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Classroom teachers' assessment: The use of classroom instructional procedures correlated to foster creativity of selected elementary and secondary students

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Abstract

A stated goal of many classroom teachers is the ability to solve new and different teaching problems in innovative ways. The ability to think creatively plays an important role in acquiring knowledge. In elementary and secondary education, creative qualities have been neglected in both testing and teaching. Students are more often asked to produce work according to specifications set by their teachers, leaving no room for them to express their own creativity. Enhancement of classroom creativity and discouragement of imitative behaviors is necessary if creativity is to flourish within our pedagogical system (Gibson, 1976).

CLASSROOM TEACHERS' ASSESSMENT: THE USE OF CLASSROOM INSTRUCTIONAL PROCEDURES CORRELATED TO FOSTER CREATIVITY OF SELECTED ELEMENTARY AND SECONDARY STUDENTS

A Project

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FORWARD

This study is a research paper presented to the Department of Educational Psychology and Foundations at the University of Northern Iowa. This project was completed under the direction of Dr. Lawrence Kavich. Dr. Kavich is the chairperson of my committee, and he is also the Head of the Department of Educational Psychology and Foundations.

The purpose of this study was to assess the use of classroom instructional procedures correlated to foster creativity of elementary and secondary students by their classroom teachers. The instructional procedures were designated by the following subject areas in educational psychology: motivation; measurement; development; discipline; and learning. These variables were used as areas to be studied with the use of a questionnaire given to a sample population of elementary and secondary teachers in the San Diego Unified School District.

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CHAPTER 1

The Problem and Definition of Terms Used

Introduction

A stated goal of many classroom teachers is the ability to solve new and different teaching problems in innovative ways. The ability to think creatively plays an important role in acquiring knowledge. In elementary and secondary education, creative qualities have been neglected in both testing and teaching. Students are more often asked to produce work according to specifications set by their teachers, leaving no room for them to express their own creativity. Enhancement of classroom creativity and discouragement of imitative behaviors is necessary if creativity is to flourish within our pedagogical system (Gibson, 1976).

Many important aspects of education can be learned more effectively and economically in creative ways. It appears that many students can increase their learning a great deal if allowed to use their creative thinking abilities. According to E.P. Torrance (1970), students do not make much educational progress when their teachers insist that they learn exclusively by authority. Creative ideas open up a lot of

possibilities for more effective ways of individualizing instruction.

It is hoped that through teacher education teachers will learn to recognize creativity and reward the results. Instructors should be aware of the contributions creative students make to their classrooms. There are a variety of instructional procedures designed to foster creativity in the classroom. Creativity will flourish or fade depending on how the educational system decides to deal with the concept (Gibson, 1976).

Creativity has only recently found its place as a respectable subject of study in psychology. Moreover, to date, relatively little is known with certainty about creativity, one of the most elusive properties of human functioning (Lefrancois, 1983).

Some of the continuing interest in creativity has been generated because creativity is an important element for people in a variety of occupations, for example, educators, artists, research scientists. Other interest has been directed toward creativity as a problem-solving method; and yet other researchers are concerned about the study of creativity as an intellectual ability (Brown, 1976).

The past few years of educational research and development have brought about recognition of the fact that some students prefer to learn in creative ways (Gibson, 1976). Teachers have generally felt that it is more economical for them to teach and for their students to learn by way of authority.

Another contribution to the lack of creativity in the classroom is the type of test given by the teacher. Teacher tests generally emphasize recall and recognition. Often original and novel answers are considered inappropriate and are given less or no credit. Educators are often intimidated and threatened by many questions asked by the creative student for which they have no prepared answer (Marx and Tombaugh, 1967).

This study will attempt to review the concepts of creativity to obtain a better understanding of how creativity can be adaptived in selected public school classrooms. An emphasis in the study will be to show the relationship of educational psychology to classroom creativity.

Statement of the Problem

This study assesses the use of educational psychology classroom instructional procedures of motivation, measurement, development, discipline,

and learning needed to foster student creativity by their classroom teachers. Data used to evaluate instructional procedures were collected through the use of an original questionnaire, analyzed through the Likert-type scale. The responses from each of the five stated instructional procedures questionnaire items were used to obtain frequencies, mean scores, standard deviations, median scores, and a reliability analysis of similarities. The anticipated results indicated that selected classroom teachers did not significantly use the instructional procedures to foster classroom creativity for their students.

Hypotheses

The hypotheses for this study are as follows:

1. Selected elementary and secondary teachers will not demonstrate the use of instructional procedures to foster creativity of their students at a level of 70% or higher.

2. The variable of learning will demonstrate the most implementation of the instructional procedures by teachers. This will be followed by motivation and development instructional procedures.

3. The instructional procedures for the variables of discipline and measurement will show the least implementation by teachers.

Limitations

Creativity inferences cannot be made from this study other than the use of the designated sample. Only selected elementary and secondary teachers who were sampled from three public schools in the San Diego Unified School District in San Diego, California, reflect the attitudes of teachers in the sampled school district.

DEFINITIONS OF TERMS

Creativity (Specific Definition)

Specifically defined, creativity is defined for the purpose of this study as a human attribute of constructive originality. It may be fostered or inhibited by teaching procedures. Beyond a fairly low minimum level, it does not appear to correlate either positively or negatively with intelligence (Dictionary of Education, 1973).

Creativity (General Definition)

Generally defined, creativity is the ability for open-ended thought or divergent thinking. Elements of creativity include fluency, transformation, novelty, and appropriateness. Different levels of creativity range from simple expressive creativity, where skills and the quality of the product are unimportant, to a

level that produces new principles or assumptions which lead entirely to new developments (Encyclopedia of Education, 1971).

Discipline

Discipline will be defined in this study as active and persistent pursuit of some considered course of action in the face of distraction, confusion, and difficulty. It is also the control of pupil behavior through punishment or reward (Dictionary of Education, 1973).

Educational Psychology

Educational Psychology is a study of the nature of learning investigating the psychological problems involved in Education, together with the practical application of psychological principles to Education (Dictionary of Education, 1959).

Instructional Procedures

Instructional Procedures will be defined in this study as the contemplated activity and manner of instruction being taught by a teacher over a given period of time, especially the daily arrangement of teacher-pupil activity (Dictionary of Education, 1959).

Learning

Learning is defined as a change in response or behavior caused partially or completely by experience.

It refers to the acquisition of symbolic knowledge (Dictionary of Education, 1973).

Measurement

Measurement is defined as the term applied to examining students by giving them some form of test. It is also the process of obtaining a numerical description of the extent to which a person possesses some characteristic (Dictionary of Education, 1973).

Motivation

Motivation will be defined in this study as the practice of applying incentives and arousing interest for the purpose of causing a student to perform. Motivation designates the act of choosing subject matter in such a way that it appeals to the student's interests, causing him/her to attack the work at hand willingly, and to complete it with sustained enthusiasm. It also designates the use of rewards and/or appeals to a student's desire to excel (Dictionary of Education, 1973).

Basic Literature

The effectiveness of schools in helping students understand their creative potential hinges on the attitude of teachers toward creativity and the expression of it found in their students (Treffinger,Ripple, and Dacey, 1968). Acceptance and

understanding of creativity without early evaluation encourages the creative experience and continuation of creativity in students (Gowan, 1972). Within classroom education, teachers tend to reward the "right" answers and penalize the "wrong". This makes students reluctant to attempt novel or original solutions to problems, because if they do so they are penalized (Fontana, 1981).

A teacher's self-image affects the way that he or she will perceive the creative youngster. Teachers who believe that they are authorities on the subject matter will be put off by the creative student (Eulie, 1984).

Teachers are gratified by conforming students who are sociable, persevering, responsible, and respectful of authority. Not all creative students will intrude themselves upon a teacher's attention, but those who do may be providing clues as to what to look for in the less intrusive. Students who test the limits of authority and take risks, may be displaying creative ability (Bernard, 1965). Fostering reliance on authority makes students anxious and defensive. Students that are constrained to habitual modes usually do not learn to be flexible in thought perceptions. Strong demands for conformity make students rigid and

dependent. Conformity fosters compulsive conventionality rather than originality (Frandsen, 1967). There is a need for classroom teachers to recognize that nonconformity can be productive. A teacher should take advantage of the stated situation to direct his or her students rather than discourage creativity by demanding stylized responses in activities (Schwartz, 1972).

