher also needs to evaluate a few of her own character traits. A teacher wishing to develop the creative potential of her students must be open-minded (Bolin, Davis, 1963) as well as a good listener (Mason, 1960). She should not be intimidated by a student's disagreement with her own ideas (Bolin, Davis, 1963).

When preparing for creative activities, the teacher should utilize cooperative planning when possible (Carter, Hansen, McKim, 1962). When devising learning experiences, one should consider the degree of competitiveness in the classroom (Bolin, Davis, 1963).
A little competition is considered desirable for developing creativity while too much competition stifles the creative drive. In the evaluations for the learning experiences care needs to be taken to guard against the imposition of adult standards (Burton, Kimball, Wing, 1960). Before beginning the creative exercises give the students information about the creative process (Torrance and Gupta, 1964) and, of course, make resources available for working out ideas (Torrance and Gupta, 1964).

While the actual learning experiences are in progress, the teacher not only needs to show enthusiasm for the ideas of students, but also, be especially careful of her actions and comments. The teacher should avoid negative comments, laughter at first attempts, and comparisons with standards beyond the learner's level (Burton, Kimball, Wing, 1960). At all times the teacher should stimulate, encourage, assist, and recognize students' contributions while keeping them working toward their goals (Mason, 1960). She should also give credit for self-initiated activities (Torrance and Gupta, 1964) as well as give aid in response to the needs and insights of the pupils at the time (Burton, Kimball, Wing, 1960). She should always refrain from dominating or regimenting as well as stereotyping behavior or sanctioning conformity (Mason, 1960).

Creativity is not developed overnight. Sometimes the level of creativity one is expecting takes a great deal of time to achieve if it
is achieved at all. Plateaus can be reached where no apparent gain in the level of creativity is evident. For these reasons, discouragement often overcomes both the teacher and the student. Therefore, the teacher should wait patiently for development of maturity and skill in her students (Bolin, Davis, 1963). Likewise, the teacher should give the student an outlook in which he sees himself moving toward self-realization and creativity.

Investigations Relating to Home Economics and Creativity

Inquiries relating both to home economics and to creativity have been quite scarce. Three of the four references the writer will review in this paper deal with the development of devices, learning experiences, or units designed to teach creativity (Edwards, 1961; Gade, 1974; Moe, 1964). One paper projects new methods of testing for creativity in home economics student teachers (Bauer, 1971), while still another uses the concept of learning packages in the development of creativity (Gade, 1974).

Specifically, the purposes of Edwards paper were three:

1. to emphasize the importance of creativity in the lives of those connected with contemporary American Society
2. to show how the Home Economics program can contribute to the development of creativity
3. to develop some devices for teaching creativity to Home Economics students (1961, p. 5).
Edwards developed several checklists and a set of art principle problems. The checklists were designed for teachers of Home Economics to use in evaluating (1) the extent learning experiences help develop a degree of creativity, (2) what teachers may do to foster creativity, and (3) qualities of creative students. The third checklist was particularly helpful in that it created appropriate subdivisions for characteristics of the creative person: Thinking Ability, Experimentation, Concentration, Relationships with People, and Personality Traits of the Creative Student. The art principle problems can be used as a student work project or changed into another form and used.

Perhaps the material developed by Gade is the closest to the writer's own research. Gade developed a set of five learning packages not based on any subject matter specifically, but designed to develop each student's creativity by investigating the topic of creativity itself. The packages are preceded by an introduction for the teacher in which pertinent facts concerning creativity, creative learning experiences, and the creative teacher are explained. In this discussion the investigator lists the characteristics that she believes constitute a creative teacher.

In learning package one Gade identifies her meaning of the term creativity:

Creativity usually means combining, relating and reorganizing materials and ideas in different ways to achieve something different, to do something in a different way to achieve new combinations (1974, p. 1).
Learning package one, "Unexplored Territory," tries to make the student understand that he is really more creative than he thinks. The package is divided into three parts. The second part, Narration, is a way of giving information and reasoning with the reader to arrive at the point the narration is trying to make.

Learning package two is entitled, "Is Your Creativity Showing?". The main idea presented here seems to be to do something about creativity. Gade suggests that one discover hidden interests, potentials, and talents.

Learning package three, "Blocks to Creativity", has as its main theme identifying and alerting the student to obstacles in the development of creativity.

Package four is entitled, "Thinking in New Dimensions." It urges the student to keep exercising his mind in new and different ways.

Learning package five, "Ready for Action," pulls together all the previous facts presented in this series of packages and outlines how decisions are made using the decision making process. At the end of this package are other suggestions for developing creative thinking abilities comparable to the "Quest" in other package formats.

The overall purpose of Moe's study was to

... explore, to develop, and to teach nine week home furnishings units to two senior Homemaking classes in new and different ways. The problem solving method
was to be used. Visual aids were to be developed and used (1964, p. 5).

The investigator attempted to motivate the student in every possible way with an emphasis on activity and learning experiences.

Specifically, Moe tried to:

1. Give students creative experiences in home furnishing units which may in turn motivate them to be creative in other phases of living.

2. Develop learning experiences in breadth and depth so that they may challenge students of varied abilities and backgrounds.

3. Help students evaluate their own growth in this area and set future goals in the light of their recent classroom experiences.

4. Challenge students to recognize the beauty and uses of materials at hand in creating more beauty in their homes.

5. Assist students in planning and carrying out individual art projects which may be satisfying, original, and beautiful.

6. Encourage students to live in an artful way; receptive to beauty in many forms, interpreting their inner responses or sensitivities, so that they might find expression in richer, fuller living (1964, p. 6).

This study took place at Corvallis High School in Corvallis, Oregon. This three year high school is composed of students basically from the upper middle socioeconomic class. The 44 students taking part in this nine weeks home furnishings unit were fairly typical of the school as a whole.
... three were married and ten were planning to be married soon. Twenty-six were preparing for college. The remaining group planned to take some technical training after high school or go directly to work (1964, p. 8).

After the plan was discussed with administrators at the high school, formulated, tried out on a junior Homemaking class at the high school, and necessary changes made, the unit was taught to two twelfth grade Homemaking classes for nine weeks.

To evaluate the study no scientific means were used such as standardized tests for growth in creativity or evaluation of creativity. The investigator evaluated and discussed the study in terms of the objectives or goals for the research and how the unit attempted to meet each objective. In conclusion, the investigator found that her objectives had been satisfied.

In recommending further studies that needed to be done in this area Moe stated that,

... Other learning experiences need to be devised and tested to give experience in the practical application of the art principles related to balance and proportion (1964, p. 90).

As stated earlier Bauer's paper projects new methods of testing for creativity in home economics student teachers. In Bauer's words,

The purpose of this study is to develop creativity-conformity evaluative learning experiences which may be used by teacher educators working with student teachers in home economics to help determine creative activity expectations. These experiences should emphasize the
importance of the teacher in either inhibiting or permitting and encouraging creative behavior within her own classroom (1971, p. 5).

The 11 actual learning experiences developed took several forms. All were designed to indicate attitudes tending toward either conformity or creativity in teacher behavior.

... These learning experiences are to help identify the presence of creative or conformative characteristics in the attitudes and values of the student teacher and to help her see how she may develop her teaching behavior to include creative experiences as she teaches in the classroom (Bauer, 1971, p. 75).

Bauer is careful to point out that these learning experiences have not been field-tested nor item-analyzed. Therefore, although they can be used as indicators of either conformity or creativity tendencies, they cannot be used to measure these tendencies or to limit the individual in any way.

The learning experiences developed took several forms. They involved the student in: (1) evaluating his feelings and the intensity of them, (2) identifying values held concerning teaching, creativity, and conformity, (3) solving problems using puzzles, riddles, and situations, (4) completing line drawings, and (5) finishing open ended statements some of which dealt with people and new situations. In each case Bauer specified when each of these learning experiences should be given in relation to the student teaching experience.
Definition of Individualized Instruction

Educators throughout time have been searching for ways to make education more meaningful to the student. Educators today believe that one of the ways to achieve this objective is to tailor curriculum to the needs and characteristics of each learner. This approach has appropriately been named individualized instruction. Different means or methods have been utilized to help cope with the diversity in students' needs and characteristics. Among these methods are team teaching, nongraded classes, programmed instruction, grouping, a one to one student-teacher ratio, and many others.

Learning Packages

A learning package is one example of programmed instruction. It, too, was designed for the purpose of individualizing instruction. A learning package in the writer's words is an instrument through which a student is able to individualize and to pace his own learning while engaging in the same types of activities that would be conducted in a regular classroom. A package consists of a student section and teacher section through which the activities of both are directed.

The writer was able to form the following summaries of learning package formats by reading and studying numerous learning
packages that had been written using a variety of formats and other references.

**UNIPAC.** The UNIPAC format was developed by Idea Development Associates of Palo Alto, California. This format is basically like all others. That is, it consists of basically two parts: the student section and the teacher section. The student section consists of the following items given in order of their appearance: a title page, a total listing of all objectives, pre-evaluation, lessons complete with a self-evaluation for each, and a page on which students list their reactions to the UNIPAC format and improvements that could be made. Each lesson is divided into these parts: component, objectives, instructions, learning activities, and self-evaluation. The learning activities are divided into three parts: primary, additional, and supplementary.

The teacher section includes the following parts also given in order of their appearance in the package: (1) a statement of ideas, (2) a total listing of objectives, (3) instructions to the teacher which includes the unit approach, identification of learners, and supplies and equipment needed, (4) quest opportunities, (5) instructions for student evaluation and answer keys, as well as (6) the post evaluation.

**Learning Activity Packages, LAP.** The writer was only able to view the student section of the LAP format. This format seemed to be slightly different from the UNIPAC format. The student section
began with an introductory page stating what a LAP is, and student instructions. This was followed by a rationale. The rationale was a form of introduction to the package giving the purpose of the package. Next, was a page defining terms used in the package. Each lesson included the following items: primary ideas and secondary ideas (objectives), core activities (that the student was required to do), and depth opportunities (activities the student could do if he so desired). On the grading procedure page there were spaces on which evaluation scores could be written for core activities, depth opportunities, and the post test. Explanations of grading procedure were also given (Jones, 1969).

**Home Economics Learning Packages, HELP.** Home Economics Learning Packages are distributed by the American Home Economics Association. The format used was adapted from the UNIPAC format. This format and the UNIPAC format are basically the same except for these exceptions: wording on each lesson seemed to be slightly different. The terminology used in describing each lesson part in the HELP format was: Component (generalization), objective, instructions (directions), and learning activities (Shear, Ray, 1970). The second and final difference between the UNIPAC and HELP formats is that the self tests for each lesson are placed at the end of the package in the HELP format to help the students prepare for the post test.
Philosophy of Learning Packages

Perhaps one American Home Economics Association publication discussing HELP s best summed up beliefs concerning learning packages and their use.

The philosophy in HELP s is that learners are individually unique and the more variety in learning strategies available, the more likely each individual learner will find an approach meaningful to him. Thus, learning packages represent one strategy for individually-paced learning. Not all learners, not probably even a few learners, will want to use learning packages exclusive of any other method. However, learning packages can be a productive tool for self-paced learning when used appropriately with a balance of other learning tools, including large and small group methods (Shear, 1971, n. p.).

Torrance Tests of Creative Thinking

Torrance Tests of Creative Thinking are,

... a set of alternate form, general purpose batteries of creative thinking ability tests, applicable from kindergarten through graduate school (Torrance, 1967, p. 191).

Torrance, whose first inspiration for the Torrance tests was spurred by Guilford's model of the intellect, centered his tests around his definition of creativity which deals with the process of creativity. His tests can be divided into two basic types, verbal and non-verbal or figural.

There are two forms, A and B, for the non-verbal or figural part of Torrance's tests. Picture construction is the first task on
both forms. The subject is asked to make as unusual and interesting a picture as he can using a supplied piece of fluorescent paper which the subject sticks to the specified page. Next, the subject begins the picture completion part of the form. The student is asked to complete and title as many figures in a group of partially drawn figures as he can. The third section of these tests deals with either circles or parallel lines, depending on which form of the figural test is used. The student is asked to see how many objects or pictures he can make from the circles or parallel lines presented. The student is given ten minutes to complete each of the tasks in the figural forms.

Goldman (1964) reports that there is still another type of non-verbal test being developed by Torrance. In the creative design task the student is given circles and strips of colored paper and asked to create pictures.

The verbal part of Torrance's tests also comes in two forms, A and B. The first three activities are "Ask and Guess" activities. The subject is asked to list questions, causes and consequences that come to his mind when looking at a given picture. In the second part of the test the subject is asked to think of as many ways as he can to improve a given toy to make it more pleasing and fun to play with. In the next two sections the student is asked to list as many uses and questions as he can think of for a given example such as a tin can. Finally, the subject is asked to think of all the consequences
of a given situation in an activity called "Just Suppose." Each of the sections of Torrance's tests discussed as part of the verbal forms has imposed time limits.

Goldman (1964) also lists other forms of verbal tests developed by Torrance. In the "Common Problems" activity, available in two forms, the subjects are asked to write down as many problems that they can think of as occurring during two situations: taking a bath and doing homework. In 20 minutes the subjects are asked to write stories in the "Imaginative Stories" activity. Examples of topics from which students may choose for their story are, the man who cries, and the lion that doesn't roar.

Goldman (1964) also discusses test batteries such as "Abbreviated Form VII" of the Minnesota Tests of Creative Thinking. These are a battery of both verbal and nonverbal tests administered to groups of subjects initially to determine what tests would be suitable for what age levels of subjects.

Goldman (1964) discusses some of the problems connected with Torrance Tests of Creative Thinking. During the administration of the test, the timing of the various activities is viewed as a drawback by some authorities. True, it is hard to allow for the unconscious deliberation of a creative person over a period of time during a testing situation. Goldman states that ten minutes has been
found to be quite adequate for most subjects on the figural forms of the test for each activity. However,

In the Picture Construction test it was discovered that high elaborators do not have enough time and those scoring high on fluency kept thinking of additional ideas (Goldman, 1964, p. 10).

Reliability

As reported by several critics reliability for the Torrance Tests of Creative Thinking is low (Goldman, 1964; Hoepfner, 1967). In discussing reliability Torrance (1966c) lists several factors that affect reliable results such as the physical, emotional, mental, and motivational states of the subjects. He suggests that these factors may lower test-retest reliability. However, Torrance suggests that,

The very fact that measurement instruments are sensitive to such factors may make them especially useful in certain kinds of situations. Among such situations are studies designed to assess the influences of experimental methods, organizational climate, experimental instructional materials, physical conditions in the classroom, fatigue, competition, and the like (1966c, p. 18).

Another factor in low reliability scores is that few studies have been conducted to ascertain reliability data since the tests are new and still in a state of development. This factor is fully recognized by Torrance and his publisher (Torrance, 1966c). However,

Even at their present stage of development these tests are considered ready for use in certain kinds of applications (Torrance, 1966c, p. 1).
Validity

Content Validity. Goldman (1964) states that the complaint of some critics that the tests do not cover all aspects of creative thinking seems to be unwarranted.

Obviously the tests cannot claim to sample the entire universe of what is termed creative thinking, but this is not the intention (Goldman, 1964, p. 9).

In Torrance’s words regarding the subject,

It may be correct that the criterion of creative behavior is a sticky one, but we decided at the outset to define creative thinking as adequately as we could and then to try to remain true to this definition. We believed that if we could do this we could afford to ignore some of the hopeless bickering about the meaning of creative behavior (1965b, pp. 38-39).

Torrance (1966c) assures users of the test that every attempt has been made to insure content validity of the Torrance Tests of Creative Thinking.

Construct Validity. Construct validity focuses on the theories involved in Torrance Tests. It tries to increase understanding of the qualities being measured by the tests. Torrance (1966c) in the Norms-Technical Manual looks at construct validity in a number of different ways. One group of studies closely related to the writer’s study reveals growth of creative abilities resulting from the exercise of those abilities through participating in creative activities. In two studies where instructional procedures were varied, college-level students in industrial arts showed greater growth in creative abilities
than did their controls. Growth was also observed through selected art experiences at the high school level in another study. A similar study revealed that twelfth-grade students at all levels of intellectual ability made gains in creative abilities over their controls (Torrance, 1966c).

Concurrent and Predictive Validity. Various aspects of these two types of validity were discussed by Torrance (1966c) in the Norms-Technical Manual by citing research available. However, no conclusions were drawn.
CHAPTER III

METHODS OF PROCEDURE

Introduction

The writer developed and tested a learning package designed to develop a student's creative potential. The subject matter content of the package was principles of design. As all learning packages are, this package too is an instrument through which a student is able to individualize and to pace his own learning while engaging in the same types of activities that would be conducted in a regular classroom.

Identification of Criteria

The first step taken in this research was a review of the current literature concerning creativity. As the writer progressed, it became evident that several lists relevant to creativity could be developed from the reading. These lists identified as criteria, are: (1) characteristics of a creative person, Appendix A, (2) guidelines for developing learning experiences to develop creative potential, Appendix B, and (3) guidelines for teachers who wish to develop the creative potential of their students, Appendix C (included in teacher section of learning package). The lists, having been compiled from noteworthy sources
in the field of creativity, were assumed to be as accurate as was possible at that time. Many of the items recorded on the lists were documented by more than one author.

Commonalities were identified among the items in two of the lists, characteristics of a creative person, and guidelines for developing learning experiences to develop creative potential. Various subheadings were developed and used.

Two of the lists compiled, characteristics of a creative person, and guidelines for developing learning experiences to develop creative potential, were used in the actual development of the learning package. The third list, guidelines for teachers who wish to develop the creative potential of their students, was placed in the teacher section of the learning package and not used in the development of the package itself.

Development of the Learning Package

The writer chose to use the topic of design principles for the learning package. There was some confusion in references concerning what the design principles were. Therefore, the writer scanned 13 references on the topic of design principles and recorded in graph form the number of times and how much each particular design principle was mentioned. There seemed to be agreement on all of the design principles except scale. Therefore, the writer chose to omit
scale as a result of this small poll.

The list concerning characteristics of a creative person was used in the development of the behavioral objectives in the learning package. Each behavioral objective was designed to encourage development of two of the five main categories of characteristics of a creative person, Appendix A. The sub-headings for characteristics of a creative person are: thinking ability, experimentation, concentration, relationships with people, and personality traits of the creative student. The writer found that it was extremely difficult to use the items under the sub-heading of concentration a great deal since there were only two items. Each sub-heading in the end was used many times with the exception of concentration. Therefore, the writer felt that the student would have ample opportunity to develop his creative potential in diverse ways.

The learning experiences were developed using the list of guidelines for developing learning experiences to develop creative potential. The sub-headings for this list are: types of learning activities, characteristics of learning activities, development of specific characteristics of students, development of critical thinking, expectations of the students, evaluation of students, and atmosphere for the learning experiences. Two of the seven categories were used with the development of each learning experience. It was almost impossible to set the standard any higher than two out of seven
because there were only one or two items listed under some of the sub-headings. To have the learning experiences qualify for these few items each time would have limited the variety of learning experiences. Variety is extremely important in developing creative potential.

The actual characteristics or guides for developing learning experiences that were used in developing the package can be found in the questionnaire, Appendix D.

**Format of the Learning Package**

The format of this learning package is not the true form of any of the styles presented in the review of literature. Basically, however, the UNIPAC format was followed with some changes in terminology and the omission of the following parts: total listing of objectives preceding the lessons and an evaluation of the UNIPAC format at the conclusion of the student section. Like most other packages this learning package is divided into two basic parts: a student section and a teacher section. The student section includes a pre and post test, a rationale or introduction (LAP format), behavioral objectives and learning experiences for each lesson as well as additional learning experiences and quest opportunities the student could pursue if exceptionally interested in the topic. The writer could see the need for the student to have some way of acquiring basic information
concerning each of the design principles while he was completing the package. This is how the inspiration for using "Idea Sheets" originated. The idea sheets as developed not only give background information when needed, but also serve as examples of design principles or as media to be used in understanding the design principles. The decorative illustrations on the idea sheets and in other places throughout the package are the writer's idea. The writer felt that the use of these would inspire or motivate the students more than just a printed page.

In the learning package the writer chose to give the student using the package many choices of learning experiences to fulfill each objective. This action seemed to be indicated because of the very nature of creativity. This enables a student to further individualize his work.

The teacher section of the package contains those things that a teacher would need to know in order to administer the package effectively. As in other packages this section contains a listing of equipment and supplies needed, resources used, and a key for the pre and post test.

The teacher section, too, was basically the same as the original UNIPAC format. The writer chose to vary the sequence slightly, to change terminology, and to consolidate a few of the sections that seemed to be repetitious. Also, the writer added a few extra pages
that were indicated by the nature of the package. These additions were: the writer's definition of creativity, a supplemental pre and post test key, and a necessary supplement for Idea Sheets #7 and #8. The writer felt it was also necessary to include in this section guidelines for the teacher who wished to develop the creative potential of her students as compiled from a review of current literature concerning creativity, since the teacher can either hinder or facilitate the development of creative potential. This variable can be controlled if the teacher knows and follows a few basic guidelines.

The package that was developed could very easily be divided into five individual packages. In fact, this might be a very desirable thing to do because the package is quite long. Therefore, the writer included in the teacher section two keys for the pre and post test. The first key lists the answers in the order that they were asked on the test. The second list records the answers under the heading of which design principle they pertain to. In this way the teacher would know which area a student was weak in after administering the complete pretest or she could divide up the pre and post test and place the questions concerning each package with that package in the form of a pre and post test.
Evaluation of the Learning Package

The evaluation of the behavioral objectives, learning experiences, and idea sheets was done with a questionnaire. The evaluators were asked to rate each learning experience in terms of how well it used specific guidelines for developing creative potential. Also, the evaluators were asked how well each behavioral objective fostered the development of specific characteristics of the creative person. Since the idea sheets pertained to specific behavioral objectives and learning experiences, it was assumed that they could be evaluated along with their objectives or learning experiences.

Development of the Questionnaire

The questionnaire was divided into five sections, one section for each design principle. In each section all behavioral objectives and learning experiences were listed in order of their appearance in the learning package. Under each learning experience or behavioral objective was listed the criteria used in its development. Characteristics of a creative person were listed under behavioral objectives and guidelines for developing learning experiences to develop creative potential were listed under the learning experiences. A scale rating how well each behavioral objective or learning experience met the criteria was used. The scale was from one to five with one meaning
poor, three meaning average, and five indicating excellence. All idea sheets pertaining to the learning experiences or behavioral objectives were included in the questionnaire because the writer felt that these too needed to be referred to in order to rate the objectives or learning experiences accurately.

Selection of Home Economist Evaluators

It was felt that home economics teachers would be the most appropriate evaluators since they would be the type of teacher to use the package and to teach design principles. The criteria used in selecting teachers to complete the rating scales on behavioral objectives and learning experiences was: (1) home economics teacher, (2) having at least a bachelor's degree with teacher certification, (3) was or had been teaching at a junior or senior high school, (4) believed to be a creative teacher.

A list of 33 possible evaluators known to the writer and/or the major professors was compiled and an introductory letter and return post card sent, Appendix E, to determine if they were willing to help in the research. Twenty-seven home economists responded favorably. Later a second letter, Appendix F, was sent to see if the evaluators were still willing to complete the evaluative devices since the writer took longer to prepare the devices than anticipated. All home economists responded favorably again.
Distribution of Instrument

Because of the length of the total questionnaire, the writer decided to send the questionnaire in parts to the selected home economist evaluators. Therefore, the questionnaire was divided into five sections comprising the five design principles. Each evaluator completed either two or three sections of the questionnaire. The organization of which sections were sent together can be found in Appendix G. Fifteen questionnaires for each section were sent to evaluators. After two weeks if the questionnaire had not been returned, the writer sent a reminder post card to that evaluator.

The evaluators were prompt in returning the questionnaires. Twelve questionnaires or 80 percent were returned for the emphasis section. Eleven questionnaires, 73 percent were returned for the balance section while 13 or 87 percent were returned for the rhythm section. Thirteen, 87 percent were also returned for the proportion section, while 11 or 73 percent were returned for the harmony section. One questionnaire was not useable because the evaluator did not follow directions when completing it.

Procedure for Analysis of Questionnaire Ratings

The questionnaire responses were tabulated and averaged to be ready for analysis. The responses on each questionnaire were
recorded in the appropriate column from one to five to arrive at a total number of responses in any one particular column. The number of responses in each column was then weighted with the number of that column. The figures from each column were averaged to obtain a number that would be comparable. The writer had chosen previously the arbitrary figure of 3.5 on which to base the analysis. A decision was made to question each item that was rated below 3.5. These questioned items were then either justified, revised, or both by the writer. All items above 3.5 were accepted.

Selection of Sample to be Used in Testing Learning Package

One of the writer's classes at Central Linn High School in Halsey, Oregon was selected to be the sample for testing the learning package. This class, Clothing I and II, was composed of tenth through twelfth grade students who had completed Home Economics I, a ninth grade class. In Home Economics I the students covered design elements which the writer believes are necessary before a student can use and fully comprehend the design principle in the learning package developed. This sample of 12 students was small, but because of the scope of this research already, was deemed adequate.

This sample was selected for several reasons. First, the sample consisted of upper classmen. The writer felt that the subject
matter and the complexity of this learning package were not suitable for ninth grade students. Second, the learning package would fit into the subject matter of the class very easily since design principles are a basic element in good clothing selection. Third, since this class was already part of the writer's teaching responsibilities, the writer would be able to be present. This was an important consideration since the writer felt that one of the lists compiled from reading current research on creativity, guidelines for teachers who wish to develop the creative potential of their students, Appendix C (in teacher section of learning package), needed to be followed closely. Fourth, the previous courses the students had taken were known. With this knowledge and from a personal conference with each student, it was determined that the students had little or no previous instruction in the design principles.

**Selection of Torrance Tests of Creative Thinking**

Two of Torrance Tests of Creative Thinking were chosen to be used as a pre and post test to check for development of creativity before and after the learning package was administered. The two tests, Figural Form A and Figural Form B, were chosen to test whether each student did or did not develop his creative potential as a result of using the learning package developed by the writer. The writer's planned use for these tests is described by Torrance
and endorsed as an appropriate application in the *Norms*-Technical Manual of Torrance Tests of Creative Thinking.

Figural Forms A and B, Appendix H, involve the students in drawings of various sorts with little writing. Both tests are composed of three parts: (1) picture construction, (2) picture completion, and (3) repeated figures. Parts one and two are the same types of activities in both forms but they are different in that the shape used in picture construction is different as is the color also. The drawings used in picture completion are different in each test. Lines are used in the third activity in Figural Form A while circles are used in the same activity in Figural Form B. In activities one and two the examinees are required to give their pictures a title or label. Later, each test booklet is scored in four ways, fluency, flexibility, originality, and elaboration. Torrance and his associates found that Figural Forms A and B were comparable with the following exceptions:

The Parallel Lines and Circles activities, however, yield fairly satisfactory test-retest reliabilities for all scores except flexibility.

There seems to be a general tendency for higher originality scores on the Parallel Lines Activity and higher elaboration scores on the Circles Activity. Fluency scores are about the same on both activities (1966c, p. 15).
Administering Figural Forms A and B of Torrance Tests of Creative Thinking

Compiled information concerning Figural Forms A and B and the advice of a statistical expert prompted the writer to decide to administer both Figural Form A and Figural Form B in both the pre and post test. The subjects were divided in half. One half was given Figural Form A and the other half was given Figural Form B as a pretest. The forms were reversed in the post test so the students did not take the same test twice.

The directions manual needed to be followed accurately during the administration of the test. The writer was familiar with the instructions in the Directions Manual and Scoring Guide, the nature of creativity itself, and the three lists developed by the writer from current literature concerning creativity, Appendices A, B, and C (in teacher section of learning package): (1) characteristics of the creative person, (2) guides for developing learning experiences to develop creative potential, and (3) guidelines for the teacher who wishes to develop the creative potential of her students.

The writer in administering the tests was careful not to use the word "test" as advocated in the directions manual. Using the word "test" in most students' minds would create a situation inconducive to creativity. The directions manual for Torrance's Tests is quite specific on this point:
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 activity and invite them to "have fun" (1968a, p. 2).

The directions manual gave other directions which were followed carefully. The group size of 12 was near the limit of 15 to 35 students as recommended. The test was timed accurately taking 30 minutes of actual working time. Fifty minutes, one regular class period, was allowed to give ample time for directions and questions. The suggested type of introduction to create interest and to motivate the students was given along with the explanation that a similar test would be given following the conclusion of the learning package since the students were part of a research project.

Procedure for Giving Learning Package

Before the students began the learning package a short review of design elements such as line, texture, shape, color, and space was conducted. The learning package was then given to the students on May 9, 1974 to complete in whatever amount of time they needed, with most students taking one and a half weeks to complete. All resources were made available to the students without the students having to ask for them. The writer as the teacher in this situation tried to follow the guidelines for the teacher who wanted to develop
the creative potential of her students as listed in the teacher section of the learning package, Appendix C. The writer was available at all times to give the students assistance in the form of making objectives and learning experiences clearer and checking completed work when indicated in the learning package. In no way did the writer attempt to mold the student into giving a certain answer or using a specific mode of expression.

**Procedure for Analyzing Results of Torrance Tests of Creative Thinking**

These tests are analyzed adhering strictly to specific directions and illustrations in the *Directions Manual and Scoring Guide*. Goldman (1964) stated that scoring by unskilled scorers or scorers with little training was quite possible since the tests in most cases were easily scored after familiarization with the *Directions Manual and Scoring Guide* accompanying the tests. This was in direct contradiction to the writer's discovery in attempts to score Figural Forms A and B of these tests. The writer chose to have the tests scored by Georgia Studies of Creative Behavior which is managed by E. Paul Torrance.

Each of the three tasks or activities in both Figural Forms A and B were scored for originality and elaboration. The last two activities, picture completion and circles or parallel lines activities were scored for fluency and flexibility also. These four scores were
then totaled on each test.

After the scores on Figural Forms A and B were recorded for each student in both the pre and post test situation, the writer had a series of scores of differences in the four areas mentioned earlier, fluency, flexibility, originality, and elaboration. The writer, along with the help of a statistical expert, decided to use a paired $t$ test to compare these results. To do this, the assumption was made that Figural Forms A and B were equivalent. Test scores were converted to $T$ scores for comparison, a number indicative of placement on the normal curve with a mean of 50 and a standard deviation of ten (Torrance, 1966c). A $t$ test was used to measure the effect of the learning package on the student's creativity.

Analyzing Results of Learning Package Post Test

After the subject matter post test was graded mean scores for the total test as well as for the content sections were computed.
CHAPTER IV

EVALUATION OF THE LEARNING PACKAGE

Before beginning the discussion of the results of the evaluation it is important to remember that the behavioral objectives in the learning package were written with the characteristics of the creative person in mind. As established in the procedure for developing the learning package, each behavioral objective needed to enhance the development of two of the five main categories of characteristics of the creative person. Likewise, the learning experiences were developed using the list of guidelines for developing learning experiences to develop creativity in students. Each learning experience needed to utilize at least one of the ideas in two out of seven categories as presented on the list of guidelines to develop learning experiences. Twenty-seven home economics teachers participated in evaluating the learning package.

In the following discussion only those items with a mean rating of less than 3.5 will be discussed. All of the items with a mean rating above 3.5 were automatically included in the package. Complete mean ratings for the entire questionnaire can be found in Appendix I, Tables II - Emphasis, III - Balance, IV - Rhythm, V - Proportion, and VI - Harmony.
Results on Emphasis

Behavioral Objective 1 should help students achieve a generalization that is very necessary to the understanding of emphasis.

Emphasis

**Behavioral Objective 1:** You will be able to determine through exploration and investigation that the most important object should be emphasized while the background is the least important. The criterion for evaluation will be a completed self-evaluated idea sheet.

The characteristics that were hoped would be achieved by behavioral objective 1 were perhaps the most questionable as shown in Table 1.