Creative students may become discouraged if they do not find school challenging enough. If students have the motivation they can work in the direction of creative accomplishment. Creative motivation is related to the kind of reinforcement one gets from personal and social relationships. Students should be encouraged in their efforts. The best motivation for students is a feeling that they are growing and reaching an educational goal.

Students need to feel a sense of accomplishment. Sensitive teachers can recognize signs of emerging self-confidence and use reinforcement procedures (Wilson, 1969). Creativeness involves a reorganization of experiences and new interpretations; thus, the wider the experiences and the greater the number of thoughts and ideas, the greater the creative activity. The student's responses should be motivated by his or her

own ideas and feelings and on the level of his or her age and ability (Garrison, Kingston, and McDonald, 1964).

Creative learning takes place in the process of becoming aware of problems, gaps in knowledge, and missing elements. An introduction to creative work through direct experience with materials leads to an understanding of the possibilities of the materials and to a new way of expression. There should be diversity in the material and experiences used. For example, kinesthethic intellectual, aesthetic, and emotional experiences are necessary in the creative classroom (Wilson, 1969).

Creative expression appears among all age groups and among students with varying degrees of intelligence. Teachers should be sensitive to this factor and from early interaction in the classroom they should develop creativity. From early developmental beginnings later creative endeavors can evolve. The results are sometimes slow, but encouraging creativity is rewarding to the student and to the teacher.

Research Methods

Subjects for this study were selected from elementary and secondary school teachers in the San Diego Unified School District. The San Diego Unified School District is located in San Diego, California. One elementary school, one middle school, and one senior high school were randomly selected (using the table of random numbers).

Validity for the questionnaire was established by having three panels review the questionnaire. The purpose of panels reviewing the questionnaire was to identify major deficiencies, to achieve content validity, and suggestions for improvement. Reliability was established through an analysis of similarity.

An original questionnaire was designed to assess use of classroom instructional procedures correlated to foster creativity of elementary and secondary students by their classroom teachers. The questionnaire was reviewed by three related panels. The first panel was made up of six graduate students studying in the department of Educational Psychology at the University of Northern Iowa. The second panel was comprised of twelve elementary school teachers at Los Ninos, a

private elementary school, in the San Diego area. The panels were encouraged to make suggestions and comments regarding specific items and directions. This feedback was used to make further revisions. The revised questionnaire was sent to a third panel of three related professors in the area of Educational Psychology at the University of Northern Iowa. They were encouraged to make comments and/or suggestions concerning specific items and directions.

After permission was received from the school principal at the selected school sites, the questionnaire and cover letter were left in staff mailboxes with a box available for returned questionnaires. A return rate of 70% was needed to establish partial validity. If the response rate was not at least 70%, then a follow-up was initiated.

The statements in the questionnaire were related to the variables being studied. The statements were structured, consisting of a statement to be answered by a Likert-type scale for data analysis. Point values were assigned respectively: always-5, often-4, sometimes-3, seldom-2, never-1, not applicable-0.

SUMMARY

Research implied that students preferred to learn in creative ways. Some methods of teaching and testing discouraged creativity. Teachers should become more aware of the contributions creative students can make in their classrooms. This study will provide data for teachers to further examine this classroom potential.

To further develop this study, Chapter 2 contains a survey of pertinent literature written on creativity and related instructional procedures. Chapter 3 includes the methodology of research with emphasis on the development of the questionnaire and its implementation. Chapter 4 provides the data collection and analysis. The last chapter presents a summary, findings, conclusions, and recommendations.

CHAPTER 2

Literature

Review of Related Literature

This chapter will be a review of the basic literature that supports the concepts and views regarding the study's variables. The dependent variable for the study is creativity and the independent variables are motivation, measurement, discipline, and learning.

The review of the literature will focus on the following five areas in educational psychology which are the study's independent variables: (1) motivation; (2) measurement; (3) development; (4) discipline; and (5) learning. The literature considers the use of classroom instructional procedures needed to foster student creativity by their classroom teachers.

Motivation

The notion of what constitutes creativity is best understood through an examination of behavior involving creativeness. There are many characteristics of creativity, these include the following (Garrison, 1964):

1. Involved attention relating to an experience.
2. Increased motivation to discover, test, or interpret for one's self the meaning related to the experience.
3. Heightened motivation resulting in expressive behavior.
4. Reducing tension through experiences by creating ways of expressing one's self.

The principles of motivation are as relevant to the development of creativeness as they are to other aspects of a child's growth. The value of the fine arts in satisfying basic needs has been emphasized in the field of psychology. In addition, the creativity in children expressed through art and writing has been found useful in studying the personality of children (Garrison, Kingston, and McDonald, 1964).

Creative self-expression can be a characteristic of the highest levels of human functioning in terms of motivation and learning. The capacity for creative behavior may be encouraged or destroyed by a student's experience in school (West and Foster, 1976).

In order to produce workable and significant solutions for goals, one must be motivated. Motivation is a combination of internal and external characteristics. There are external or environmental

factors involved which affect the development and/or opportunity for creativity. However, external factors must be considered in light of how they affect the internal factors (Pearlman, 1983).

There are many opportunities to motivate students in school. Drama, the language arts, music, and dance are frequently used in the public school system. Students should be encouraged and motivated to express themselves through other media as well as the language arts. Motivation is best provided by having students relate school to their own life experiences. Individual projects may depart from given specific instructional objectives while remaining consistent with general objectives (West and Foster, 1976).

Children tend to develop the kinds of creative skills that are rewarded. In experimental studies, it was demonstrated that students will increase the originality of their ideas if originality is rewarded. The elaboration of a student's ideas will expand if elaboration is rewarded (Torrance, 1984b). Differences in creative functioning vary from culture to culture, and seem to be explained in terms of what is rewarded by the culture represented (Torrance, 1969). School and classroom reward systems can be set up to encourage

originality on the part of both the teacher and the student. In teaching for creativity, many of the principles of reinforcement and imitation are as appropriate for creative behavior as other types of behavior. One of the most important aspects of teaching for creativity is building an atmosphere in the classroom which motivates flexible and unusual behavior (West and Foster, 1976).

An instructional model developed by E.P. Torrance suggests motivating creative thinking by heightening anticipation and expectations before a lesson, looking deeply into a problem and examining it from different perspectives during a lesson, and maintaining the incubation process going to the end of a lesson (Torrance, 1984b). This model has been described in a number of sources, and has been used as a guide for lesson planning, creating instuctional materials, and in teacher guides for textbooks (Torrrance, 1979).

The use of creative learning activities such as Imagi/Craft developed by Cunnington and Torrance in 1965, and ideabooks developed by Myers and Torrance in 1966, increase enthusiasm with school, and school attendence. There is considerable amount of evidence that creative activities and creative problem solving have motivating and therapeutic capabilities (Torrance,

1978). Motivating students using creative learning activities involves the learner by having the student create something on his or her own and then doing something with what he or she has produced.

There are three levels of student involvement used in the ideabooks. The first level allows the student to work with classmates in producing and idea. The second level has the student individually develop an idea and produce something with it. At the third level, the student is encouraged to do something with what he/she has produced (Torrance, 1970).

When using the Imagi/Craft materials, a variety of techniques are used implementing all of the learner's senses. The pupil is encouraged to use his/her senses to tap his/her imagination. The images that are generated are used as a basis for investigation, research, and/or productions such as songs, drawings, dramas, or stories (Torrance, 1970).

Educators should provide the opportunity for students to choose in the learning situation with emphasis on problem solving, experimentation, and self-evaluation. Some section of curriculum can be offered a student where he or she can learn about

something else in the process. Teachers can motivate a student by letting him or her choose a topic and a project, thus insuring student commitment. After a student has committed, there is an opportunity for creating, exploring, and/or experimentation. Projects can be open-ended so that the pupil can feel the right to decide in his/her own learning. Students then should establish their own criteria for evaluation, which would give him/her a sense of his/her own standards and accomplishment. In this type of activity, the instructor should take on the role of consultant giving the student suggestions and information. A log can be kept to record the student's progress. The project can end in a discussion determining what he or she has learned, exploring the meaning of this process, and appreciating his or her potential (Wlodkowski, 1984).

In creative thinking, the outcome of the thinking has novelty and value. Creating requires high motivation and persistence. Creativity is unconventional in the sense that it requires modification or rejection of previously accepted ideas. There are times when it is important for one to suspend

judgment during creative production. Then, it is important to evaluate the creative product in terms of originality, quality, and usefulness (West and Foster, 1976).

Also, parents also can be used in motivating and encouraging students to create. Parents are always eager to hear good things about their children from the teacher. Educators should work with parents to help them understand their children's creative endeavors. Drawing positive attention to something a pupil has created might become valued instead of being discarded and given no worth when classmates, teachers, and parents learn to appreciate it (Timberlake, 1982).

It is necessary for the teacher to guide the student in creativity. Unless there is direction from a teacher the student will become discouraged. Creative ways of learning call for sensitive guidance and direction. Creativity calls for listening and observing by the teacher. The teachers needs to give direction to the student. Given this kind of guidance, the student should provide an honest effort to learn, enough to sustain motivation and to maintain the learning process. Once motivation has taken place, however, it is both difficult and dangerous to stop the

learning process (Torrance, 1970).

Measurement

Creativity is an intricate process involving the integration of many known and unknown cerebral functions. All individuals have creative potential to varying degrees (Parke and Byrnes, 1984). The measurement of creativity like other aspects of intellectual functioning will be difficult. As in intelligence, there is a problem differentiating operational creative thinking abilities from innate creative potential. For practical purposes this problem can be managed by realizing that there are measures of creativity that are available. These measures have established certain profiles of measurable creativity that have been found to be important in school learning (Khatena, 1982). Creativity has perhaps proven to be the most difficult psychological concept to measure. The most salient characteristic of creativity measures is diversity. This diversity can be indicative of the many facets of creativity; examples are the multitude of research designs, goals, subjects, and settings (Hocevar, 1979).

Creativity and intelligence are not strongly associated. It has been found that ability as measured by intelligence tests is not positively correlated with tests of creative process (Schwartz, 1972). At least some different processes or process combinations are involved in each (West and Foster, 1976). High creative ability and intelligence are not synonymous. This can be contributed to the fact that some very intelligent people tend toward conformity or convergence and the creative individual is divergent and adventuresome (Bernard, 1965).

The use of intelligence tests to identify gifted students overlooks about 70 percent of those who are equally gifted on creativity criteria (Torrance, 1984b). There appears to be an overlap of about 30 percent among pupils identified by tests as intellectually gifted and those identified by tests as creatively gifted. In early studies, a creatively gifted group achieved as well as the high I.Q. group on academic achievement measures (Getzels and Jackson, 1962). In other studies, those who were high on both criteria became equaled, but did not surpass the other

groups (Torrance, 1962). Students identified as creatively gifted who fall short of the I.Q. cutoff for the gifted classification (e.g. I.Q. of 130) tend to achieve better as adults than those who meet the I.Q. criteria of giftedness and fail to meet the creativity criteria of giftedness (Torrance, 1984b).

In a 22 year longitudinal study of creative achievement of pupils tested in elementary school by Torrance and Wu in 1981, a creatively gifted group surpassed the high I.Q. group on the quality of their creative achievement. They also tended to excel over the I.Q. gifted group on a number of post-high school creative achievements, but the difference fell short of statistical significance. Also, once again, the doubly gifted group were equaled, but did not excel over the creatively gifted group.

When creativity is measured, it must be decided what is meant by creativity, what aspects are available for identification, and whether or not the dimensions can be operationalized. In the early sixties, it was suggested that creativity could be recognized by way of person and process, simply because these were available measures. As it refers to process, creativity became

operationalized in test batteries developed by Guilford (1969, 1973), Torrance (1974), Torrance, Khatena, and Cunningham (1973). These test batteries operationalized creativity as abilities of divergent production and/or elaboration, fluency, originality, and flexibility. These creative thinking abilities have been found to be highly significant in the assessment of creative production and learning, and certainly provide the basis for the measurement of creativity at this level (Khatena, 1982).

Torrance has created and refined a battery of tests of creative thinking ability for use from kindergarten through graduate and professional education. In educational practice and scientific advance, progress is dependent to an extent upon the development of instruments that make research possible. The basic battery of Torrance Tests of Creative Thinking have been used in over 1,000 published research studies. In several states and school districts, these tests are used to identify students for special programs (Torrance, 1984b).

Definitional and psychometic concerns can create serious problems relevant to the assessment of

creativity, but these problems are not insurmountable as long as they are recognized and dealt with properly. Procedures designed to assess creativity must be developed with individual differences in mind. The developer must experiment, evaluate, and revise the processes and instruments necessary to assemble measures that are sensitive to the many facets of creativity while being as objective as possible to evidence of the pupil's potential (Parke and Byrnes, 1984). Tests have been developed to identify creative potential, but there are many other areas and ways in which creativity may function. Measurement instruments must also be supplemented with analytical observation (Bernard, 1965). It has been found that other approaches to creativity measurement generally fail to discriminate creativity in one area from creativity in another. Despite all the literature on creativity, a simple straightforward inventory of creative activities and achievement appeared to be more defensible than more commonly used methods of identifying creativity (Hocevar, 1979).

Several factors point to the need for a more effective identification of creativity in students.

Understandably, many researchers in the area of creativity have suggested that measurement of creativity be given more attention (Dellas and Gair, 1970; Hocevar, 1979; Treffinger and Poggio, 1972; Treffinger, Renzulli and Feldhusan, 1971; Yamamoto, 1965). Our society recognizes the existence of creativity and the work of the potentially creative. Various environmental influences may deter or stimulate the development and manifestation of creativity (Bernard, 1965).

Development

Various factors in a child's physical and social environmental affect the nature and extent of his or her creative expression. The principles of growth and learning are applicable to other aspects of a student's development such as creativity. There are important differences noted in the creative ability of children at the same age level. Also, a child will vary in his or her creative expression in different situations (Garrison, Kingston, and McDonald, 1964). Creative expression appears among all age groups and among students with varying degrees of intelligence. Every

child seems to have an innate ability to create. This can be observed when a child plays. Imaginative activities such as make-believe and fantasy occupy a very important place in a child's development. Even before a baby learns to talk, he or she can use his/her imagination to solve problems. Creative expression appears at an early age, involves fewer verbal generalizations, and is confined to concrete and personal situations from the student's immediate environment (Garrison, Kingson, and McDonald, 1964).

A child learns the satisfaction of making things happen in its world by playing. Through play a child builds a repertoire of actions and reactions which gradually help him or her cope with his/her environment. The child's capacity to use creativity in its play is helped or hindered by the attitudes of its parents, teachers, and peers. The affective attitude of others becomes incorporated in his or her cognitive unconscious, which appears to be a series of structures which contribute to the development of creativity (Weininger, 1980).

Creative abilities appear early in a child's development. Creative behavior is characterized by

free expression. Children need to be given an opportunity for motivational experimentation and they will flourish with encouragement and stimulation. When these conditions are met, creative ability is allowed to develop (Garrison, Kingston, and McDonald, 1964). Even if optimum conditions are provided for the development of creativity, it should be mentioned that no amount of training and practice will transcend maturation. Maturity and experience play an important part in a child's creative development.

Becoming a creative person is dependent on a combination of factors. Creative work is favored by at least a minimum level of verbal-abstract intelligence; a special talent in a field; creative abilities such as flexibility and originality of ideas; initiative and other personality traits which include self-confidence; and interests in aesthetic and theoretical pursuits. There are patterns of dispositions which the family and the school system can foster to nurture the creative potential of a child. Creativity can be approached in a variety of ways applying in different degrees to all educational subject areas and grade levels (West and Foster, 1976).

Studies have shown that the most important

discontinuities in the development of creative thinking abilities occurred around the age of nine at which time these abilities seemed to level off and then continued again around the age of twelve. On measures of creativity there is a decrease in performance on creativity measures from early to middle adolescence. A temporary drop in creativity is observed among fourth grade students and a slump in creativity from third to fourth grade. This is followed by a subsequent increase in creative functioning from the fourth to fifth grade (Ross, 1976). This "fourth grade slump" is attributed to factors with an increase in adjustment problems, stress, as well as the need for peer approval. The increase in stress causes cognitive rigidity, and peer approval leads to an other-directed self that can reduce the output and originality of ideas (Torrance, 1971). It is interesting that practically identical psychological states have been attributed to the developing adolescent (Ross, 1976).