<table>
<thead>
<tr>
<th>Characteristics of a Creative Person</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. brings out a student's curiosity</td>
<td>3.3</td>
</tr>
<tr>
<td>B. brings out a student's critical judgment</td>
<td>3.4</td>
</tr>
<tr>
<td>C. develops a student's sense of awareness to things around him</td>
<td>3.5</td>
</tr>
<tr>
<td>D. enables a student to interact with the world</td>
<td>2.8</td>
</tr>
</tbody>
</table>

If the items were omitted that received the questionable scores, the objective would not have satisfied two out of five characteristics of the creative person. In the writer's opinion, even if the behavioral objective does not foster the development of creative potential, the
learning experiences following, that carry out the objective do develop creative potential. The scorers have rated these learning experiences above 3.5.

In this, as well as in other items on the questionnaire, the scorers seemed to have difficulty in interpreting the phrase, interact with the world. The writer sees the phrase as using the world in many ways in the learning process, and not just in the physical or "hands on" sense. A poll of five home economics teachers taken by the writer coincided with this decision also. For these reasons the writer justified the inclusion of this behavioral objective in the learning package. Complete mean ratings for the emphasis section of the questionnaire can be found in Appendix I, Table II.

Results on Balance

Learning experience 1 and its behavioral objective were written to help a student acquire factual information before actually working with balance.

Balance

Behavioral Objective 1: You will be able to define and demonstrate formal and informal balance. The criterion for evaluation will be an illustration of formal and informal balance.

Learning Experience 1: Using the self-checklist for formal and informal balance, Idea Sheet #10, compile the given information and write a definition for formal and informal balance.
The student needs background information before he can accurately judge the affectiveness, demonstrate, or do anything more with balance.

The scorers did not agree with the writer that learning experience 1 is life-related, Table 2.

Table 2. Ratings for Guides for Developing Learning Experiences in Balance, Learning Experience 1

<table>
<thead>
<tr>
<th>Guides for Developing Learning Experience</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. is life-related</td>
<td>3.4</td>
</tr>
<tr>
<td>B. encourages a student to manipulate media</td>
<td>3.6</td>
</tr>
<tr>
<td>C. permits time to think and to contemplate</td>
<td>4.0</td>
</tr>
<tr>
<td>D. encourages the creative thought process of association</td>
<td>4.2</td>
</tr>
<tr>
<td>E. enables a student to understand the relationship between ideas</td>
<td>3.8</td>
</tr>
</tbody>
</table>

The writer believes that this learning experience is life-related because balance itself is. Many of the actual examples that the student would find are from nature which is certainly life-related. Balance is used in real life whether it is used consciously or unconsciously. If this item were omitted from the questionnaire, the learning experience would still qualify for the learning package. For these reasons, the writer justified the inclusion of this learning experience in the package. Complete mean ratings for the balance section of the learning package can be found in Appendix I, Table III.
Results on Rhythm

The writer intended that one using the second objective in the rhythm section would draw line movements from realistic examples.

Rhythm

Behavioral Objective 2: You will be able to experiment with rhythm by creating fast and slow line movements. The criteria for evaluation will be completed drawings of rhythm creating fast and slow line movements and the completion of Idea Sheet #13.

The scorers felt that the objective did not permit the students to interact with the world enough to be rated over 3.5 as shown in Table 3.

Table 3. Ratings for Characteristics of the Creative Person in Rhythm, Behavioral Objective 2

<table>
<thead>
<tr>
<th>Characteristics of a Creative Person</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. utilizes the student's enjoyment of novelty</td>
<td>3.6</td>
</tr>
<tr>
<td>B. enables a student to utilize his sense of awareness</td>
<td>3.5</td>
</tr>
<tr>
<td>C. enables a student to interact with the world</td>
<td>3.3</td>
</tr>
<tr>
<td>D. enables a student to exhibit imagination</td>
<td>3.9</td>
</tr>
<tr>
<td>E. urges a student to express himself</td>
<td>3.6</td>
</tr>
<tr>
<td>F. helps a student see things in a new light</td>
<td>4.0</td>
</tr>
<tr>
<td>G. enables a student to use vivid imagery</td>
<td>3.6</td>
</tr>
<tr>
<td>H. enables a student to use his abstracting ability</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Because of the scorer's ratings, the writer added several more real-life examples from which to draw line movements. Here, again, it was evident that there was some confusion concerning the meaning of
the phrase, interact with the world. The writer believes some of the scorers felt there must be physical action to be able to rate a high score on this item. This criterion for physical action was not the writer's intention. Even if this creative characteristic were omitted from the questionnaire, the behavioral objective would still be qualified to remain in the learning package. The behavioral objective as rated by the scorers still enhances the development of two of the five main categories of characteristics of the creative person.

In conclusion, the writer revised one of the learning experiences that carries out this objective. It was not necessary to justify this behavioral objective. It was retained in the learning package because it still met the criteria. Complete mean ratings for the rhythm section of the learning package can be found in Appendix I, Table IV.

Results on Proportion

Behavioral Objective 1

Behavioral objective 1 in the proportion section of the learning package was designed to help a student find out what proportion is and to observe it.

Proportion Behavioral Objective 1: You will be able to observe and record examples of proportion in your environment using a definition and the self-checklist for proportion as a basis. The criterion for evaluation will be sketches of the examples of proportion found.
The scorers felt the creative characteristics of desiring some facts and using critical judgment in selection were not sufficiently used in this objective, Table 4. They rated them at less than 3.5.

Table 4. Ratings for Characteristics of a Creative Person in Proportion, Behavioral Objective 1

<table>
<thead>
<tr>
<th>Characteristics of a Creative Person</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. enables a student to see things in a new light</td>
<td>3.8</td>
</tr>
<tr>
<td>B. enables a student to use critical judgment in selection</td>
<td>3.3</td>
</tr>
<tr>
<td>C. uses a student's sense of awareness to things around him</td>
<td>4.1</td>
</tr>
<tr>
<td>D. takes advantage of a student's desire for some facts</td>
<td>3.0</td>
</tr>
</tbody>
</table>

The checklist on proportion, in the writer's opinion, does give the student factual information needed to further work with proportion. Because of the checklist, the student has some definite facts on which to base his judgment of whether his example is proper or improper proportion. For this reason, the writer believes the student does utilize critical judgment. Perhaps the scorers were not marking how much the creative characteristic was brought out and used in the behavioral objective, but how creative the characteristic was. The writer believed this behavioral objective was still justified to be in the package. It was also still qualified by using two of the seven categories for developing learning experiences.
Learning Experience 1

Learning experience 1 in the proportion section was designed to carry out behavioral objective 1.

Proportion Learning Experience 1: Find as many examples of different types of windows as you can. Sketch them on a separate piece of paper and analyze them using Idea Sheet #17.

As shown on Table 5, the scorers did not believe the learning experience encouraged students to manipulate media.

Table 5. Ratings for Guides for Developing Learning Experiences in Proportion, Learning Experience 1

<table>
<thead>
<tr>
<th>Guides for Developing Learning Experiences</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. encourages a student to manipulate media</td>
<td>3.2</td>
</tr>
<tr>
<td>B. is life-related</td>
<td>3.8</td>
</tr>
<tr>
<td>C. makes a student more sensitive to environmental stimuli</td>
<td>4.0</td>
</tr>
<tr>
<td>D. fosters perceptive awareness</td>
<td>4.3</td>
</tr>
<tr>
<td>E. encourages the creative thought process of association</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Perhaps the learning experience does not allow a student to manipulate media if manipulate means to work with media using the hands. Perhaps the proper term here would be to analyze media. The learning experience would still justify inclusion in the learning package if this item were omitted from the questionnaire since the learning experience would still meet the criteria of satisfying two of the seven
main categories of guidelines for developing learning experiences to develop creative potential.

Learning Experience 2

Behavioral objective 1 was also to be fulfilled by learning experience 2.

Proportion Learning Experience 2: Find as many examples of sets of drawers as you can. Sketch them on a separate piece of paper and analyze them using the self-checklist on proportion, Idea Sheet #17.

The scorers again rated manipulating media low, Table 6.

Table 6. Ratings for Guides for Developing Learning Experiences in Proportion, Learning Experience 2

<table>
<thead>
<tr>
<th>Guides for Developing Learning Experiences</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. encourages a student to manipulate media</td>
<td>3.2</td>
</tr>
<tr>
<td>B. is life-related</td>
<td>3.9</td>
</tr>
<tr>
<td>C. makes a student more sensitive to environmental stimuli</td>
<td>4.0</td>
</tr>
<tr>
<td>D. fosters perceptive awareness</td>
<td>4.1</td>
</tr>
<tr>
<td>E. encourages the creative thought process of association</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Perhaps, again, the scorers and the writer differed on the meaning of the phrase, to manipulate media. The learning experience does not give a student the chance to touch and mold media with his hands, but it does give him the chance to use it in his thought processes instead of working with plain facts.
The scorers also believed the learning experience did not allow the student to use the creative thought process of association. The writer believes the student is able to use the process of association. However, if both this item and the item concerning manipulating media were omitted from the questionnaire, the learning experience would still be eligible for inclusion in the package.

A comment made by one of the scorers indicated the reason this scorer had marked all of her ratings at the two level. This person stated that using sets of drawers in this learning experience was not very interesting. Therefore, the writer changed the learning experience to read, "find as many examples of flower arrangements or sets of drawers...". The writer felt that to use these two examples would be a help for the student doing the package since proportion can easily be seen in the examples.

Therefore, the learning experience was revised and retained in the learning package. Complete mean ratings for the proportion section of the learning package can be found in Appendix I, Table V.

Results on Harmony

Learning experience 3 like all the others in the harmony section draws on the student's accumulated knowledge from the other four individual package sections.
Harmony

Behavioral Objective 2: Evaluate the illustration of harmony developed in objective 1 by completing Idea Sheet #20. The criterion for evaluation will be the completion of Idea Sheet #20.

Learning Experience 3: Evaluate the illustration of harmony from objective 1 by completing Idea Sheet #20.

Here the scorers rated at 3.4 the item concerning questioning, Table 7.

Table 7. Ratings for Guides for Developing Learning Experiences in Harmony, Learning Experience 3

<table>
<thead>
<tr>
<th>Guides for Developing Learning Experiences</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. encourages the acquisition of knowledge in a variety of areas</td>
<td>3.9</td>
</tr>
<tr>
<td>B. gives the student freedom to fail</td>
<td>3.5</td>
</tr>
<tr>
<td>C. fosters habits of constructive criticism in the student</td>
<td>3.7</td>
</tr>
<tr>
<td>D. provides for questioning</td>
<td>3.4</td>
</tr>
<tr>
<td>E. enables a student to see relationships between ideas</td>
<td>4.0</td>
</tr>
</tbody>
</table>

The writer believed that questioning would be invited with the use of Idea Sheet #20 which asks the student to analyze his illustration of harmony. If the item concerning questioning were omitted from the questionnaire, the learning experience would still be qualified for the learning package. The learning experience still meets the criterion of satisfying two of the seven main categories of guidelines to develop learning experiences to develop creative potential. Therefore, it was retained in the package. Complete mean ratings for the harmony section of the learning package can be found in
Appendix I, Table VI.

**Summary**

All of the behavioral objectives except Emphasis, behavioral objective 1 met the writer's criteria for inclusion in the package, using at least two of the five main categories of characteristics of the creative person. Emphasis, behavioral objective 1 was justified by the writer and still included in the package.

All of the learning experiences met the writer's criteria for inclusion in the package. The learning experiences utilize at least two of the seven main categories of guidelines for developing learning experiences to develop creative potential.

**Miscellaneous Comments and Decisions Concerning the Learning Package**

A few scorers recorded other significant ideas on the questionnaire besides their ratings. There were some comments that led the writer to believe there was confusion about meanings of some words and phrases as listed in the preceding analysis. One scorer indicated confusion in how to rate the items that were worded, "takes advantage of a student's...". This scorer later re-marked her questionnaire.

Some very positive comments about the package were also
included such as "... gives students more insight into their studies and their thoughts ..., "... very unique and stimulating ..., "unique approach ..., and "No student should feel limited in her mode of expression."

Several other decisions were made concerning the learning package that were not based on the results of the questionnaire. The writer decided to omit the statements concerning criterion for evaluation in the behavioral objectives since the same idea is stated in each learning experience. It was felt that the objectives were too long and that the word criterion might not be suitable for the age level of students using this package. Therefore, the criterion for evaluation is stated in similar terms in each learning experience.

Also, throughout the package some of the statements directing the student to turn in certain completed sections to the teacher have been omitted since the student was instructed at the beginning of the package to turn in the completed package and any additional pages used to complete the package when he is done. Some actual illustrations and arrangements of objects need to be checked before the completion of the package and have been identified accordingly.

Attention was drawn to Design Problem #1 in the balance section by one of the scorer's comments. The scorer indicated that she could not balance the objects on the chest formally. Since the writer intended that this could be done, the wording in the directions was
changed.

The writer also felt that maybe there were other words or phrases that the students using this package might not understand. Therefore, the writer had one high school student read the package and circle any words or phrases not understood.

Comments made by this student as well as comments made by scorers and the writer's own observation prompted the changing of wording in behavioral objective 2 and learning experiences 3, 4, and 5 in the harmony section. Some confusion was created when the writer referred to illustrations completed in fulfilling objective 1. It seems clearer to refer to the illustrations by listing learning experiences of which they are a part. Therefore, the writer changed the wording from "objective 1" to "learning experience 1 or 2." For the same reason, the wording in learning experience 6 was changed from "behavioral objective 4" to "learning experience 7."
CHAPTER V

RESULTS AND CONCLUSIONS

Analysis of Learning Package Pre and Post Test

All 12 students were given the opportunity to take the package pretest if they wished to challenge the subject matter of the learning package. No student chose to do so.

After the completion of the package each of the 11 students remaining was asked to complete the package post test. All did so. This test was apparently very difficult for the students as indicated by Table 8.

Table 8. Means of Learning Package Post Test Scores

<table>
<thead>
<tr>
<th>Content Sections</th>
<th>Number of Questions</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emphasis</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Balance</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Rhythm</td>
<td>6</td>
<td>2.1</td>
</tr>
<tr>
<td>Proportion</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Harmony</td>
<td>1</td>
<td>0.27</td>
</tr>
<tr>
<td>Total</td>
<td>17*</td>
<td>5.5</td>
</tr>
</tbody>
</table>

*Some questions relate to more than one category and have only been counted once

The mean scores for each package section as well as the mean total score were all quite low. All of the mean scores indicated that
50 percent or more of the answers for any one particular section were incorrect. Thus, the mean cumulative score for correct answers was only 5.5 out of 17.

The writer feels, based on student reactions and her own observations, that various suggestions would improve this instrument and its administration. First, to give the student a less frustrated state of mind, he should be told that the test is a "judgment" test, one of the hardest types of tests on which to score 100 percent. Secondly, the teacher should clarify some of the pictures which seem to be most easily misunderstood; specifically, pictures two, seven, nine, and thirteen. In some cases the student was looking at the shape of the reproduced pictures instead of the objects in them. Quite often he would also be concentrating on the wrong objects in the picture. Perhaps, the test would be greatly facilitated if it were in color.

The Learning Package in the Classroom

Adjustment to the Learning Package

The students exhibited much confusion as they started the learning package even though the writer had explained to them what a learning package was and how to use it. Perhaps it would have been helpful to have the students as a group work through a sample lesson to further acquaint them with this new way of learning. This
would also insure that the students would read the written directions included in the package.

The choices of learning experiences offered to the students indicated by writing "OR" between them proved to be most confusing. Here again, the writer believes that by working through a sample lesson before the students start working on their own packages would alleviate some of this problem.

Emphasis

Many students seemed to be extremely frustrated as they worked on this section. Several students indicated that the learning experiences were too open ended.

The writer believes that there are several possible reasons that would help explain the students initial reaction to this section. Probably part of the initial confusion and frustration was caused by the newness of the learning concept. Not one of these students had previously used a learning package. It is also possible that this section was more difficult than the other four sections. Perhaps it would be better to place one of the more easily understood sections at the beginning of the package instead of the emphasis section.
Balance

This section seemed to create little confusion. The students now began to indicate that the package was a lot of fun and very interesting. They also indicated that this section was much clearer than the emphasis section. Perhaps this was the reason the section was completed more quickly by the students.