E. Paul Torrance maintains that this "fourth grade slump" in creativity can be offset through intelligent use of instructional technology and materials designed for keeping alive creative skills and motivation. When

this is accomplished, students will dislike school less and achieve just as well as a control group in academic skill (Torrance, 1984b). Peer sanctions against being creative and different are often difficult for students to cope with. As a result, they may turn off their creativity rather than run the risk of losing friends. Parents and educators need to intervene at times like these, helping them and their peers learn to appreciate differences as something that can be valuable (Gowan, 1972).

Comparative studies were done in Australia, India, Norway, West Germany, and Western Samoa which showed that these developmental characteristics vary from culture to culture (Torrance, 1963). Many developmental characteristics of creative thinking abilities are molded by culture and the educational system that transmits that culture (Torrance, 1984b).

Studies have found that there are many differences in the developmental characteristics in different creative thinking abilities such as fantasy and emotional expressiveness. These creative thinking abilities develop rapidly and then level off. Other creative thinking abilities develop slower, and they

continue on longer before leveling off. Placing selected items in an environmental context, abstractness and expressiveness of titles, and articulateness when telling a story, develop rather slowly in a pupil, but creative thinking abilites continue on longer before leveling-off, developing in an individual well into adulthood (Torrance and Mourad, 1979).

In a twenty-two year study by E.P. Torrance, it was found that having certain elementary school teachers increased chances of adult creative achievement. Participants in this study were asked to think of an incident in which one of their elementary school teachers encouraged them to be creative and if the creative action had made a difference in their lives. Certain teachers were mentioned far beyond chance and the criteria of creative achievement were related to having had these teachers. This phenomenon has been observed for many years in connection with scientific advances, medical discoveries, and artistic achievement. These studies indicate that teachers, especially at the elementary school level, should

devote time to developing creativity in their pupils. This time spent has shown to be of importance in a student's latter life (Torrance, 1984b).

Most creative adults have solved the problem of their identity. They also have a strong sense of destiny and a sense of worth about their creative efforts. They have a measure of egotism and often they are not well-rounded because they spend their energies into the areas in which they are intensely interested and make no effort to participate in other areas (Wilson and Robeck, 1969).

Creativity programs do benefit infants, children, and young adults, but they can also help those who have already reached adulthood. Elderly people who participated in creativity programs said the program caused them to experience a greater sense of spiritual, physical, and emotional well-being. They were more active, socialized more, took less medication, and slept better. They also were more creative, enjoyed better health, and lived longer than control groups in the studies (Torrance, 1984b). Therefore, the development of creative capacity seems to be ongoing

and it can flourish as long as it is nurtured.

Discipline

Teachers have generally indicated that it is more economical for their students to learn by way of authority. Learning by authority occurs when a student is told what he or she should learn, and when he or she accepts something as true just because it is said by a person in a position of authority. The person in the position of authority may be their parent, teacher, a textbook, or an expert in a special field of study. Much can be learned more effectively in creative ways. It also appears that many people have especially strong aptitudes and preferences for creative learning if they are allowed the opportunity to use their creative thinking abilities. Some students make limited educational progress when their instructors insist that they learn exclusively by authority (Torrance, 1970). Students are taught to be conforming, to fear mistakes, and to rely on authority (West and Foster, 1976). It is very easy for an extremely efficient teacher to stifle creative learning merely by insisting on systematic learning of factual material so that there

is limited energy left over for creativity (Wilson and Robeck, 1969).

A creative teacher facilitates learning by creating an environment where discovery happens. Such a teacher is characterized by genuineness and a sense of empathy and trust. A creative relationship involves a co-experience where errors are almost irrelevant. The pupil's creative ability in this type of relationship is uninhibited because the relationship is open and non-threatening. A creative teacher is accepting, tolerant, and humanistic, allowing students to develop to their full potential. An instructor with this orientation places a premium on sensitivity, openness, and self-initiated learning (Raina and Vats, 1979).

Studies have shown that creative teachers have a teaching style which is humanistic in their approach to classroom discipline and will favor creativity. This is in comparision to teachers who fell low on a creativity scale and were authoritarian in their student-control. It was obvious that the creative teachers who possessed a teaching style which was humanistic proved to be conducive to creativity, and

provided a sense of security. They provided a classroom environment that was democratic, less custodial and more open, giving students more confidence (Raina and Vats, 1979). When a class is large, allowing students this kind of freedom can make discipline difficult (Wilson and Robeck, 1969).

The noise level in a classroom tells about the classroom environment. In an authoritarian classroom the teacher's voice predominates or there is silence. On the other hand, in a completely free classroom there can be a lot of noise. In the ideally balanced environment, the noise is a nondisruptive hum of activity and verbal interchange which is inducing growth in creativity (Timberlake, 1982). There are times when teachers are going to have to put their lesson plans aside. Teachers should be patient and flexible when distractions, interruptions, and accidents occur in their classrooms (Gordon, 1961). They should take this opportunity to teach what might relate to the incident at hand.

A teacher's attitude toward creative students sets the tone for the entire class. Students tend to duplicate their teacher's value and acceptance of

creativity. Respect for other's work must be genuine (Timberlake, 1982). Criticism from the teacher or a student's peers leads to a loss of interest and self-confidence. If a pupil feels that he/she is not doing acceptable work, he or she will stop trying to succeed. There is nothing more harmful to creative expression than a feeling of inadequacy (Garrison, Kingston, and McDonald, 1964). Creating is a tender time. Students can not create if they are worried about what others will say about their product. Adult management of a socially disapproved behavior affects a child's self-concept of himself or herself as a valuable and potentially creative person. It is important to separate the action from the child, if the child is deviating from some idea or action of his or her peers this does not make him or her wrong, and should not devalue the student (Gowan, 1972).

Creative activities can provide an emotional release to students that might otherwise pose a discipline problem for a teacher in a classroom. Some students have difficulty expressing themselves in an adult-dominated world. It is important to provide these children with favorable emotional outlets

(Garrison, Kingston, and McDonald, 1964). A student's mind has been compared to a "twin fountain of creativity and destructiveness." The more educators open the student's creative side, the more the destructive side will close. When denied constructive outlets the student may turn to destructive outlets in order to get his or her own way (Gowen, 1972).

Creative self-direction consists of a pupil's ability to go off and pursue activities on his or her own without being prodded by his/her instructor. This self-direction may sometimes annoy a teacher who may want him or her to start working on something else (Wilson and Robeck, 1969). A teacher should learn to respect individual differences, not just tolerate them. Teachers need to be grateful that students are different. They need to be flexible enough to accept students as worthwhile for whatever talents they may possess (Gowen, 1972).

Torrance identified three characteristics of highly creative students: (1) they have a reputation among their peers for having "wild or silly ideas"; (2) their classroom productions were outside the

anticipated standards; and (3) their work was characterized by playfulness, humor, and flexibility. Recognizing and understanding these characteristics is important for the teacher. These characteristics may make a student's behavior unpredictable and may make their presence in a group upsetting (Wilson and Robeck, 1969).

Deviance is not always undesirable. Many of the great achievements throughout history are products of "deviant" behavior (West and Foster, 1976). Education has its regulations and rules, certain patterns of conduct, and when working with a large number of students, the conforming pupil is easier to deal with than the nonconformist. Divergent ideas may sometimes seem bizarre or silly and make the teacher think that the student may just be giving them a hard time. Unfortunately, for the instructor, creativity is an unpredictable thing and it is unlikely that it will show up in an appropriate form. By watching a student's response, studying where the idea that initially appeared silly or bizarre originated, the teacher can begin to learn to recognize when the student is truly using his/her imagination and when he

or she is simply trying to be difficult (Fontana, 1981). A student who may seem to be deviant in a classroom might be doing so because he or she does not have enough responsibility and needs more related opportunities. An educator needs to help his or her students discriminate between constructive and destructive nonconformity (Gowen, 1972).

Teachers can promote a process where students can direct creative energy and channel it into something constructive. The creative child may also be a nonconformist. The constructive nonconformist is selective and situational, and the destructive nonconformist is complusive and nondiscriminating. Like all children, in the beginning, creative students do not distinguish between being creative and being destructive. If creative actions are not rewarded more often than destructive ones, it will become difficult to separate the two later on in life (Gowen, 1972).