The writer firmly believes that the use of media such as craft supplies, magazines, etc. helped stimulate student interest and create a relaxed environment. It seemed that after the students began to use the provided media they really began to enjoy the package.

Learning experience one in the balance section caused considerable confusion. The students were asked to refer to Idea Sheet #10 and to write a definition for balance. Idea Sheet #10 was designed to serve several purposes. It is actually a form to be used primarily in analyzing illustrations of balance. The students could not understand how to formulate a definition from the various points listed on the Idea Sheet. Perhaps it would be easier to have the students select a suitable definition from the dictionary.

Rhythm

This section was most enlightening to the students. The student reaction to this section was excellent. Many comments were made
concerning the variety of interesting, unusual, and enjoyable activities.

**Proportion, Harmony**

The students at all times were told to work at their own pace. Thus, by now it was quite obvious that the students were working at different speeds. The writer noticed that as some began to finish the package, other students began to work faster, perhaps as a result of peer pressure. There was no pressure exerted by the teacher at any time for package completion in a specified amount of time.

**Summary**

One of the writer's goals during the administration of the package was to keep a positive, non-threatening, and enjoyable atmosphere in the classroom at all times. The writer believes that this goal was accomplished as best as could be expected. Because of this fact, the nature of the package itself, and verbalized student comments, the writer feels that most of the students thoroughly enjoyed the package.

**Analysis of Torrance Tests of Creative Thinking**

After raw scores were obtained from each student on both the pre and the post test, Figural Forms A and B of Torrance Tests of
Creative Thinking (Appendix H), statistical analysis began. Twelve students took the pretest, but only 11 students took the post test. The scoring center converted the raw scores into T scores for comparison, a number indicative of placement on the normal curve with a mean of 50 and a standard deviation of ten (Torrance, 1966c).

A statistical expert, using a t test, first checked to see whether there was a significant difference between the group which was given Figural Form A followed by Figural Form B, and the group which was given Figural Form B followed by Figural Form A. There was no statistically significant difference between the two sequences.

Consequently the data were combined and analyzed using a t test to see whether or not the gain in score was significantly greater than zero for each of the four tests as shown in Table 9.

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Fluency</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Elaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>A B</td>
<td>5.40</td>
<td>8.20</td>
<td>18.80</td>
<td>1.60</td>
</tr>
<tr>
<td>B A</td>
<td>13.67</td>
<td>17.50</td>
<td>8.33</td>
<td>14.33</td>
</tr>
<tr>
<td>Mean</td>
<td>9.91**</td>
<td>13.27**</td>
<td>13.09**</td>
<td>8.54</td>
</tr>
</tbody>
</table>

**Significant at the .01 level of probability

This analysis showed that the gain in score for fluency, flexibility and originality was significant at the 1 percent level. Gain in
score for elaboration was not significant. Therefore, the learning package did develop creativity in the areas of fluency, flexibility, and originality. The learning package did enable the students in the sample to produce in a variety of ways (flexibility), a large number of ideas (fluency), that are away from the obvious, commonplace, or established (originality) (Torrance, 1966c).

Reasons why the mean score was low for elaboration, the subject's ability to develop, embellish, or carry out ideas (Torrance, 1966c), are vague. Perhaps the sample was not large enough to indicate a significant result. Perhaps the teacher herself had a negative effect on the elaboration score in the way in which she administered and helped in the completion of the learning package. Another possibility might be that the learning package just did not stimulate the development of elaboration to a significant degree regardless of other variables. Other variables that could have affected the results either positively or negatively are the mental, physical, and emotional states of each student at the time of the learning experience. Perhaps the students just did not take the time during the completion of the learning package to develop elaboration skills.

Torrance (1966c) suggests that delinquents and school dropouts seem to be characterized by low elaboration scores. However, these girls were not school dropouts and were not characterized as delinquents by school counselors.
Conclusions

Results indicate that even though the students in the sample scored poorly on the learning package subject matter post test, they did develop creativity in the areas of fluency, flexibility, and originality as evidenced by the results of Figural Forms A and B of Torrance Tests of Creative Thinking. One needs to recall that the purpose of the learning package was not acquisition of subject matter information, but development of creativity.

Because of the nature of creativity as well as characteristics of the creative person and guidelines that should be followed in its development, the writer was not able to give some types of assistance to students while they were working on the package. The writer feels that if this help had been given, the scores would have been higher on the subject matter post test. However, this action might have lowered the post test scores on the Figural Forms of Torrance Tests.

Students frequently asked the writer to give opinions about answers and illustrations or to evaluate them. As far as development of creativity is concerned, to help in these situations would have been a mistake even though to have given some aid would have helped the students comprehend the subject matter a little better. The list of guidelines for teachers who wish to develop the creative potential of their students warns against imposing adult standards and comparing
a student's work with standards beyond his level. This list also indicates that teachers need to refrain from domination and wait patiently for the student to develop skill. The student needs to be encouraged to use his thinking ability, a characteristic of a creative person. Creative learning experiences are often challenges.

Students were often observed by the writer doing extra things that were not specified in the learning experience such as illustrating examples in detail using craft supplies. The writer could have directed the students to the next learning experience or have told them that beautifying the illustrations was not necessary. Indeed, this beautifying practice was not necessary in order to comprehend the subject matter. However, here again, in the best interests of creative development, the writer did not interfere. Once again, the list of guidelines for teachers who wish to develop the creative potential of their students specifies that the teacher needs to refrain from domination. Students need to be encouraged to illustrate, dramatize, and to try new ideas, characteristics of the creative person. A creative person often exhibits inspiration, self-direction and individuality. The list of guides for developing creative learning experiences reveals that a creative learning experience often encourages manipulation of media and self-initiation. A creative learning experience should also allow the student time to contemplate a situation.

The importance of the teacher in this learning experience seems
to be quite obvious. An environment conducive to the development of creativity must be maintained in the classroom if the teacher is really trying to foster creative development. To do this a teacher must be familiar with the nature of creativity, the characteristics of the creative person, characteristics of creative learning experiences, and guidelines that should be followed by the teacher to facilitate development of creativity. Not only must the teacher be familiar with this information, but she should be able to "use" the information in her teaching.

**Questions Stimulated by the Research**

The results of this study seemed to create a number of unanswered questions that are worthy of further investigation. Some of these questions are listed here.

1. Would the mean gain of scores between the pre and post test retain the high level of significance for fluency, flexibility, and originality if one definitely attempted to help the students in the acquisition of subject matter?
2. Would this learning package increase the creativity of boys?
3. What could be incorporated into the package to increase elaboration skill and, consequently, to increase the mean gain of the elaboration score?
4. Would elaboration scores have been higher on the post test?
if some of the students had not rushed to complete the package at the end of the experience?

(5) Would the high mean gain for fluency, flexibility, and originality have been maintained if a teacher unfamiliar with the nature of creativity, the creative person and guidelines to follow in its development had administered the learning package to the students?

(6) If the package had been centered around a different subject area that was, perhaps, not as abstract as the design principles, would there have been a difference in creative development?
BIBLIOGRAPHY


APPENDICES
Characteristics of the Creative Person

Thinking Ability

1. Does the student see himself and things in a challenging new light?

2. Does the student have vivid imagery?

3. Does the student exhibit fluency of ideas and problem sensitivity?

4. Does the student have a redefinition skill, abstracting ability, synthesizing ability, organizational ability and the capacity for questioning?

5. Does the student have a good memory?

6. Does the student demonstrate reasoning power?

7. Is the student curious?

8. Does the student usually have ready suggestions?

9. Does the student consider his own situational conditions as realities, but also as challenges to his own formative thinking and doing?

10. Does the student see interactions and relationships?

11. Is he discriminating?

12. Does he think and plan ahead?

13. Does the student use critical judgment?

14. Is the student inspired?

Experimentation

1. Does the student have an urge to manipulate and "feel" form, shape, and textures?
2. Does the student have an urge to dramatize or illustrate experiences?

3. Does the student enjoy pace changes, routine bucking, and novelty?

4. Does the student aspire to try out new ideas or to put forward in a new course of acting?

5. Does the student "do" something about his ideas--expects to learn by doing?

6. Does the student avoid "ready made know how" or patterns to which he can conform?

7. Does the student try new ways for old by substituting, reversing, subtracting, modifying, adding, and by adapting?

8. Does the student examine data with an unstructured look?

9. Does the student have a willingness to take long range risks?

10. Is the student inventive?

Concentration

1. Does the student have the ability to concentrate?

2. Is the student deeply involved, devoted, and determined?

Relationships with People

1. Does the student have the capacity to tolerate tension that strong opposing values create in him?

2. Does the student effect some reconciliation of opposing values?

3. Does the student value accurate observations?

4. Is the student responsive to value combinations and conflicts?

5. Does the student exhibit a sense of awareness to things around him?
6. Does the student interact with the world? Are his interests wide?

7. Does the student tend to be unsociable at times?

8. Does the student have a sense of personal identity?

Personality Traits of the Creative Person

1. Is the student flexible?

2. Is the student desirous of facts?

3. Does the student exhibit responsibility?

4. Does the student exhibit freedom from responsibility at times?

5. Is the student independent?

6. Is the student dependent at times?

7. Does the student need to find a subtle ordering principle?

8. Does the student exhibit a tolerance for chaos?

9. Does the student need recognition and achievement?

10. Is the student self-directive?

11. Does the student exhibit spontaneity?

12. Does the student exhibit individuality, originality, and imagination?

13. Does the student display initiative?

14. Is the student courageous?

15. Does the student demonstrate resilience?

16. Can the student express himself freely?

17. Is the student clever?
18. Does the student have the ability to find open channels if others are blocked?

19. Does the student display confidence?

20. Is the student enthusiastic, industrious, and ambitious?

21. Is the student spirited in disagreements with the teacher at times?

22. Does the student have an urge to express himself?

23. Is the student at times nonconforming to the group?

24. Is the student reliable?

25. Is the student capable?

26. Is the student conscientious?

27. Is the student assertive and perservering?

28. Does the student impose certain limitations on himself? Does he display discipline and self-control?

29. Does the student have the ability to laugh, to play, and to have fun?
APPENDIX B
To develop the creative potential of students, teachers should use learning experiences which meet the following qualifications:

**Types of Learning Activities**

1. Was the learning experience an exploratory experience?
2. Did the learning experience provide for both active and quiet periods?
3. Were open ended learning experiences provided?
4. Did the learning experience provide freedom for exploration and experimentation with a variety of media and materials?
5. Was the learning experience a situation with no pat answer?
6. Was a choice in learning experiences given?
7. Were discovery methods used?

**Characteristics of Learning Activities**

1. Was the learning experience a challenge?
2. Was the learning experience life related?
3. Did the learning experience foster mature self-appraisal and continuous evaluation?
4. Did the learning experience create problem awareness?
5. Did the learning experience encourage the acquisition of knowledge in a variety of areas?
6. Did the learning experience cultivate sound value judgments on which responsible self-direction and fulfillment depend?
7. Did the learning experience motivate the student to "want to" be creative?

8. Did the learning experience encourage the student to manipulate media?

Development of Specific Characteristics of Students

1. Did the learning experience give the student faith in his own potentialities?

2. Did the learning experience give the student confidence and freedom to break away from set patterns of action?

3. Did the learning experience give the student freedom to fail?

4. Did the learning experience show the student how to utilize his errors?

5. Did the learning experience make the student more sensitive and open to environmental stimuli?

6. Did the learning experience foster habits of constructive criticism in the student?

7. Did the learning experience encourage the habit of working out the implications of ideas?

8. Did the learning experience promote originality and encourage spontaneous expression?

9. Did the learning experience provide for self-initiation?

Development of Critical Thinking

1. Did the learning experience permit time to think and to contemplate?

2. Did the learning experience foster vivid imagery?

3. Did the learning experience foster individuality of expression?
4. Did the learning experience foster perceptive awareness?

5. Did the learning experience provide for questioning?

6. Did the learning experience tolerate new or divergent ideas?

7. Did the learning experience bring out vague ideas?

8. Did the learning experience encourage risk taking?

9. Did the learning experience encourage unusual variations of the usual?

10. Did the learning experience provide for over-learning—saturation with information, imagery, and meanings?

11. Did the learning experience encourage creative thought processes such as association, imagination, guessing, etc.?

12. Did the learning experience provide for part or all of the four phases of the creative act?
   a. preparation - achieving familiarity and becoming absorbed in the problem.
   b. incubation - problem dropped for different reasons.
   c. illumination - inspiration and fulfillment.
   d. revision - elaboration and polishing.

13. Did the learning experience enable the student to understand relationships between ideas, materials, events, etc.?

Expectations of the Students

1. Were the learning experiences paced to the level of realistic involvement and maturing aspirations?
Evaluation of Students

1. Were the evaluations based on student and teacher set goals which were cooperatively agreed upon and cooperatively evaluated?

2. Were the evaluations of many different kinds—not just exams?

Atmosphere for Learning Experiences

1. Was the atmosphere warm and friendly where regimented routines did not take priority over human values?

2. Was the atmosphere non-threatening?

3. Was the atmosphere free from pressure?

4. Did the atmosphere allow some permissiveness but still have some structure?

5. Did the atmosphere have a non-authoritarian air?

6. Did the atmosphere give freedom and privacy for developing ideas?

7. Did the learning experiences provide a change of pace for the students?
APPENDIX C
Travel with the Design Principles

A Learning Package

Prepared by

Melody A. Field
Student Section of Learning Package
Definition of Terms

1. **Rationale** - An introduction

2. **Behavioral Objective** - A goal, something to be achieved

3. **Learning Experience** - An activity done to fulfill an objective

4. **Pretest** - A test the student takes before the completion of the learning package to determine what he knows about the subject of the learning package

5. **Post test** - A test taken after the learning package is completed to determine what the student learned

6. **Component** - An idea representing different sections of the learning package
ALL ABOARD! Come, join the idea train.

As you travel through these packages and try out the activities, you will be exploring the five design principles, emphasis, balance, rhythm, proportion, and finally harmony. By using these principles effectively, it is possible to make almost anything more pleasing to the eye. As you work in these packages, keep your mind clear! Open your eyes! Ideas are everywhere! You might even see something or learn something that you were not really expecting!
Purpose of the Pretest

Take the pretest before you begin the package. If you score 100% on this test, you already know the information presented and are not required to complete the package. If you miss any questions, you need to complete the package. Your teacher will correct the test for you.
Directions: Carefully examine the phrases and pictures on pages one, two, and three as well as the list of possible answers on page four. Then, place answers from page four in the appropriate spaces. There are more answers than blanks. Good Luck.

1. _______

2. _______

3. _______

4. _______ Emphasis creates _________.

5. _______
12. The thickness of vertical or horizontal lines changes the appearance of the shirt. The change in appearance is caused by a change in _______.

13. __________

14. __________

15. __________

16. __________

17. __________ Unity is __________.
Directions:

Examine this list of possible answers. Then place the letter of the best answer in the appropriate place on page one, two, or three. There is only one answer for each space.

A. Informal balance creating chatty conversational atmosphere.
B. Formal balance creating a chatty conversational atmosphere.
C. Harmony
D. Examples of good rhythm.
E. Illustrations of good proportion.
F. Fast directional line movement.
G. Picture illustrating all of these design principles:
   a. informal balance
   b. radiation
   c. emphasis
H. Examples of poor rhythm.
I. Emphasis achieved through contrast and placement.
J. 2:3 ratio
K. Emphasis achieved through texture.
L. Slow directional line movement.
M. Proportion
N. Emphasis achieved through shape.
O. Importance
P. Scale
Q. Emphasis achieved through grouping.
R. Examples of Emphasis.
S. Taste
T. 2:4 ratio
U. Illustration of emphasis created by radiation.
V. Gradation and repetition
W. Formal balance creating a reserved or conservative atmosphere.
X. Informal balance creating a reserved or conservative atmosphere.
Y. Examples of poor proportion.
Z. Repetition of shapes or objects to create rhythm.
AA. Illustration of emphasis created by contrast.
Student Instructions

Do all of the "Primary" learning experiences. In some cases you have been given a choice. If you wish to study further any area in the package, do some of the "Additional" learning experiences or "Quest Opportunities" that are provided throughout the package.