Learning

Creative classroom production is an instance of learning. The differences that are found between a student or a teacher in terms of learning are the result of different learning experiences (West and

Foster, 1976). The intellectual process that demands the most creativity is divergent thinking, the ability to rearrange existing facts to develop different and useful solutions to a problem (Eulie, 1984).

Education in the public school system primarily involves learning through recognition, recall, and imitation, all of which rely upon a student's memory. In contrast, creative learning requires of the student evaluation, divergent production, and redefinition, in addition to recognition, recall, memory, and logical reasoning. Learning creatively takes place through the process of being aware of problems or deficiencies in knowledge; putting together new relationships with existing information; searching for new solutions for problems; and testing and modifying the results (Torrance, 1970). Usually, in order to create new ideas, one must be aware of existing theories and ideas (Pearlman, 1983). Many creative ideas have been dismissed because they were not applicable at a certain time or place. Timing of a creative product is important. A creative idea can produce something which could become old or outdated, but one that can be used

later on to facilitate new creative products (Worell and Stillwell, 1981).

Creativity will be limited by the extent that a student has already discovered his or her social and physical worlds. Creativity needs ideas and thoughts already in place on which to build. Creativity involves reorganization of experiences and new interpretation of experiences. The wider the realm of experiences, and the greater the number of thoughts and ideas, the greater the creative activity (Garrison, Kingston, McDonald, 1964).

Personality of a student plays an important part in creative learning. The creative individual possesses the ability to diverge from the norm and seems to enjoy uncertainty and risk. The creative student tends to come from a home where there is personal freedom and safety. Authoritarian homes tend to produce children who are conforming. This suggests that a teacher who hopes to promote creativity should have a classroom that allows for individuality and freedom while supplying a lot of personal acceptance (Breslin, 1978).

Another factor that influences creative expression

is environment. An environment that will give a student an opportunity for expression and encouragement will supply media sources that are in agreement with student abilities and interests. Also, teachers need to create conditions that will stimulate creative expression. A student needs to feel accepted and individual uniqueness needs to be respected. A pupil needs to feel secure. A child who feels insecure will be inhibited and will be unlikely to display creative ability. There is no substitute for contentment brought about in an atmosphere where a person is not held back by fear of disapproval (Garrison, Kingston, and McDonald, 1964). A student can use guidance from his or her teacher, but this does not necessarily mean control and direction. A student who is told what, when, and how to do something will not have the opportunity to express his or her own ideas and feelings, and usually will not exercise his or her own initiative (Fontana, 1981).

Studies of creative individuals suggest that there are four stages in a creative act:

1. Preparation - recognizing that a certain problem is worth studying
2. Incubation - thinking over the problem, often at an unconscious level

3. Inspiration - possible solutions to the problem come into the conscious mind
4. Verification - the solutions are put to the test (Fontana, 1981).

Each of these stages carries its own importance. The teacher should help students recognize the importance of each stage and needs to guide students work through the creative process.

A teacher should take full advantage of the school curriculum in which the creative person reveals his or her aptitudes and interests in a wide variety of areas. This should provide new interrelationships that will become a mark of his or her creativity. A teacher should offer a variety of curricular activities and choices. There is a need for insistance that a creative pupil become acquainted with as many curricular disciplines as possible. While it may be easier to expose a class to only one or two disciplines at a time, it appears that a creative student will profit from being exposed to and bombarded with media because media allows for many different curricular fields in education (Bernard, 1965). The curriculum framework can provide a teacher with a means to evade personal responsibility for course content that goes unlearned. When a teacher chooses this way out for the

unconforming students, it can be harmful to his or her creative students (Wilson and Robeck, 1969). Nevertheless, some part of any curriculum can be offered to students for learning on their own.

Students should also be encouraged to produce something own their own and encouraged to use it. A project can be open-ended to allow students to possess the power to say yes or no to their own learning (Wlodkowski, 1984). A teacher who sets an example for a student does not need to expect the student to imitate the example. Creativity on the part of a teacher may encourage students to perform more creatively through the social learning principles of imitation and modeling (West and Foster, 1976). Stereotyped procedures in teaching destroys creativeness and originality and results in imitation and unimaginative school work (Garrison, Kingston, and McDonald, 1964).

Providing students the opportunity for freedom of choice in their learning opens the door to creativity. Student questions should be used to encourage creative learning. A student's questioning reflects how his/her mind is working. A child learns from early on by asking questions and having them answered. However, when a child starts school the teacher usually asks

all the questions leaving the child little or no opportunity to question. The teacher's questions are rarely asked to gain new information, since he/she already knows the answers. Asking a student for information will stimulate discussion and motivate all students to ask more questions with greater excitement and skill. If a teacher is asked a question that cannot be answered, it should be accepted as normal and desirable, and looked upon as an opportunity for students and for the teacher to look further into the matter. It is usually more rewarding to the student who is asking a question to find the answer (Torrance, 1970).

Within the educational system, "right" answers are rewarded, and "wrong" answers are penalized by the teacher. This only serves to make a student reluctant to attempt original and novel solutions to a problem because of his/her concern for making an error. More often than not, a student is more comfortable playing it safe (Fontana, 1981). The use of sanctions can cause a student to claim that he or she is bored when actually he/she are anxious and is frightened of the consequences of failure (Robinson, 1975).

Yet, the readiness to take a cognitive risk, such as producing an answer different from one that might be expected is inseparable from creative endeavour. This does not mean that students should have no regard for precision and accuracy. The final stage in a creative act is verification. The solution must be put to the test to see if it will work. If the solution fails, it should be put aside for further revision and the student should be praised for a creative attempt. The failure should be used to spark new ideas which in turn can be tested (Fontana, 1981). One of the most difficult challenges a teacher will receive from students prodding them to take a chance. For most of his or her lifetime a student has been urged "to do the right thing." Teachers need to encourage students to take risks (Worell and Stillwell, 1981). A teacher should allow his or her students the opportunity to experience mistakes. A mistake can provide a student an opportunity to remember a lesson. If no harm can come from a mistake, let the mistake happen (Timberlake, 1982).

There are many strategies a teacher can use to motivate the creative learning processes and to keep

them going. Before a lesson can heighten student expectations and anticipation about a given subject, students should make predictions of the outcome based on what they may already know about a topic, or the teacher can use an analogy to make the unknown seem familiar. During a creative lesson, the teacher can use the following: make assignments open-ended; provide selected new information as more predictions can be made; use visualization of places and events; and deliberately use suprises. After a related lesson and/or an assignment, the following could be used: deal with an uncertainty or ambiguity; encourage going beyond the obvious; search for solutions that take into account the largest number of variables; synthesize apparently diverse and irrelevant information; and encourage future projections and entertain improbabilities (Torrance, 1970).

In industry, there is a widely accepted method of creativity called "brainstorming" that was developed by Parnes in 1967. This method has obvious educational implications. It involves group cooperation to arrive

at a solution. The group is encouraged to generate solutions to a problem. No solution is judged as inappropriate and no criticism is made. Through this method, problems that often seemed intractable are solved by having the participants exchange ideas with each other. The non-judgemental atmosphere offers each student the opportunity to vent his/her thoughts without censor (Fontana, 1981). During the course of this session, aids can be used to stimulate the development of creative ideas, such as a tape recorder to listen to the original ideas of the group or checklists that encourage the group to think of other ways of combining, substituting, and rearranging ideas (Lefrancosis, 1983). Students are more likely to come up with one original idea if they begin with a variety of different ideas. If the group keeps giving out one idea after another until they use up all of the obvious notions, then and only then, will they start to produce novel ideas (Stephens, 1965). In education the process, as well as the solution, have equal educational value (Fontana, 1981).

Additional learning techniques can be used in education to foster creativity:

1. Attribute-listing: Pupils itemize attributes of a product and consider each one as a potential source.
2. Morphological-synthesis: Students identify two or more important dimensions or characteristics of a subject and list specifics values for each, then they examine all of the possible combinations using one value for each dimension.
3. Checklisting: Pupils examine lists that have already been prepared as a possible source of innovation in relation to a given problem.
4. Synectics: Synectics works with similes and metaphors, especially those drawn from nature (Breslin, 1978).

Research discourages belittling a student's first creative efforts. Upgrading a student's self-concept of his or her ablitity to create, while remaining worldly realistic, can assist in their creative effort. It is also necessary for a teacher to provide a safe psychological base for a student when dealing with the risks that he or she has to take to be creative (Gowen, 1972). Fostering reliance on authority, demanding

perfection, stimulating competitive attitudes, and inducing fear of making mistakes will often make a student defensive, anxious, and may hinder the student's creativity. Strong demands for conformity will make a student dependent, and less spontaneous, and will take away his/her ability to be original and creative (Frandsen, 1967).

Summary

The general message of the research literature regarding instructional procedures and variables related to this study is that whatever approach is used to promote creativity, a teacher should encourage the student to vary his/her use of different techniques. The teacher should always be flexible and should constantly strive for flexibility with the pupil (Breslin, 1978).

CHAPTER 3

Methods and Procedures

The purpose of this research study was to assess the affect of classroom instructional procedures fostering the creativity of elementary and secondary students. This chapter will focus on the following information: (1) an overview of the research procedure; (2) the population sample; (3) the research instrument; (4) data collection and analysis; and (5) summary.

Overview of the Research Procedures

An original questionnaire was used in this study. It is based on related creativity research in the literature as applied to the classroom. Items in the questionnaire were directly related to the variables being studied through extensive review of related creativity research and literature. In order to reduce the number of statements and to make necessary changes in the wording of statements, three panels of review were asked study to the questionnaire.

Selected teachers for this study were instructed to rate questions using a five-point Likert-type scale. The scale ranged from 0-5, with five being "Always" and

zero, being "Not Applicable". The collected data were analyzed by the Computer Center, at the University of Northern Iowa, and involved computational manipulations to obtain frequencies, means, standard deviations, percentages, and a reliability analysis of similarities.

Population

Research subjects consisted of 87 elementary and secondary school teachers in the San Diego, California Unified School District. There was a total of 42 (48%) female teachers and 45 (52%) male teachers surveyed at Brooklyn Elementary School within grade levels kindergarden through sixth grade. Ray A. Kroc Middle School teachers taught grades seven and eight. Samuel Morse Senior High School teachers taught grades nine through twelve. Schools for this study were selected at random.

The total return rate of questionnaires from Brooklyn Elementary school was 73% in which twenty-two questionnaires were distributed with sixteen being returned. This response represented a total of ten (62%) female respondents, and six (38%) male respondents.

The total return rate from Ray A. Kroc Middle School was 79%, in which forty-seven questionnaries were distributed with thirty-seven being returned. The response represented twenty-three (62%) female respondents and fourteen (38%) male respondents.

The total return rate from Samuel Morse Senior High School was 81%, where forty-two questionnaires were distributed and thirty-four returned. There were nine (26%) female respondents and twenty-five (74%) male respondents.

Instrumentation

The questionnaire was critiqued by three review panels and revised before it was distributed to the various schools. The format of the questionnaire was closed format, in that the subjects chose a numbered response. The statements in the questionnaire were related to the variables being studied. The instructional procedures in question were divided into the following subject areas: motivation, measurement, development, discipline, and learning. The items were structured to consist of a statement and a numbered response from which the subjects could make a selection. This format was used to facilitate the subject's response for data analysis.

A Likert-type scale was used in conjunction with the statements on the questionnaire. Teachers were asked to rate each statement according to how often they used each of the instructional procedures. A response of "Not Applicable" was included to give the respondent an opportunity to reply in the event that a particular item was not pertinent.

The questionnaire was divided into five parts. Items numbered one through nine dealt with the variable of motivation; items ten through fifteen covered development; items sixteen through twenty-four dealt with discipline; items twenty-five through thirty-four covered measurement; and items thirty-five through fifty dealt with learning. The respondents were asked only to state their sex and the grade level in which they taught, thus they remained relatively anonymous providing a valid and reliable response.

Data Collection and Analysis

Approval for the study of human subjects was obtained from the University of Northern Iowa, in Cedar Falls, Iowa. After principals at the selected school sites reviewed the questionnaires and cover letter, they gave permission to use the instrument for the corresponding teachers. The questionnaire and the cover letter were placed in school staff mailboxes. A

box marked "questionnaire return" was left in the staff mailroom for the teachers to leave their completed questionnaires. The cover letter specified where the completed questionnaire should be left and within what time frame. The questionnaires were collected a week after they were distributed. At that time, a thank you note was placed in the related staff mailboxes; this note was also a reminder to those who had yet to complete and return the questionnaire to please do so. This procedure was repeated a second time to insure a response rate of at least 70%. These data were collected during June 1987.

After the data were collected, the questionnaires were taken to the Computer Center at the University of Northern Iowa in July 1987 to be analyzed using the S.P.S.S.- X2.1 (1986) software program. The S.P.S.S.- X2.1 is the software program containing statistical programming for the social sciences and education.

The analysis of the data was obtained using descriptive and inferential statistics. The descriptive statistics were obtained through frequencies (on the scores), means (both actual and a percentage of the number possible), standard deviations, medians, and a reliability analysis of similarities. Frequencies indicated how many times the

score occurred. The mean was based on a percentage of the number of responses possible. A reliability analysis of similarity was obtained to indicate the degree of relationship among the items in the questionnaire, and the consistency in the content sampling (Mitchell, 1984). Percentage assessed the extent to which teachers used or did not use the instructional procedures in the questionnaire. The scores collected were treated as discrete variables and nominal variables. Discrete varibles are quantities that occur only at certain numerical values and are associated with counting. Nominal variables are numbers assigned to classify responses into mutually exclusive groups (Stockton & Clark, 1975). In dealing with nominal variables, numbers were assigned to describe the gender of the respondent and the grade level in which they taught. Each variable was scored separately and then compared.

Reliability and Validity

Content Validity

Content validity is the extent to which the content of the questionnaire represents a balanced and adequate sampling of the instructional procedures it was intended to cover. This was accomplished by a comparision of questionnaire content with courses of

study, instructional materials and procedures, educational goals, and by review of the processes required in making an accurate response to an item (Mitchell, 1984).

An original questionnaire was designed based on previous research and the literature related to the variables. This research and literature was extensively reviewed in Chapter Two. The questionnaire was reviewed by three panels in order to achieve content validity. The first panel was composed of six graduate degree students studying the area of educational psychology, at the University of Northern Iowa, in Cedar Falls, Iowa. The second panel was composed of twelve experienced elementary school teachers at Los Ninos, a private school, grades kindergarden through twelve, in San Diego, California. The panels were encouraged to make suggestions and comments regarding all of the questionnaire items and state the relevance of the questionnaire to this research study. The feedback from the panels was used in making further revisions in the questionnaire; such as wording, omission of statements, and length.

The questionnaire was revised, and sent to a third panel of three professors from the Department of Educational Psychology at the University of Northern

Iowa. They were encouraged to identify major deficiencies and to make comments and/or suggestions concerning specific questionnaire items and the general directions.

Reliability

Whenever measures are gathered through the use of a questionnaire, the validity of the questionnaire depends upon the quality of the test being used. The quality of the test depends on whether it measures what the researcher intended to measure. The tests for the reliability of desired measurement involved particular interpretations of correlation coefficients. Coefficients of reliability were obtained by correlating scores on each section of the questionnaire. These reliability coefficients are also referred to as measures of internal consistency, in that they involve content sampling only, not stability over time (Bruning & Kintz, 1977). All coefficients were high enough to indicate similarity between subjects and scores obtained from the subjects in this particular study.

Hypotheses

The hypothesis building and testing processes involve testing of data, for one must obtain accuracy,

of the related theoretical formulation. The prime question is not whether tests are or are not accurate, but whether they contribute to making better decisions (Brown, 1976).

The hypotheses which will be analyzed in Chapter Four were stated as follows:

1. Selected elementary and secondary teachers will not significantly demonstrate (at a level of 70% or higher) the use of instructional procedures to foster creativity in their students.

2. The variable of learning and its instructional procedures will demonstrate the most implementation by teachers; this will be followed by motivational and developmental instructional procedures.

3. The variables of discipline and measurement will show the least implementation of the instructional procedures designed to foster creativity by teachers.