Your teacher will be available at all times to give you assistance. All supplies that you should need have been provided. WORK AT YOUR OWN PACE. When you are finished with the package, turn the package and any additional paper you used in to your teacher.
LESSON NUMBER I

Component: Emphasis

Generalization: Emphasis is the art principles that makes one point of interest dominant over all others.

Behavioral Objectives: You will be able to:

1. Determine through investigation and exploration how emphasis can be used to create importance. (what to emphasize)
2. Using the technique of brainstorming, think up as many ways as you can to achieve emphasis through line, shape, space, texture, placement, grouping, color, and contrast. (how to achieve emphasis) Brainstorming means to list quickly all ideas that come to mind without first considering if the ideas are good, bad, right, or wrong.
3. Modify, reorganize, or eliminate items to achieve emphasis. (how much to emphasize)
4. Analyze one of the best ideas you thought of in learning experience four by planning and carrying out an original way to illustrate emphasis with any area of home economics as a basis.
LESSON NUMBER I

Learning Experiences:

Directions: Read through the list of suggested learning experiences. Do all of the "Primary" learning experiences. You are given a choice of learning experiences in some cases. Complete one or two of the "Additional" learning experiences if you so desire.

Primary Learning Experiences:

1. For three of the four illustrations, A, B, C, and D, discover how emphasis can be used to create importance. Decide whether the background or the most important object receives the most attention. Record your answers on Idea Sheet #1.

(OR)

2. Observe and sketch on Idea Sheet #2 three objects in nature or in your environment and indicate on Idea Sheet #1 what part of the object is the most important and whether the background or the most important object receives the most attention.

(OR)

3. Close your eyes and imagine a scene with the following items:
   a. a bright colored spot
   b. a white background
   c. several short gray lines

Illustrate the scene on Idea Sheet #3 using any available materials. Also, on Idea Sheet #3 record these answers: (1) What part of
the scene is the most important? (2) Does the background or the most important object receive the most attention?

4. Brainstorm alone or with a friend (Think up as many ideas as possible and as fast as you can without regard as to whether the ideas are good, bad, right, or wrong.) about ways to achieve emphasis through line, shape, space, texture, placement, grouping, color, and contrast. Refer to the explanation of terms following the learning experiences in this lesson for definitions of these words. You will use one of your ideas later.

5. Complete illustration E in this lesson. Then, using illustration E, modify, reorganize, or eliminate parts or all of it to achieve emphasis. Construct a revised illustration on a separate piece of paper. (You may cut out and use or trace and use the objects on Idea Sheet #4 to help you construct your revised illustration. (OR)

6. Arrange any three objects of your choosing to illustrate simplicity in emphasis. You may illustrate this arrangement on a separate piece of paper or show the actual illustration to your teacher.

7. Plan and carry out an original way to illustrate emphasis with any area of home economics as a basis using one of your ideas developed during your brainstorming activity, learning
experience #4. Use real objects if possible. Evaluate the illustration with the self-checklist on emphasis (Idea Sheet #5). You will use this illustration later. Therefore, record the illustration by drawing, photographing, or by using other available material.

Additional Learning Experiences:

1. Plan and construct a bulletin board to illustrate emphasis.
2. Make a written analysis of one page or less of how you use emphasis in everyday living.
3. Help someone else understand the concept of emphasis. Turn in an outline of the suggestions you offered.

Explanation of Terms

1. line - a threadlike mark varying from very thin to wide expressing a variety of movements and moods
2. shape - an outline or form resulting when two lines meet
3. texture - surface treatment that can be felt or seen
4. placement - the location or position of an object
5. grouping - clustering objects together
6. contrast - a striking difference when two or more objects are being compared such as the difference of white and black
Directions: In the spaces provided identify the illustration or sketch you are using. Then answer the questions in the spaces provided.

Illustration or Sketch: ________________________________

1. What is the most important object?

2. Does the background or the most important object receive the most attention?

Illustration or Sketch: ________________________________

1. What is the most important object?

2. Does the background or the most important object receive the most attention?

Directions: Read the following statement. Fill in the blank with the appropriate answer.

1. The ___________________________ usually receives the most attention and the background receives the least.

ANSWER: ___________________________
Directions: Read the following statement. Fill in the blank with the appropriate answer.

1. The ________________________ usually receives the most attention and the background receives the least.

ANSWER: most important object
1. What is the most important object or thing?

2. Does the background or the most important object receive the most attention?

Directions: Read the following statement. Fill in the blank with the appropriate answer.

1. The ___________________________ usually receives the most attention and the background receives the least.

ANSWER: Most important object
Emphasis
Illustration A
Emphasis
Illustration B
Emphasis
Illustration C
Emphasis
Illustration D
Directions: Complete this illustration by marking in crayons, water colors, magic markers, or other available supplies the spaces so marked. THEN - - - modify, reorganize, or eliminate parts or all of it to achieve simplicity in emphasis. Construct a new illustration on another paper. (You may cut out and use the objects on IDEA SHEET #4.)
Directions: Complete these objects by marking in crayons, water colors, magic markers, or other available supplies the spaces so marked.
NAME ________________________

IDEA SHEET #5

Self Checklist for Emphasis

The following question will help you analyze your illustration of emphasis. Place an X in the appropriate spaces.

In my illustration emphasis is created in one or more of the following ways:

_____ a. by line
_____ b. by space
_____ c. by shape
_____ d. by texture
_____ e. by color
_____ f. by contrast
_____ g. by placement or grouping

Directions: Read the following checklist. Place an X in the appropriate space. You should be able to answer "yes" to all of the questions if your illustration represents an example of good emphasis.

In my illustration of emphasis:

yes no

1. The most important object is dominant or attracts the most attention. __________

2. The background is the least important. __________

3. There is simplicity. __________
LESSON NUMBER 2

Component: Balance

Generalization: Balance is the art principle that gives a feeling of equal weight between two or more objects.

Behavioral Objectives: You will be able to:

1. Define and demonstrate formal and informal balance.

2. Recognize different moods created by formal and informal balance by collecting, comparing, and analyzing examples of formal and informal balance in the environment.

3. Solve one of two given design problems related to balance using your knowledge and inventiveness.
LESSON NUMBER 2

Learning Experiences:

Directions: Read through the list of suggested learning experiences. Do all of the "Primary" learning experiences. You are given a choice of learning experiences in some cases. Complete one or two of the "Additional" learning experiences if you so desire.

Primary Learning Experiences:

1. Using the self-checklist for formal and informal balance, Idea Sheet #10, compile the given information and write a definition for formal and for informal balance.

2. Using your definitions of formal and informal balance, and the seesaw or teeter-totter idea, illustrate formal and informal balance on Idea Sheet #6.

   (OR)

3. Illustrate formal and informal balance on Idea Sheet #7 and #8 by tracing around, gluing, or modifying various objects in the envelope of objects on Idea Sheet #7.

   (OR)

4. Choose several objects you can find available in your classroom, from home, or from magazines. Arrange these objects to illustrate formal and informal balance. Evaluate the illustrations yourself, using the self-checklist on Idea Sheet #10.
5. Collect or make illustrations of formal and informal balance from your environment by cutting out and mounting magazine or newspaper pictures, photographing, sketching, painting, or coloring. Use materials and supplies that are available to you.

6. Identify the category into which your illustrations of formal and informal balance seem to fit. (1) These pictures create a sense of rest and stability as well as a dignified and reserved mood. Sometimes a sense of precision or exactness is also felt. (2) These pictures create a feeling of rest and repose and give the impression of a conversational, chatty mood. When you have finished, complete Idea Sheet #9.

(OR)

7. With other students identify the category into which your illustrations of formal and informal balance seem to fit. Use the two categories identified in learning experience 6. When you have finished, complete Idea Sheet #9.

8. Solve one of two given design problems, #1 and #2, using your own inventiveness and knowledge. Evaluate the solution with the self-checklist on balance, Idea Sheet #10.

(OR)

9. Select a design problem of your own choosing, solve it, and evaluate it with the self-checklist, Idea Sheet #10, and write in one page or less a summary of the problem and its solution to be
turned in to the teacher.

**Additional Learning Experiences:**

1. Investigate the effect of color and size of objects in informal balance by selecting three objects from your environment - a large bright red object, a dark small object, and a tall object - and using them to illustrate informal balance. Evaluate your illustration of these objects using the self-checklist on informal balance, Idea Sheet #10.

2. Arrange two illustrations of formal balance. In the first illustration use two identical objects. In the second illustration use two objects which are not alike but similar. Turn in or show the actual arrangements to your teacher.
Balance
IDEA SHEET #6

Illustration of Balance
Using the
Seesaw Idea

NOTE: The effect of different weights can be illustrated by using a teeter-totter or seesaw. A board is placed on a base and different weights or different attention-getting objects are placed on each end of the board. These objects or weights can balance or they may not balance.

DIRECTIONS: Using this as a starting point, illustrate formal and informal balance using the seesaw concept.

FORMAL BALANCE:

INFORMAL BALANCE:
Balance

IDEA SHEET #7

Illustrations of Balance

Directions: Illustrate formal and informal balance in the appropriate spaces by tracing around, gluing, or modifying objects in the envelope below.

FORMAL BALANCE:
Balance
IDEA SHEET #8

INFORMAL BALANCE:
Balance
IDEA SHEET #9

Summary Generalizations
(Moods created by Balance)

Directions: Read the following statements carefully. Then, fill in each blank with the appropriate word. When you are finished, check your answers with those at the bottom of this page.

1. ________ balance creates a feeling of rest and repose as well as a dignified and reserved mood. Sometimes a sense of precision is also felt.

2. ________ balance creates a feeling of rest and repose and gives the impression of a conversational, chatty mood.

\[\text{Answers}\]
\[\text{2. Informal}\]
\[\text{1. Formal}\]
Directions: This is a drawing of a chest and common objects found on a chest. The objects on the chest are arranged to illustrate poor balance. On a separate piece of paper redraw the chest and objects on it to illustrate good balance. You may use all of the objects, some of them, or add others. You may also use formal or informal balance.
Directions: This is a drawing of a modern house. The arrangement of the windows, the size of the windows, and the type of windows illustrate poor balance. On a separate piece of paper redraw the house and the windows to illustrate good balance. You may use all of the windows, eliminate some of them, or add new ones. You may also use either formal or informal balance.
FORMAL BALANCE:

Directions: The following statement will help you analyze examples of formal balance. Place an X in the appropriate spaces.

This illustration:

____ a. shows identical weights or equal attractions the same distance from the center of the illustration.
____ b. has a sense of precision and a dignified mood.
____ c. has a feeling of rest and stability.

INFORMAL BALANCE:

Directions: The following statements will help you analyze examples of informal balance. Place an X in the appropriate spaces.

1. In this example balance is created in one or more of the following ways:

____ a. by placing unequal weights at different distances from the center.
____ b. by placing a heavier weight or greater attraction closer to the center.
____ c. by placing a weaker attraction farther from the center.
____ d. by placing a large object in the front (foreground).
____ e. by placing a smaller object in the back (background).
____ f. by placing bright colors near the center.
____ g. by placing duller colors farther from the center.

2. This illustration:

____ a. has a chatty, conversational mood.
____ b. has a feeling of rest and stability.
LESSON NUMBER 3

Component: Rhythm

Generalization: Rhythm is the art principle that directs eye movement in a path to express fast and slow movement.

Behavioral Objectives: You will be able to:

1. Determine that rhythm is moving or motion by contrasting a plain surface with any surface illustrating rhythm.

2. Experiment with rhythm by creating fast and slow line movements.

3. Using Idea Sheet #14 as a reference, (a) find objects that illustrate or, (b) arrange objects to achieve rhythm in two of the following four ways: (1) through repetition, (2) radiation, (3) continuous line movement, (4) or a sequence of size, tone, or color.

4. Analyze your original illustration of how to achieve emphasis in lesson number 1 to determine the relationship between emphasis and rhythm.
LESSON NUMBER 3

Learning Experiences:

Directions: Read through the list of suggested learning experiences. Do all of the "Primary" learning experiences. You are given a choice of learning experiences in some cases. Complete one or two of the "Additional" learning experiences if you so desire.

Primary Learning Experiences:

1. Determine that rhythm is directional by completing Idea Sheets #11 and #12.

2. Select two records (one with a fast and one with a slow beat). Using a pencil and a piece of paper, record the feeling of the music in lines. Then complete the statement on Idea Sheet #13.
   (OR)

3. Using a pencil and a piece of paper, record in lines the beat or feeling of: (1) slow breathing, (2) the ticking of a clock. Then complete the statement on Idea Sheet #13.
   (OR)

4. Using a pencil and a piece of paper, record in lines: (1) the movement of a snake or worm moving slowly in the grass (2) the sound of a sewing machine. Then complete the statement on Idea Sheet #13.
   (OR)
5. Using a pencil and a piece of paper, record in lines: (1) the movement of coffee perking, (2) water coming out of a water sprinkler. Then, complete the statement on Idea Sheet #13.

(OR)

6. Using a pencil and a piece of paper, record in lines: (1) the movement of smoke, (2) the movement of a flashing neon sign. Then, complete the statement on Idea Sheet #13.

(OR)

7. Using a pencil and a piece of paper, record in lines: (1) the movement of a ticking clock, (2) the movement of clouds. Then, complete the statement on Idea Sheet #13.

(OR)

8. Using a pencil and a piece of paper, record in lines: (1) the wings of a bird starting to fly, (2) the movement of a soft breeze on water. Then, complete the statement on Idea Sheet #13.

9. With various sizes and colors of any shapes made of felt illustrate on a flannel board two of the following four ways to achieve rhythm: (1) through repetition, (2) radiation, (3) continuous line movement, (4) or a sequence of size, tone, or color. You may use Idea Sheet #14 as a reference. When the arrangements are completed, record on a separate sheet of paper a one paragraph explanation describing how rhythm was achieved in each arrangement. A simple diagram of the illustration would help also.

(OR)
10. Examine objects of nature to find examples of two of the following four ways to achieve rhythm: (1) through repetition, (2) radiation, (3) continuous line movement, (4) or a sequence of size, tone, or color. You may use Idea Sheet #14 as a reference. Record on a separate sheet the names of the objects and a one paragraph explanation describing how rhythm was achieved.

11. Analyze your original illustration of how to achieve emphasis in lesson number 1 to determine the relationship between emphasis and rhythm by completing Idea Sheet #15 and #16.

Additional Learning Experiences:

1. Find three pictures of rooms that seem to be pleasing. Analyze the effects of rhythm on the total appearance of the room. Organize your conclusions in an oral report to be presented to the teacher.

2. Create a collage with as many examples of rhythm as you feel are adequate. A collage is a pleasing arrangement of pictures, objects, drawings, etc.
Directions: All of these diagrams illustrate rhythm. Place an X on each diagram to show what spot your eye seems to move toward.
Directions: Compare Box A with the diagrams on Idea Sheet #11. By comparing Box A to these diagrams you will determine answers for the following blanks. Fill in the blanks in the spaces provided. When you have finished, check your answers with the answers at the bottom of this page.

1. Rhythm ____________________ eye movement.

2. There is usually no rhythm on a ____________ surface.

ANSWERS:
Directions: Read the following statement. Fill in the blank with the appropriate answer. Check your answer with the answer at the bottom of this page.

1. Rhythm can create fast and also impressions and movements.
Note: On this page specific terms are explained that may help you as you are trying to illustrate rhythm.

1. **Repetition:** when something is repeated over and over

   ![Repetition Example]

2. **Radiation:** when the eye moves to a central point

   ![Radiation Example]

3. **Continuous line movement:** a broken or solid line going one or more directions to create a flowing feeling

   ![Continuous Line Movement Example]

4. **Sequence of size, tone, or color:** a gradual progression from one size, tone, or color to another

   (Examples are: from large to small, from dark to light, from dull to bright)
Rhythm
IDEA SHEET #15

Directions: Use these questions to help you determine the relationship between rhythm and emphasis in your illustration of emphasis. Write brief answers to each question or place an X in the appropriate space or spaces.

1. What is the center of interest in the illustration?

2. Emphasis is achieved by:
   
   _____ a. line
   _____ b. shape
   _____ c. space
   _____ d. texture
   _____ e. placement
   _____ f. grouping
   _____ g. color
   _____ h. contrast

3. Rhythm is achieved by:
   
   _____ a. repetition
   _____ b. radiation
   _____ c. continuous line movement
   _____ d. sequence of size, tone, or color

4. Toward what place in the illustration does rhythm direct the eye?

   Is this place the center of interest?

5. Is there any similarity between how rhythm was achieved and how emphasis was achieved? What?

6. Does the rhythm of the illustration seem to accent the center of interest?
Directions: Read the following statement. Fill in the blank with the appropriate answer. Check your answer with the answer at the bottom of this page.

1. Rhythm should lead toward or accent the ______________________.

Answer:

1. Center of Interest
LESSON NUMBER 4

Component: Proportion

Generalization: Proportion is the art principle which shows the relationship of parts, spaces, or areas to one another and to the whole.

Behavioral Objectives: You will be able to:

1. Observe your environment and record examples of proportion using a definition and the self-checklist for proportion as a basis.

2. Prepare an example illustrating how vertical and horizontal lines can alter proportions.

3. Modify examples of proportion to make them examples of good proportion.
LESSON NUMBER 4

Learning Experiences:

Directions: Read through the list of suggested learning experiences. Do all of the "Primary" learning experiences. You are given a choice of learning experiences in some cases. Complete one or two of the "Additional" learning experiences if you so desire.

Primary Learning Experiences:

1. Find as many examples of different types of windows as you can. Sketch them on a separate piece of paper and analyze them using Idea Sheet #17.

   (OR)

2. Find as many examples of flower arrangements or sets of drawers as you can. Sketch them on a separate piece of paper and analyze them using Idea Sheet #17.

   (OR)

3. Find as many examples of proportion in clothing as you can. Sketch the garments on a separate piece of paper and analyze them using Idea Sheet #17. Show a total person or view. Tracing is fine.

4. Complete Idea Sheet #18 to discover how vertical and horizontal lines of different widths can alter proportions.

5. On Idea Sheet #19 modify examples of proportion to make them
examples of good proportion using the self-checklist on proportion, Idea Sheet #17, as reference.

**Additional Learning Experiences:**

1. Find three illustrations of clothing being advertised. Analyze what ratio of proportion has been used in each illustration. In one paragraph for each illustration state why you think this ratio was used. Does the use of the ratio create a pleasant, favorable impression for the advertisement?

2. Design a bulletin board illustrating the use of good proportion in selecting appropriate clothing for two figure types: (1) short, heavy, and (2) tall, thin.
Proportion
IDEA SHEET #17
(Checklist for Proportion)

Directions: The following statement will help you analyze examples of proportion. Place an X in the appropriate spaces.

1. In this example:

   _____ a. There are an odd number of parts
   _____ b. There is a relationship of two parts to three parts.
   _____ c. There is a relationship of three parts to five parts.

OPTIONAL _____ d. A horizontal line was used to add width.

OPTIONAL _____ e. A vertical line was used to add height.
Proportion
IDEA SHEET #18
(Vertical and Horizontal Lines Alter Proportions)

Horizontal means - - - - - - - - - - - - - -
Vertical means - - - - - - - - - - - - - -

Directions: (1.) Add a thin horizontal line to the piece of clothing in drawing A.
(2.) Add a thick horizontal line in the same place to drawing B.
(3.) Add a thin vertical line to the piece of clothing in drawing C.
(4.) Add a thick vertical line in the same place to drawing D.

Directions: Follow the directions written above.
Proportion

IDEA SHEET #19

Directions: In the spaces provided revise the following examples to illustrate good proportion. Use Idea Sheet #17 as a reference.

EXAMPLE

EXAMPLE

REVISION

REVISION
LESSON NUMBER 5

Component: Harmony

Generalization: Harmony is the art principle which creates unity, a single impression, or a single idea in the whole and is achieved by integrating line and shape, size, texture, a unifying theme, and color.

Behavioral Objectives: You will be able to:

1. Define harmony; and illustrate it by using at least two of the following elements: (1) line and shape, (2) size, (3) texture, (4) unifying theme, and (5) color.

2. Evaluate the illustration of harmony developed in learning experience 1 or 2 by completing Idea Sheet #20.

3. Plan ways to revise an illustration of harmony to improve the illustration as an example of harmony.
LESSON NUMBER 5

Learning Experiences:

Directions: Read through the list of suggested learning experiences. Do all of the "Primary" learning experiences. You are given a choice of learning experiences in some cases. Complete one or two of the "Additional" learning experiences if you so desire.

Primary Learning Experiences:

1. Define harmony; and illustrate it using at least two of the following elements and also two circles: line and shape, size, texture, a unifying theme, and color. Make a drawing of the illustration on a separate piece of paper. You will use this drawing later.

   (OR)

2. Define harmony; and illustrate it using at least two of the following elements and also your initials: line and shape, size, texture, a unifying theme, and color. Make a drawing of the illustration on a separate piece of paper. You will use this drawing later.

3. Evaluate the illustration of harmony from learning experience 1 or 2 by completing Idea Sheet #20.

4. Plan ways to revise your own illustration of harmony from learning experience 1 or 2 to improve it as an illustration of harmony. Record your answers on a separate piece of paper.
5. Plan ways to revise another student's illustration of harmony from learning experience 1 or 2 to improve it as an illustration of harmony. Record your answers on a separate piece of paper.

(OR)

6. Plan ways to revise your own illustration of emphasis from lesson 1, learning experience 7, to improve it as an illustration of harmony. Record your answers or your illustration on a separate piece of paper. You may illustrate your plan instead of writing it if you wish.

Additional Learning Experiences:

1. Find a color illustration of a nature scene in a magazine. List many design elements or principles that you observe. Nature is usually an excellent example of good harmony. Does your example represent good harmony? Why or why not? Record your answer in one paragraph or less on a separate piece of paper.

2. Write a one page or less discussion of what harmony or unity means in one of the following areas: (1) English composition, and (2) marriage or marital happiness.
Harmony
IDEA SHEET #20

(Checklist for Harmony)

A. Directions: The following statement will help you analyze examples of harmony. Place an X in the appropriate spaces.

1. Harmony is achieved in this illustration by blending or bringing together:

   _____ a. line and shape
   _____ b. size
   _____ c. texture
   _____ d. color
   _____ e. a central or unifying theme or idea (examples are: formality, informality, femininity, masculinity)

B. Directions: Write one short paragraph explaining how the items you checked in A were blended or brought together to achieve harmony.
QUEST OPPORTUNITIES

Directions: If you wish to investigate the art principles further, the following suggestions may be of some help. Remember, these are only suggestions. Discuss any further investigation on the art principles with your teacher.

Learning Experiences:

1. Investigate the difference between scale - a design element and proportion - a design principle.

2. Investigate the use and importance of all design principles in advertising.

3. Explore the influence of color - a design element when illustrating design principles.

4. Select pictures of interiors that illustrate the use of design principles - some good examples and others poor examples. Interview at least twenty-five people to determine: (1) how many people can identify the good examples and (2) how many people can identify how the poor illustrations could be changed into examples of the good use of design principles. Tabulate your results.
Purpose of the Post Test

Take the post test after you have completed the learning package. By giving the post test your teacher can evaluate how much you learned from completing the learning package. You should be able to score 100% on this test after the completion of the package. Let's see how close you can come! When you are ready to take the test, turn in the completed package to your teacher along with any additional papers you used. Your teacher will give you the post test.
TEACHER SECTION OF THE LEARNING PACKAGE
INSTRUCTIONS TO THE TEACHER

Using this Format

TITLE: Travel with the Design Principles

TOPIC: Design Principles

USE: This package or the actual five packages could be used in either a clothing selection or interior design unit in a home economics class. Possibly, it could also be used in an art class.

PERFORMANCE LEVEL: This package was designed for juniors and seniors in high school.

IDENTIFICATION OF LEARNERS: The students using this package should:

- have previous knowledge of design elements (line, shape, space, texture, color, scale, and pattern)
- have reading ability
- be juniors or seniors in high school
- be willing to use this form of instruction

PURPOSE: The main purpose of this package is to develop creativity using the design principles as a basis. In the process the package will help each student develop the ability to recognize and create examples of the design principles.

INSTRUCTIONAL APPROACH: As previously stated, this learning package was designed to develop creativity in high school.
students. The success of the package depends on how well the teacher understands creativity and the manner in which the learning package is administered. Therefore, a list of guidelines for the teacher who wishes to develop the creative potential of her students has been included and should be followed. A definition of creativity has also been included which should be studied and thoroughly understood.

Pre-preparation for Administering the Package

EQUIPMENT NEEDED:

Flannel Board
Record Player
Camera, Film, Flash Bulbs

SUPPLIES NEEDED:

Craft Supplies

paint brushes of various sizes
jars for rinsing dirty paint brushes
fabric scraps
India Ink
crayons
colored chalks
felt pens

scissors

glue
colored cardboard scraps
toothpicks
construction paper of assorted colors
white construction paper
pencils
typing paper
notebook paper
felt scraps
yarn scraps
rulers

Real Objects

bright red object
dark small object
tall object
identical objects
similar objects
any other objects upon request
objects to use in illustrating balance

Construction paper objects in envelope illustrated in teacher section of this package

Records illustrating fast and slow beats

Newspapers
Magazines with examples of the following things: windows, home scenes, and clothing.

Nature objects - possibly the students could find their own if outside was accessible.

OTHERS:

Teacher

Other students' work used for analysis problems

FACILITIES NEEDED: A pleasant comfortable room adequate in size for the number of students using it is needed. Physical needs of the students need to be taken care of first.

ATMOSPHERE NEEDED: A relaxed unrestrictive atmosphere is needed. The teacher should be available at all times to clarify the package and to check parts of the package when indicated. All supplies should be readily available without the student having to ask for them. No time limit should be set.

Evaluation in the Package: Each student will be held accountable for doing all of the "Primary" learning experiences. The pre and post test include only concepts from the "Primary" learning experiences. Included in the teacher section of this package is a key for the pre and post test. Instructions have also been given to enable the package to be split into five individual packages each with its own pre and post test.
The students have been instructed in the beginning of the package that the completed package will be turned in along with any additional papers when the package is finished.

OUTLINE OF THE LEARNING PACKAGE

I. Statement of Ideas

A. Major Idea: Design Principles (Emphasis, Balance, Proportion, Rhythm, and Harmony)

B. Components and Generalizations:

1. Emphasis is the art principle that makes one point of interest dominant over all others.

2. Balance is the art principle that gives a feeling of equal weight between two or more objects.

3. Rhythm is the art principle that directs eye movement in a path to express fast and slow movements.

4. Proportion is the art principle which shows the relationship of parts, spaces, or areas to one another and to the whole.

5. Harmony is the art principle which creates unity, a single idea, or a single impression in the whole.

II. Behavioral Objectives

A. Component #1 - Emphasis - Given a selection of suggested learning experiences, the student will be able to:
1. Determine through investigation and exploration how emphasis can be used to create importance. (what to emphasize)

2. Using the technique of brainstorming, think up as many ways as you can to achieve emphasis through line, shape, space, texture, placement, grouping, color, and contrast. (how to achieve emphasis)

   Brainstorming means to list quickly all ideas that come to mind without first considering if the ideas are good, bad, right, or wrong.

3. Modify, reorganize, or eliminate items to achieve emphasis. (how much to emphasize)

4. Analyze one of the best ideas you thought of in learning experience four by planning and carrying out an original way to illustrate emphasis with any area of home economics as a basis.

B. Component #2 - Balance - Given a selection of suggested learning experiences, the student will be able to:

   1. Define and demonstrate formal and informal balance.

   2. Recognize different moods created by formal and by informal balance by collecting, comparing, and analyzing examples of formal and informal balance in the environment.
3. Solve one of two given design problems related to balance using his knowledge and inventiveness.

C. Component #3 - Rhythm - Given a selection of suggested learning experiences, the student will be able to:

1. Determine that rhythm is moving or motion by contrasting a plain surface with any surface illustrating rhythm.

2. Experiment with rhythm by creating fast and slow line movements.

3. Using Idea Sheet #14 as a reference (a) find objects that illustrate or (b) arrange objects to achieve rhythm in two of the following four ways: (1) through repetition, (2) radiation, (3) continuous line movement, (4) or a sequence of size, tone, or color.

4. Analyze his original illustration of how to achieve emphasis in lesson number 1 to determine the relationship between emphasis and rhythm.

D. Component #4 - Proportion - Given a selection of suggested learning experiences, the student will be able to:

1. Observe the environment and record examples of proportion using a definition and the self-checklist for proportion as a basis.
2. Prepare an example illustrating how vertical and horizontal lines can alter proportions.

3. Modify examples of proportion to make them examples of good proportion.

E. Component #5 - Harmony - Given a selection of suggested learning experiences, the student will be able to:

1. Define harmony as well as to illustrate it using at least two of the following elements: (1) line and shape, (2) size, (3) texture, (4) unifying theme, and (5) color.

2. Evaluate the illustration of harmony developed in learning experience 1 or 2 by completing Idea Sheet #20.

3. Plan ways to revise an illustration of harmony to improve the illustration as an example of harmony.
Guidelines for Teachers Who Wish to Develop the Creative Potential of their Students

Be a teacher who:

1. values creative thinking and gives information about the creative process

2. creates a friendly environment

3. respects the individuals as developing personalities with dignity and worth

4. makes a stand for mutual understanding

5. uses cooperative planning

6. refrains from domination, regimentation, stereotyping behavior and sanctioning conformity

7. gives the student an outlook in which he sees himself moving toward self-realization

8. stimulates, encourages, assists and recognizes the students' contributions while keeping them working toward their goals

9. shows enthusiasm for the ideas of students

10. encourages and gives credit for self-initiated activities

11. makes resources available for working out ideas

12. avoids imposition of adult standards

13. refrains from negative comments, laughter at first attempts, and comparisons with standards beyond the learner's level

14. gives aid in response to the needs and insights of the pupils at the time

15. waits patiently for development of maturity and skill in her students
16. uses judgment as to the degree of competitiveness in the classroom

17. is a good listener, open-minded to new ways and not afraid of student's disagreements with her

**Writer's Definition of Creativity**

Creativity is a process of forming new or adapted ideas or hypotheses, testing them, and communicating the results (Torrance, 1966c). Creativity as a process involves the person, the environment, and a product.
Pre and Post Test Key

1. L.
2. Y.
3. A.
4. O.
5. Q.
6. V.
7. G.
8. Z.
9. E.
10. F.
11. J.
12. W.
13. I.
14. U.
15. AA.
16. M.
17. C.
TEACHERS KEY FOR
PRE AND POST TEST

The student must score 100% in all the questions relating to that package to be able to omit the package. The following is a listing of the questions with answers and the package they relate to:

<table>
<thead>
<tr>
<th>PACKAGE 1</th>
<th>PACKAGE 2</th>
<th>PACKAGE 3</th>
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<tbody>
<tr>
<td>Emphasis</td>
<td>Balance</td>
<td>Rhythm</td>
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<tr>
<td>8. Z</td>
<td></td>
<td>10. F</td>
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<tr>
<td>15. AA</td>
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<td>14. U</td>
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<th>PACKAGE 4</th>
<th>PACKAGE 5</th>
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<tbody>
<tr>
<td>Proportion</td>
<td>Harmony</td>
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<tr>
<td>2. Y</td>
<td>17. C</td>
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<td>9. E</td>
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<td>11. J</td>
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<td>16. M</td>
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Balance
Supplement

(IDEA SHEETS #7 and #8)

Note: In case the objects in the envelope for IDEA SHEETS #7 and #8 are lost, they may be replaced using this supplement as a guide. The objects are made out of heavy construction paper. The colors and actual shapes are given below.