Summary

Subjects for this study were selected from elementary and secondary school teachers in the San Diego Unified School District. One elementary school, one middle school, and one senior high school were randomly selected. Feedback received from related committees, panels, and professors became instrumental in making further revisions on the original

questionnaire that was designed for this study. After permission was received from the school principal at each selected school site, the questionnaires and cover letters were distributed to staff mailboxes. A return box was made available for completed questionnaires. Analysis of the data was obtained through frequencies, means, standard deviations, medians, percentages and a reliability analysis of similarities was obtained.

Chapter Four

Research Findings

This chapter reports the findings of this study which include demographic, related general information concerning the research variables, reliability, validity, and the hypotheses. The data includes comparisons from elementary, junior high, and senior high school teachers in the San Diego Unified School District, in San Diego, California, of the use of classroom instructional procedures correlated to foster creativity in their students.

Demographic and General Information

The demographic and general information indicated that there was a total of 111 teachers requested to complete the questionnaire for this study; eighty-seven (78%) of the teachers returned their questionnaires. There was a total of forty-two (48%) female teachers and forty-five (52%) male teachers. Sixteen (18%) of the subjects taught kindergarden through sixth grade; thirty-seven (43%) of the respondents taught grades seven and eight; and thirty-four (39%) of the subjects taught grades nine through twelve.

Data Gathering Process

The research data were obtained with an original questionnaire (see Appendix B, page 100), sent to teachers in the San Diego Unified School District. The survey instrument was designed to ascertain the extent to which elementary and secondary teachers used or did not use instructional methods correlated to promote creativity in their pupils.

When all the data were accumulated, the findings were arranged so that percentages and other related statistics could be determined. Minimum and maximum scores, means, standard deviations, and reliability analysis and were used for the three levels of education taught and for all five related educational psychology variables.

The Results of the Statistical Analysis

General Usage of Classroom Instructional Procedures

Forty-eight of the fifty statements on the questionnaire were worded as positive statements. Items numbered 25 and 38 were worded as negative statements. Some items were worded negatively because they were instructional procedures that many teachers frequently used even though research showed that these

particular ideas or teaching techniques were not conducive to creativity.

Statements numbered 1 through 9 were designed to deal with the educational research variable of motivation. Items numbered 10 through 15 dealt with the educational research variable of development. Statements numbered 16 through 24 were designed to deal with the educational research variable of discipline. Items numbered 25 through 34 dealt with the educational research variable of measurement. Statements numbered 35 through 50 were designed to deal with the educational research variable of learning. When selecting a positive response to an item, subjects respond to: (5) "always" or (4) "often". The neutral response was (3) "sometimes". The negative responses were (2) "seldom" or (1) "never". Subjects were given the option of responding to a rating of (0) "not applicable" if the statement did not apply to them.

When respondents were completing statements that dealt with the variable of motivation (see Table 1, page 71), ninety-two percent of those surveyed said that they always or often helped students learn to use their best abilities. Eighty-four percent of the teachers surveyed said that they always or often heightened anticipation at the beginning of a new topic

of study. Eighty-four percent of the teachers said they always or often gave support to their students when urging students to participate in creative work. Eighty-two percent of the respondents indicated that they always or often encouraged divergent thinking in their students. Sixty-eight percent said that they always or often provided their students with experiences for self-discovery in the learning situation.

There was a discrepancy between general usage of the instructional procedures and the grade level taught in that over fifty percent of the teachers at a particular grade level used an instructional procedure that was not used by teachers at the other grade levels (see Appendix A, page 92). Fifty-six percent of the elementary teachers said that they always or often worked with parents to help them understand and appreciate their children's imitative and creative endeavors. Sixty-nine percent of the elementary teachers provided a variety of activities in their subject matter through free and spontaneous play. Fifty-six percent of the high school teachers said that their students accepted and used their own creative classroom ideas.

Subject responses within the variable of development (see Table 2, page 72), showed that eighty-six percent of the teachers surveyed said that they always or often realized that peer sanctions against being "different" were often very hard for students to cope with at school. Sixty-eight percent of the teachers said that they always or often helped their students see the benefits of being unique in their classroom activities. Fifty-nine percent said that they always or often attempted to satisfy Maslow's essential need systems (physiological needs, security needs, esteem needs, autonomy needs, self-actualization needs) as they relate to creative thinking. Fifty-nine percent of those surveyed said that they always or often allowed students to display their creativity through flexibility and openness in the classroom. Fifty-five percent of the teachers said that they always or often offset slumps in creativity through the use of instructional materials that motivate creative potential. Fifty-four percent of the teachers said that they always or often approached creativity in a variety of ways by allowing for different instructional procedures for all subjects and grade levels.

Seventy-five percent of the elementary teachers surveyed said that they always or often attempted to

satisfy their students essential needs. Fifty-seven percent of the junior high school teachers and sixty-two percent of the senior high school teachers indicated that they always or often offset slumps in creativity through the use of instructional materials that motivated creative potential. Sixty-two percent of the junior high school teachers and fifty-five percent of the high school teachers said that they approached creativity in a variety of ways by allowing for different instructional procedures for all subjects and grade levels (see Appendix A, page 92).

When respondents completed the statements that dealt with the research variable of discipline (see Table 3, page 72), ninety-three percent of the teachers surveyed said that they always or often allowed students to experience mistakes. Eighty-seven percent of the teachers indicated that they always or often were flexible when interruptions occurred in their classrooms. Eighty-six percent of the teachers responded that they always or often try to protect student creativity from unnecessary criticism of other students. Eighty-three percent of the teachers indicated that they always or often attempted to promote a process whereby students could channel their energy into constructive channels. Eighty percent of

those surveyed said that they always or often strove to have a classroom environment that was neither completely free nor authoritarian. Seventy-three percent of the respondents said that they always or often recognize that nonconformity could be productive. Sixty-nine percent of the teachers responded that they always or often used some class time to help develop student relationships and more productive attitudes. Sixty percent of those surveyed said that they always or often recognized when a student's behavior was creative, and when he or she was trying to be difficult. Fifty-four percent of the teachers indicated that they always or often allowed students to help eliminate frustration through creative expression and/or activities.

The responses to the variable of measurement (see Table 4, page 73), showed that sixty percent of the teachers surveyed responded that they always or often provided opportunities for students to illustrate creative potential as well as creative performance. Fifty-one percent of the respondents indicated that they always or often attempted to employ multiple activities to assess creativity factors in their students. Fifty-five percent of the teachers surveyed said that they seldom or never use some basic available

measures of creativity such as the Torrance Tests of Creative Thinking. Fifty percent of the teachers responded that they seldom or never assessed each of their student's creative potential in order to determine what he/she needs to do about his/her creative potential. Fifty percent of those surveyed indicated that they seldom or never used teacher ratings as a criterion for creativity.

There was incongruity between grade level taught and the general usage of instructional procedures within the variable of measurement (see Appendix A, page 97). Fifty percent of the senior high school teachers surveyed indicated that I.Q. scores could always or often help identify creative students. This statement was worded as a negative statement and research has indicated that I.Q. scores do not correlate with creativity in an individual. Fifty-eight percent of the junior high school teachers responded that they always or often employed multiple activities to assess creativity factors in their students. Fifty-eight percent of the elementary teachers indicated that some type of assessment of creativity is continuous in their classroom.

When respondents completed the statements that dealt with the research variable of learning (see Table

5, page 73), ninety-three percent of the teachers said that they always or often respected a student's sense of curiosity and questioning. Ninety-three percent of the respondents indicated that they always or often respected the creative ideas of students. Seventy-nine percent of those surveyed said that they always or often allowed students to work independently. Seventy-nine percent of the teachers responded that they always or often encouraged students to go beyond the facts. Seventy-six percent of the respondents indicated that they always or often encouraged students to apply their knowledge to open-ended situations. Seventy-five percent of those surveyed said that they always or often employed creative problem-solving in combination with subject matter. Sixty-six percent of the teachers responded that they always or often exposed students to more than one educational discipline at a time. Sixty percent of the respondents indicated that they always or often shared the creative talents of others. Fifty-nine percent of those surveyed said that they always or often used brainstorming techniques to encourage formulation of many solutions to a given problem. Fifty-three percent of the respondents indicated that they always or often

used decision-making techniques to develop divergent thinking. Fifty percent of those surveyed said that they always or often implemented problem-solving activities with creative approaches.