- BRIGHT RED
- PURPLE
- ORANGE
- BRIGHT RED
- ORANGE
- BLACK
- BEIGE
- PINK
- PURPLE
- BLACK
APPENDIX D
May 14, 1971

Dear Home Economics Teacher:

Thank you for agreeing to complete my evaluative devices. They are designed to evaluate the behavioral objectives and learning experiences of a learning package on the design principles. This learning package has been devised to develop the creative potential of high school students.

Accompanying this letter is a packet of evaluative devices and a packet of reference sheets. Due to the length of the learning package you have been asked to evaluate only part of the package. Please follow the directions and complete the evaluative devices enclosed. When completed, fold them in half, staple, and mail them. The mailing address and stamp are already on the back of the last page. You may keep the reference sheets.

Your immediate attention to these evaluative devices will be greatly appreciated. The due date for the evaluative device is ____________.

Sincerely,

Redacted for Privacy

Mrs. Melody A. Field
Evaluative Device for Analyzing Behavioral Objectives and Learning Experiences Designed to Develop Creative Potential

Explanation: The behavioral objectives to be evaluated have been developed by using a list of the characteristics of the creative person. Therefore, each behavioral goal will in some way help to bring out specific characteristics of the creative person. The learning experiences to be evaluated have been developed by using a list of guidelines for developing the creative potentials of students.

Directions:

(1.) Read through the directions.

(2.) Place the packet containing the evaluative forms beside the packet containing reference sheets. (These sheets may need to be consulted to clarify behavioral objectives or learning experiences.)

*(3.) Rate each behavioral objective and learning experience from one to five by placing an X in the appropriate space according to how well the learning experience or behavioral objective fulfills each category listed.

*NOTE: It is necessary to relate some behavioral objectives to the corresponding learning experiences to be able to rate them. Therefore, the related learning experiences and behavioral objectives are listed together.
DESIGN PRINCIPLES LEARNING PACKAGE

Components:

(1.) Emphasis
(2.) Balance
(3.) Rhythm
(4.) Proportion
(5.) Harmony

Generalizations:

(1.) Emphasis is the art principle that makes one point of interest dominant over all others.

(2.) Balance is the art principle that gives a feeling of equal weight between two or more objects.

(3.) Rhythm is the art principle that directs eye movement in a path to express fast and slow movement.

(4.) Proportion is the art principle which shows the relationship of parts, spaces, or areas to one another and to the whole.

(5.) Harmony is the art principle which creates unity, a single idea, or a single impression in the whole.
Questionnaire - Emphasis Section
LESSON NUMBER 1: EMPHASIS

Behavioral Objective: You will be able to determine through exploration and investigation that the most important object should be emphasized while the background is the least important. The criterion for evaluation will be a completed and self-evaluated Idea Sheet.

A. brings out a student's curiosity
B. brings out a student's critical judgment
C. develops a student's sense of awareness to things around him
D. enables a student to interact with the world

Learning Experiences:

1. For three of the four illustrations, A, B, C, and D, identify the most important object and whether the background or the most important object receives the most attention. Record your answers on Idea Sheet #1. Turn in the Idea Sheet to your teacher.
   A. creates problem awareness
   B. provides time to think and to contemplate
   C. fosters perceptive awareness

2. Observe and sketch on Idea Sheet #2 three objects in nature or in your environment, and indicate on Idea Sheet #1 what part of the object is the most important and whether the background or the most important object receives the most attention. Turn in your sketches and the Idea Sheet to your teacher.
   A. is open-ended
   B. is life-related
   C. develops sensitivity to the environment
   D. fosters perceptive awareness
   E. permits time to think and to contemplate
Close your eyes and imagine a scene with the following items: a bright colored spot, a white background, several short gray lines. Illustrate the scene on Idea Sheet #3 using any available materials. Also, on Idea Sheet #3 record what part of the scene is the most important and whether the background or the most important object receives the most attention. Turn in Idea Sheet #3 to the teacher.

A. provides freedom for experimentation with a variety of media
B. is open-ended
C. has no pat answer
D. motivates student to want to be creative
E. encourages student to manipulate media
F. fosters vivid imagery
G. encourages imagination

Behavioral Objective 2: You will be able to think of as many ways as you can through investigation and exploration using the technique of brainstorming how to achieve emphasis through line, shape, space, texture, placement, grouping, color, and contrast. The criterion for evaluation will be the use of one idea in learning experience number 7.

A. helps a student see things in a challenging new light
B. develops fluency of ideas
C. develops a student's inventiveness
D. calls for a student's imagination
E. takes advantage of ready, immediate suggestions
F. fosters vivid imagery
G. calls for a student's spontaneity, and imagination
H. helps a student express himself
Elaine Speer-C Green

Brainstorm alone or with a friend (think of as many ideas as possible and as fast as you can without regard as to whether the ideas are "right" ones or not) about ways to achieve emphasis through line, shape, space, texture, placement, grouping, color, and contrast.

- It generated
- Has no pat answer
- Is an exploratory experience
- Motivates students to want to be creative
- Gives a student freedom to fail (get a "wrong" idea)
- Gives a student a chance to utilize errors
- Provides for self-initiation
- Tolerates new or divergent ideas
- Brings out vague ideas
- Encourages out sitting
- Encourages unusual variations of the usual
- Encourages investigation
- Encourages familiarity with the problem or subject

Behavioral Objective 3: You will be able to modify, reorganize, or eliminate items to achieve simplicity in emphasis. The criterion for evaluation will be the illustration of simplicity in emphasis.

- Helps a student see things in a challenging new light
- Develops a student's problem sensitivity
- Enables a student to try new ways for old by substituting, reverting, subtracting, modifying, adding, or by adapting
- Utilizes a student's inventiveness
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>E. utilizes a student's aspirations to try out new ideas</td>
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<tr>
<td>F. encourages individuality, originality, and imagination</td>
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<td>G. enables a student to find open channels if others are blocked</td>
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<td>H. provides an opportunity for self-expression</td>
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**Learning Experiences:**

(6.) Complete Illustration E in this lesson. Then, using Illustration E, modify, reorganize, or eliminate parts or all of it to achieve simplicity in emphasis. Construct a revised illustration on a separate piece of paper. (You may cut out and use or trace and use the objects on Idea Sheet #4 to help you construct your revised illustration.)

A. is open-ended
B. a choice is given
C. encourages a student to manipulate media
D. fosters individuality
E. provides for questioning
F. encourages a student to utilize media

(6.) Arrange any three items of your choosing to illustrate simplicity in emphasis. Construct this arrangement on a separate piece of paper or show the actual illustration to your teacher.

A. is open-ended
B. a choice is given
C. encourages a student to manipulate media
D. fosters individuality
Behavioral Objective #4: Analyze one of the best ideas you thought of in objective 2 by planning and carrying out an original way to illustrate emphasis with any area of home economics as a basis. The criteria for evaluation will be the illustration of emphasis and an evaluation of the illustration by the self-checklist, Idea Sheet #5. Also, the student will record the illustration through drawing, photographing, or by using other available media.

A. develops questioning
B. develops the need to think and to plan ahead
C. enables a student to try out new ideas
D. helps a student "do" something about his ideas
E. enables a student to use his inventiveness
F. develops independence
G. develops individuality, originality, and imagination

Learning Experience: (7.) Plan and carry out an original way to illustrate emphasis with any area of home economics as a basis using one of your ideas developed during the brainstorming activity. Use real objects if possible. Evaluate the illustration with the self-checklist on emphasis. Idea Sheet #5. You will use this illustration later. Therefore, record the illustration by drawing, photographing, or by using other available materials.

A. is open-ended
B. has no pat answer
C. encourages a student to manipulate media
D. encourages working out implications of ideas (from abstract to concrete)
E. promotes originality
F. provides for self-initiation
G. fosters individuality of expression
H. encourages unusual variations
Questionnaire - Balance Section
**Lesson Number 2: Balance**

**Behavioral Objectives:**

1. You will be able to define and demonstrate formal and informal balance. The criterion for evaluation will be an illustration of formal and informal balance.

A. Helps a student see things in a new light

B. Aids a student's redefinition skill

C. Enables a student to try new ways for old by substituting, reversing, subtracting, modifying, adding, or by adapting

D. Takes advantage of a student's inventiveness

E. Brings out a student's sense of awareness to things around him

F. Helps a student interact with the world

G. Enables a student to exhibit individuality

H. Enables a student to exhibit imagination

**Learning Experiences:**

1. Using the self-checklist for formal and informal balance, Idea Sheet 6-B, compile the given information and write a definition for formal and informal balance.

A. Simplified

B. Encourages a student to manipulate ideas

C. Provides time to think and to contemplate

D. Encourages the creative thought process of association

E. Enables a student to understand the relationship between ideas

2. Using your definition of formal and informal balance, and any available materials, plus the seesaw or teeter-totter idea, illustrate formal and informal balance on Idea Sheet 6.

A. Provides freedom for exploration with a variety of materials

B. Creates problem awareness
| A. Illustrate formal and informal balance on Idea Sheets #7 and #8 by using,..., or modifying various objects in the envelope of objects on Kit Sheet 7.
| B. Is it a challenge?
| C. Is a challenge?
| D. Encourages a student to manipulate media
| E. Helps a student work out the implications of ideas.
| F. Motivates a student to "want to" create action.
| G. Tolerant of new ideas.

### Task

**Choose several objects you can find in your classroom. Arrange these objects to illustrate formal and informal balance. Evaluate the effectiveness of the arrangement using the checklist, Idea Sheet #10.**
F. gives a student freedom to break away from set patterns of action

G. foster individuality of expression

Behavioral Objectives:
You will be able to recognize different moods created by formal and informal balance by collecting, comparing, and analyzing examples of formal and informal balance in the environment.

The criterion for evaluation will be the completion of two generalizations, Idea Sheet #9.

A. helps a student see things in a new light
B. helps a student's organizational ability
C. helps a student exhibit initiative
D. brings out a student's inventiveness
E. brings out a student's sense of awareness to things around him
F. helps a student interact with the world

Learning Experiences (S.) Collect illustrations of formal and informal balance from your environment that illustrate different moods by cutting out and mounting magazine or newspaper pictures, photographing, sketching, painting, or coloring, using materials and supplies that are available to you.

A. is an exploratory experience
B. provides freedom for exploration and experimentation with a variety of media
C. has no set answer
D. a choice is given
E. is life-related
F. encourages a student to manipulate media
G. makes a student more sensitive to environmental stimuli
H. fosters individuality of expression
Categorize your illustrations of formal and informal balance as to the mood created by using the following categories:

1. These pictures create a sense of rest and repose and give the impression of a conversation. A clearly defined mood is also felt.

2. These pictures create a feeling of rest and a dignified and reserved mood. When you have finished categorizing your illustrations, complete Idea Sheet P9.

A. Is a challenge
B. Is a poor
C. Is an average
D. Is excellent
E. Is a challenge
F. Is a poor
G. Is an average
H. Is excellent

Categorize the illustrations of formal and informal balance according to the categories in learning experience Pri.

Complete Idea Sheet P9.

A. Provides far too much information
B. Is a challenge
C. Creates trouble awareness
D. Does not work out
E. Forms perceptive awareness
F. Provides for questioning
G. Triggers the creative thought process

(6.) Categorize your illustrations of formal and informal balance according to the categories.

(7.) Discuss and compare your illustrations of formal and informal balance with other students who have collected illustrations of balance.

Categorize the illustrations of balance according to the categories in learning experience Pri.

Complete Idea Sheet P9.

A. Provides far too much information
B. Is a challenge
C. Creates trouble awareness
D. Does not work out
E. Forms perceptive awareness
F. Provides for questioning

C. Triggers the creative thought process
**Behavioral Objective:**

You will be able to solve one of two given design problems related to balance using your knowledge and inventiveness. The criteria for evaluation will be a solution to the problem and the completion of Idea Sheet #10.

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<tbody>
<tr>
<td>A.</td>
<td>helps a student see things in a new light</td>
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<td>B.</td>
<td>brings out a student's problem sensitivity</td>
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<td>C.</td>
<td>uses a student's abstracting ability</td>
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<tr>
<td>D.</td>
<td>enables a student to use critical judgment</td>
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<td>E.</td>
<td>enables a student to try new ways for old by substituting, reserving, modifying, adding, or by adapting</td>
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<tr>
<td>F.</td>
<td>brings out a student's inventiveness</td>
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<tr>
<td>G.</td>
<td>gives a student a chance to use individuality</td>
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<tr>
<td>H.</td>
<td>brings out a student's sense of awareness to things around him</td>
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</table>

**Learning Experiences:**

1. Solve one of the two given design problems, #1 or #2, using your inventiveness and knowledge. Evaluate the solution with Idea Sheet #10.

   A. a choice is given
   B. is a challenge
   C. is literature-related
   D. creates problem awareness
   E. makes a student more sensitive to environmental stimuli
   F. provides for questioning

2. Select a design problem of your own choosing, solve it, evaluate it with Idea Sheet #10, and write in one page or less a summary of the problem and its solution to be turned in to the teacher.

   A. gives freedom to break away from set patterns of action
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<tbody>
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<td>B. a choice is given</td>
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<tr>
<td>C. is a challenge</td>
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<td>D. is life-related</td>
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<td>E. creates problem awareness</td>
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<td>F. makes a student more sensitive to environmental stimuli</td>
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<tr>
<td>C. provides for questioning</td>
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Questionnaire - Rhythm Section
## LESSON NUMBER 3: RHYTHM

### Behavioral Objective 1:
You will be able to determine that rhythm is directional by contrasting a plain surface with any surface illustrating rhythm. The criteria for evaluation will be the completion of Idea Sheets #11 and #12.

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<tbody>
<tr>
<td>Poor</td>
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<td>Average</td>
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<tr>
<td>Excellent</td>
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</table>

- A. uses a student's organizational ability
- B. provides opportunity for a student to use critical judgment
- C. takes advantage of the student's need to find an ordering principle
- D. enables a student to discriminate

### Learning Experience:
1. Determine that rhythm is directional by completing Idea Sheets #11 and #12.

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<th>2</th>
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<tbody>
<tr>
<td>Poor</td>
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<td>Average</td>
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<tr>
<td>Excellent</td>
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</tbody>
</table>

- A. is an exploratory experience
- B. makes the student more sensitive to environmental stimuli
- C. focuses perceptual awareness
- D. provides for questioning
- E. encourages the creative thought process of association

### Behavioral Objective 2:
You will be able to experiment with rhythm by creating fast and slow line movements. The criteria for evaluation will be completed drawings of rhythms creating fast and slow line movements and the completion of Idea Sheet #13.

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<tbody>
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<td>Poor</td>
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<tr>
<td>Average</td>
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<tr>
<td>Excellent</td>
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</tbody>
</table>

- A. utilizes the student's enjoyment of novelty
- B. enables a student to utilize his sense of an interest in things around him.
- C. enables a student to interact with the world
- D. enables a student to exhibit imagination
- E. urges a student to express himself
- F. helps a student see things in a new light
- G. enables a student to use vivid imagery
A. enables a student to use his abstracting ability

Learning Experiences:

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</thead>
<tbody>
<tr>
<td>poor</td>
<td>average</td>
<td>excellent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2.) Select two records (one with a fast and one with a slow beat). Using a pencil and a piece of paper, record the feeling of the music in lines. Then complete the statement on Idea Sheet #13.

A. is an exploratory experience
B. has no pat answer
C. discovery methods are used
D. is life-related
E. motivates a student to "want to" be creative
F. encourages a student to manipulate media
G. makes the student more sensitive to environmental stimuli
H. encourages spontaneous expression
I. fosters individuality of expression

(3.) Using a pencil and piece of paper, record in lines the beat or feeling of:
1. Our breathing
2. The ticking of a fast clock. Then complete Idea Sheet #13.

A. is an exploratory experience
B. has no pat answer
C. discovery methods are used
D. is life-related
E. motivates a student to "want to" be creative
F. encourages a student to manipulate media
G. makes the student more sensitive to environmental stimuli
It encourages spontaneous expression in several ways:

1. fosters individuality of expression

   (4.) Using a pencil and piece of paper, record in lines (1.) the movement of a snake or worm moving slowly in the grass. (2.) the movement of a grasshopper hopping from one spot to another spot. Complete Idea Sheet #12.

   A. fosters vivid imagery
   B. encourages the creative thought process of imagination
   C. is an exploratory experience
   D. has no pat answer
   E. motivates a student to "want to" be creative
   F. encourages a student to manipulate media
   G. makes the student more sensitive to environmental stimuli
   H. encourages spontaneous expression
   I. fosters individuality of expression

Behavioral Objective 3: Using Idea Sheet #14 as a reference, find objects that illustrate or arrange objects to achieve rhythm in two of the following four ways: through repetition, radiation, continuous line movement, or a sequence of size, tone, or color. The criterion for evaluation will be a written explanation of one paragraph for each arrangement or object describing how rhythm was achieved.

   A. tests a student's abstracting ability
   B. tests a student's organizational ability
   C. tests a student's inventiveness
   D. tests a student's sense of awareness of things around him
   E. helps a student interact with the world
F.  utilises a student's need for facts

G.  helps a student exhibit originality and individuality

Learning Strategies

(5.) With various sizes and colors of either felt squares, felt circles, or felt stars, illustrate on a flannel board two of the following four ways to achieve rhythms: through repetition, radiation, continuous line movement, or a sequence of size, tone, or color. Use Idea Sheet #14 as a reference. Record on a separate piece of paper a written explanation of one paragraph for each arrangement describing how rhythm was achieved.

A.  a choice was given
B.  has no pat answer
C.  creates problem awareness
D.  encourages a student to manipulate media
E.  promotes originality
F.  encourages spontaneous expression

(6.) Examine objects in nature to find examples of two of the following four ways to achieve rhythms: through repetition, radiation, continuous line movement, or a sequence of size, tone, or color. Use Idea Sheet #14 as a reference. Record on a separate piece of paper the names of the objects and a written explanation of one paragraph for each object describing how rhythm was achieved.

A.  a choice is given
B.  is life-related
C.  creates problem awareness in the student
D.  makes the student more sensitive to environmental stimuli
E.  fosters perceptual awareness
**Behavioral Objective 4:** You will be able to analyze your original illustration of how to achieve emphasis in Lesson #1 to determine the relationship between emphasis and rhythm. The criterion for evaluation will be the completion of Idea Sheets #15 and #16.

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<tr>
<th></th>
<th>1 poor</th>
<th>2</th>
<th>3 average</th>
<th>4</th>
<th>5 excellent</th>
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</thead>
<tbody>
<tr>
<td>A.</td>
<td>enables a student to see things in a new light</td>
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<tr>
<td>B.</td>
<td>takes advantage of a student's synthesizing ability</td>
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<tr>
<td>C.</td>
<td>enables a student to see relationships and interactions</td>
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<tr>
<td>D.</td>
<td>takes advantage of a student's need to find an organizing principle</td>
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<tr>
<td>E.</td>
<td>takes advantage of a student's desire for some facts</td>
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<tr>
<td>F.</td>
<td>takes advantage of the ability of a student to concentrate</td>
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**OBJECTIVE FROM LESSON #1:**

You will be able to plan and carry out an original way to illustrate emphasis with any area of home economics as a basis. The criteria for evaluation will be the illustration of emphasis and an evaluation of the illustration by a given self-checklist on emphasis.

Learning Experience (7.) Analyze your original illustration of how to achieve emphasis in Lesson #1 to determine the relationship between emphasis and rhythm by completing Idea Sheets #15 and #16.

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<tbody>
<tr>
<td>A.</td>
<td>is a challenge</td>
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<tr>
<td>B.</td>
<td>is related</td>
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<tr>
<td>C.</td>
<td>fosters habits of constructive criticism</td>
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<tr>
<td>D.</td>
<td>encourages the creative thought process of association</td>
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<tr>
<td>E.</td>
<td>enables a student to understand relationships between ideas</td>
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Questionnaire - Proportion Section
LESSON NUMBER 4: PROPORTION

Behavioral Objective 1:
You will be able to observe and record examples of proportion in your environment using a definition and the self-checklist for proportion as a basis. The criterion for evaluation will be sketches of the examples of proportion found.

1. enables a student to see common things in a new light
2. enables a student to use critical judgment in selection
3. uses a student's sense of awareness to things around him
4. takes advantage of a student's desire for some facts

Learning Experiences:

(1.) Find as many examples of different types of windows as you can. Sketch them on a separate piece of paper and analyze them using Idea Sheet #17.

1. encourages a student to manipulate media
2. is life-related
3. makes a student more sensitive to environmental stimuli
4. fosters perceptive awareness
5. encourages the creative thought process of association

(2.) Find as many examples of sets of drawers as you can. Sketch them on a separate piece of paper and analyze them using the self-checklist on proportion, Idea Sheet #17.

1. encourages a student to manipulate media
2. is life-related
3. makes a student more sensitive to environmental stimuli
4. fosters perceptive awareness
5. encourages the creative thought process of association
(3.) Find as many examples of proportion in clothing as you can. Sketch the garments on a separate piece of paper and analyze them with Idea Sheet #17.

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<tr>
<td>A. encourages a student to manipulate media</td>
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<tr>
<td>B. is life-related</td>
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<tr>
<td>C. makes a student more sensitive to environmental stimuli</td>
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<td>D. fosters perceptive awareness</td>
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<tr>
<td>E. encourages the creative thought process of association</td>
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**Behavioral Objective 2:** You will be able to prepare an example illustrating how vertical and horizontal lines can alter proportions. The criteria for evaluation will be the completion of Idea Sheet #18.

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<th>excellent</th>
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<tr>
<td>A. helps a student see things in a new light</td>
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<td>B. takes advantage of a student's problem sensitivity</td>
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<td>C. utilizes a student's sense of awareness to things around him</td>
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<tr>
<td>D. takes advantage of a student's desire for facts</td>
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<tr>
<td>E. encourages a student to manipulate media (11.1E51</td>
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(4.) Complete Idea Sheet #16 to discover how vertical and horizontal lines of different widths can alter proportions.

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<th>excellent</th>
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<tbody>
<tr>
<td>A. is an exploratory experience</td>
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<tr>
<td>B. discovery methods are used</td>
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<td></td>
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<tr>
<td>C. is life-related</td>
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<td></td>
<td></td>
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<tr>
<td>D. creates problem awareness</td>
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<tr>
<td>E. encourages a student to manipulate media (11.1E51</td>
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</table>
Behavioral Objective 3: You will be able to modify examples of proportion to make them examples of good proportion. The criterion for evaluation will be the completion of Idea Sheet #19.

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<th>4</th>
<th>5 excellent</th>
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</thead>
<tbody>
<tr>
<td>A.</td>
<td>takes advantage of a student's organizational ability</td>
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<tr>
<td>B.</td>
<td>utilizes a student's synthesizing ability</td>
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<tr>
<td>C.</td>
<td>enables a student to use critical judgment</td>
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<tr>
<td>D.</td>
<td>gives a student a chance to try out new ideas</td>
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<tr>
<td>E.</td>
<td>gives a student a chance to exhibit originality</td>
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<tr>
<td>F.</td>
<td>gives a student the opportunity to try new ways for old by substituting, reversing, subtracting, modifying, adding, or by adapting</td>
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Learning Experiences (5.) On Idea Sheet #19 modify examples of proportion to make them examples of good proportion using Idea Sheet #17 as a reference.

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<tbody>
<tr>
<td>A.</td>
<td>is a challenge</td>
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<td></td>
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<tr>
<td>B.</td>
<td>is life-related</td>
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<tr>
<td>C.</td>
<td>encourages a student to manipulate media</td>
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<tr>
<td>D.</td>
<td>encourages a student to be more sensitive to environmental stimuli</td>
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<tr>
<td>E.</td>
<td>fosters perceptive awareness</td>
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<tr>
<td>F.</td>
<td>provides for questioning</td>
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Questionnaire - Harmony Section
**LESSON NUMBER 5: HARMONY**

**Behavioral Objective:** You will be able to define harmony and illustrate it by integrating it with two or more of the following elements in a composition of your own choosing: line, shape, size, texture, a unifying theme, and color. The criteria for evaluation will be the illustration of harmony and the use of the illustration in objective 2.

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<td>F</td>
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</tbody>
</table>

**A. uses a student's organizational ability**

**B. enables a student to see interactions and relationships**

**C. takes advantage of a student's urge to manipulate forms, shape, and texture**

**D. gives a student a chance to "do" something about his ideas**

**E. utilizes a student's inventiveness**

**F. gives a student a chance to express himself**

**G. gives a student a chance to be independent**

**H. gives a student a chance to use his originality**

**I. gives a student a chance to use his imagination**

**Learning Experience:**

1. Define harmony and illustrate it using at least two of the following elements and also two circles, line and shape, size, texture, a unifying theme, and color. Make a drawing of the illustration on a separate piece of paper.

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<tbody>
<tr>
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</tbody>
</table>

**A. is an exploratory experience**

**B. is a choice**

**C. is a challenge**

**D. promotes the acquisition of knowledge in a variety of areas**

**E. encourages the student to manipulate media**

**F. promotes originality**

196a
1. Define harmony and illustrate it using at least two of the following elements and add your initials: line and shape, texture, a unifying theme, and color. Make a drawing of the illustration on a separate piece of paper.

<table>
<thead>
<tr>
<th>A. is life-related</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. is an exploratory experience</td>
</tr>
<tr>
<td>C. a choice is given</td>
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<tr>
<td>D. is a challenge</td>
</tr>
<tr>
<td>E. encourages the acquisition of knowledge in a variety of areas</td>
</tr>
<tr>
<td>F. promotes originality</td>
</tr>
</tbody>
</table>

**Behavioral Objective 2:**
Evaluates the illustration of harmony developed in objective 1 by completing Idea Sheet #20. The criteria for evaluation will be the completion of Idea Sheet #20.

| A. takes advantage of a student's capacity for questioning |
| B. enables a student to use critical judgment |
| C. enables a student to learn by doing |
| D. gives a student a chance to show his capability |
| E. enables a student to impose certain limitations on himself |

**Learning Experience:** (3.) Evaluates the illustration of harmony from objective 1 by completing Idea Sheet #20.

| A. encourages the acquisition of knowledge in a variety of areas |
| B. allows the student freedom to fail |
| C. fosters habits of constructive criticism in the student |
| D. provides for questioning |
| E. enables a student to see relationships between ideas |

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<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Average</td>
<td>Excellent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Behavioral Objective 3:** You will be able to plan ways to revise an illustration of harmony to improve it as an illustration of harmony. The criterion for evaluation will be the written plan for improving the harmony in the illustration.

| A. | gives a student a chance to see things in a new light |
| B. | enables a student to use his capacity for questioning |
| C. | enables a student to try out new ways for old by substituting, reversing, subtracting, modifying, adding, or by adapting |
| D. | gives a student a chance to be self-directive |
| E. | necessitates that a student be resilient |

**Learning Experiences:**

(4.) Plan ways to revise your own illustration of harmony from objective #1 to improve it as an illustration of harmony. Record your answers on a separate piece of paper.

| A. | has no pat answer |
| B. | is a challenge |
| C. | creates problem awareness in the student |
| D. | encourages the student to manipulate media |
| E. | gives the student freedom to fail |
| F. | shows the student how to utilize his errors |
| G. | fosters habits of constructive criticism |
| H. | provides for revision (a step in the creative thought process) |
| I. | will accept new ideas |

(5.) Plan ways to revise another student's illustration of harmony from objective #1 to improve it as an illustration of harmony. Record your answers on a separate piece of paper.

| A. | has no pat answer |
Alec:

B. is a challenge
C. creates problem awareness in the student
D. encourages the student to manipulate media
E. gives the student freedom to fail
F. shows the student how to utilize his errors
G. fosters habits of constructive criticism
H. provides for revision (a step in the creative thought process)
I. will accept new ideas

**OBJECTIVE FROM LESSON #1:**
You will be able to plan and carry out an original way to illustrate emphasis with any area of home economics as a basis. The criteria for evaluation will be the illustration of emphasis and an evaluation of the illustration by a given self-checklist on emphasis.

**OBJECTIVE FROM LESSON #2:**
Plan ways to revise your own illustration of emphasis from Lesson #1 to improve it as an illustration of harmony. Record your answers on a separate piece of paper.

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<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
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<td>average</td>
<td>excellent</td>
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January 25, 1971

Dear ______________,

Would you like a free learning package for the development of creativity in high school home economics students? This will be given to you in sections if you are willing to complete two evaluative devices dealing with the development of the learning package. Your answers will be confidential.

I am a candidate for a Master of Science Degree in Home Economics Education at Oregon State University working with Dr. May Du Bois as head advisor. My thesis is entitled, "Developing a Learning Package to Help High School Home Economics Students Develop Their Creative Potential." The topic of the learning package will be the design principles.

The evaluative devices you would be working with are set up as short, concise evaluations of (1) behavioral goals, and, (2) learning experiences for the learning package. In each case you would be given specific criteria upon which to base your ratings. You would be receiving the evaluative devices during the months of January and February 1971.

I need your help! Therefore, please answer on the enclosed, stamped card to indicate whether you would or would not be willing to complete the evaluative devices. Your prompt cooperation will be extremely appreciated.

Sincerely,

Redacted for Privacy

Mrs. Melody A. Field
3085 Garden Avenue
Corvallis, Oregon 97330

P.S. Mis Du Bois has given me address stickers for the stamped cards so that mail will come to OSU rather than to my home.
Miss May Du Bois  
Room 20, H.E. Bldg.  
Oregon State University  
Corvallis, Oregon 97330

____ I am willing to complete two evaluative devices.  
____ I am not willing to complete two evaluative devices.

THANK YOU!
APPENDIX F
Follow-up Letter Sent to Evaluators on Two Perforated Post Cards

(1) Front and Back of First Post Card

FRONT

Mrs. Melody A. Field
3085 Garden Avenue
Corvallis, Oregon 97330

Stamp

BACK

Place an X in the appropriate space and fill in the appropriate spaces.

______ Send the evaluative devices to me as soon as they are ready.

______ Send the evaluative devices to me after ______ at the following address: date

____________________________

____________________________

I'm sorry, I will not be able to complete the evaluative devices.
May 4, 1971

Dear Home Economics Teacher:

I was slower in developing the evaluative devices for my learning package than anticipated. They will not be ready to mail until around May 14, 1971. Since it is so close to the end of school, which is a busy time for teachers, I want to check with you to see if you would still be willing to evaluate them for me. If you cannot do them before school is out, could you do them this summer? Please check the attached card and return it to me as soon as possible.

Mrs. Melody A. Field
APPENDIX G
Table I
Organization of Learning Packages Sent to Evaluators

KEY
1 - section 1 - emphasis
2 - section 2 - balance
3 - section 3 - rhythm
4 - section 4 - proportion
5 - section 5 - harmony

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27 - Total Questionnaires Sent
APPENDIX H
Example of Torrance Figural Test Tasks*

Activity 1: PICTURE CONSTRUCTION

Take 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. Now you can stick your colored paper on the back of that map to make a picture you have in mind. Think of where you want it and glue 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 make it still more interesting and exciting. As you go along, develop your ideas and make them turn into a complete picture. When you have completed your picture, think of 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.

Activity 2: PICTURE COMPLETION

By adding lines to the incomplete figures on this and the next page, you can start some interesting stories or pictures. Again, try to think of some pictures or objects that no one else will think of. Try to make it tell as complete and as exciting a story as you can by adding lines and building up your ideas. 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.

*This example is not from the Torrance Tests of Creative Thinking. It was designed for demonstration purposes and approximates very closely the actual Test tasks, which should be revealed only under testing conditions.
### Table II

**Behavioral Objectives and Learning Experiences**

on *Emphasis* Section of Learning Package

**Total Number of Responses - 12**

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### Table III

Behavioral Objectives and Learning Experiences on Balance Section of Learning Package

Continued

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<th>Mean Rating</th>
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