There was discrepancy between general usage of the instructional procedures and the grade level taught within the variable of learning in that over fifty percent of the teachers at a particular grade level used an instructional procedure and the teachers at the other grade levels did not (see Appendix A, page 98). Sixty-three percent of the elementary teachers and sixty-seven percent of the senior high school teachers surveyed indicated that they used brainstorming techniques to encourage formulation of many solutions to a given problem. Fifty-four percent of junior high school teachers responded that they put less emphasis on the acquisition of knowledge for its own sake instead of stressing creative production. Fifty-six percent of the elementary teachers surveyed said that they provided time for play, supplying a variety of materials for manipulation. Fifty percent of the elementary teachers responded that they furnished plain paper for art activities. Sixty-nine percent of the elementary teachers and sixty-eight percent of the junior high school teachers indicated that they shared

the creative talents of others. Fifty-seven percent of the elementary teachers and sixty percent of the junior high school teachers said that they used decision-making techniques to develop divergent thinking. Sixty percent of the junior high school teachers and fifty percent of the senior high school teachers responded that they implemented problem-solving activities with creative approaches.

Table 1

Total Percentages of the Responses to Motivation Variable

ITEM#		ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
1	+	6%	26%	45%	18%	1%	6%
2	+	31%	51%	11%	7%	0%	0%
3	+	9%	23%	31%	23%	6%	8%
4	+	46%	38%	13%	2%	0%	1%
5	+	46%	46%	8%	0%	0%	0%
6	+	15%	34%	23%	12%	6%	10%
7	+	20%	48%	21%	7%	1%	3%
8	+	10%	38%	41%	6%	0%	5%
9	+	63%	21%	8%	5%	0%	3%

N/A stands for not applicable
"+" stands for a positive statement
"-" stands for a negative statement

Table 2

Total Percentages of the Responses to Development Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
10 +	30%	29%	18%	8%	6%	9%
11 +	53%	33%	10%	1%	0%	3%
12 +	34%	34%	20%	7%	1%	4%
13 +	12%	43%	32%	5%	5%	3%
14 +	20%	39%	26%	6%	5%	4%
15 +	15%	39%	28%	6%	1%	11%

Table 3

Total Percentages of the Responses to Discipline Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
16 +	43%	37%	16%	2%	0%	2%
17 +	40%	47%	13%	0%	0%	0%
18 +	21%	48%	27%	3%	1%	0%
19 +	27%	56%	8%	5%	0%	4%
20 +	16%	38%	38%	3%	2%	3%
21 +	23%	37%	32%	6%	1%	1%
22 +	55%	38%	7%	0%	0%	0%
23 +	60%	26%	10%	3%	0%	1%
24 +	36%	37%	24%	1%	2%	0%

Table 4

Total Percentages of Responses to Measurement Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
25 -	23%	22%	29%	14%	3%	9%
26 +	13%	38%	28%	11%	2%	8%
27 +	22%	38%	20%	9%	2%	9%
28 +	14%	35%	23%	10%	8%	10%
29 +	1%	7%	15%	7%	48%	22%
30 +	6%	11%	20%	18%	32%	13%
31 +	13%	13%	11%	10%	30%	23%
32a+	1%	1%	11%	8%	23%	56%
32b+	3%	21%	16%	6%	30%	24%
33 +	5%	17%	22%	6%	26%	24%
34 +	2%	5%	17%	3%	47%	26%

Table 5

Total Percentages of Responses to Learning Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
35 +	34%	45%	17%	3%	1%	0%
36 +	48%	31%	10%	5%	1%	5%
37 +	19%	56%	14%	7%	1%	3%
38 -	3%	17%	45%	19%	11%	5%
39 +	14%	45%	27%	10%	1%	3%
40 +	62%	31%	5%	1%	1%	0%
41 +	44%	32%	13%	7%	2%	2%
42 +	10%	35%	39%	9%	5%	2%
43 +	9%	22%	30%	16%	5%	18%
44 +	16%	13%	16%	14%	15%	26%
45 +	21%	39%	26%	6%	2%	6%
46 +	16%	37%	27%	8%	7%	5%
47 +	15%	18%	46%	13%	2%	6%
48 +	18%	32%	35%	9%	1%	5%
49 +	69%	24%	5%	1%	1%	0%
50 +	28%	38%	16%	8%	1%	9%

Aggregate Statistics

This section will focus on the aggregate statistics gathered from the data obtained from the questionnaires. The analyzed data were evaluated by and separated from the researched variables. A total maximum score, a minimum score, a mean score, and standard deviation were given for each variable in Tables 6 through 9. Scores were also separated by the grade levels taught.

The total maximum score was the highest point value possible for a subject to obtain if he/she had chosen the response of "always" for all the statements for a given variable. The total minimum score was the lowest score possible if the respondent had chosen "never" on all the items within a given variable on the questionnaire.

The total minimum score for the variable of motivation in Table 5 was 7.0 and the total maximum score was 45.0. The total mean score was 32.99 and the total standard deviation was 6.38.

Table 6

Aggregate Statistics for Motivation Variable

	Min. Score	Max. Score	Mean	S.D.
Total	7.0	45.0	32.99	6.38
Teachers (K-6)	12.0	45.0	33.81	7.70
Teachers (7-8)	21.0	40.0	32.68	5.20
Teachers (9-12)	7.0	40.0	32.94	7.00

Min. Score stands for minimum score obtained.
Max. Score stands for maximum score obtained.
S.D. stands for standard deviation in scores.

The total minimum score for the variable of development was 6.0 in Table 7 and the total maximum score was 30.0. The overall mean score was 21.86 and the standard deviation was 5.14.

Table 7

Aggregate Statistics for the Development Variable

	Min. Score	Max. Score	Mean	S.D.
Total	6.0	30.0	21.86	5.14
Teachers (K-6)	8.0	29.0	21.63	5.26
Teachers (7-8)	6.0	30.0	21.54	5.46
Teachers (9-12)	8.0	30.0	22.32	4.84

The overall minimum score for the variable of discipline was 22.0 in Table 8 and the maximum score was 45.0. The total mean score was 36.31 and the standard deviation was 4.87.

Table 8

Aggregate Statistics for the Discipline Variable

	Min. Score	Max. Score	Mean	S.D.
Total	22.0	45.0	36.31	4.87
Teachers (K-6)	25.0	44.0	36.88	5.28
Teachers (7-8)	25.0	44.0	36.24	4.24
Teachers (9-12	22.0	45.0	36.12	5.40

The total minimum score for all of the respondents to the measurement variable was 3.0 in Table 9 and the maximum score was 50.0. The overall mean score was 24.77 and the standard deviation was 9.56.

Table 9

Aggregate Statistics for the Measurement Variable

	Min. Score	Max. Score	Mean	S.D.
Total	3.0	50.0	24.77	9.56
Teachers (K-6)	9.0	43.0	26.67	10.31
Teachers (7-8)	8.0	40.0	24.48	8.65
Teachers (9-12)	3.0	50.0	25.47	10.44

The overall minimum score for the variable of learning was 10.0 in Table 10 and the maximum score was 74.0. The total mean score was 57.51 and the standard deviation was 10.63.

TABLE 10

Aggregate Statistics for the Learning Variable

	Min. Score	Max. Score	Mean	S.D.
Total	10.0	74.0	57.51	10.63
Teachers (K-6)	33.0	68.0	58.27	9.52
Teachers (7-8)	38.0	69.0	58.41	9.00
Teachers (9-12)	10.0	74.0	56.24	12.65

Reliability

Coefficients of reliability were obtained by correlating scores on each section of the questionnaire. These reliability coefficients are also referred to as measures of internal consistency in Table 12. They involve content sampling only, not stability over time (Bruning & Kintz, 1977). The estimate of internal consistency for the variable of motivation was .8239. The coefficient of reliability for the variable of measurement was .8451. The estimate of internal consistency for the variable of development was .7466. The coefficient of reliability for the variable of discipline was .7746. The estimate of internal consistency for the variable of learning was .8762. The highest coefficient of reliability was found in the learning variable, followed by the measurement, motivation, discipline, and development variables respectively. All coefficients were

acceptable at the p (0.5) level to indicate similarity between subjects and scores in this particular study.

TABLE 11

Total Estimates of Internal Consistency for Variables

Motivation	.8239
Measurement	.8451
Development	.7466
Discipline	.7746
Learning	.8762

Content Validity

Content validity is the extent to which the content of the questionnaire represents a balanced and adequate sampling of the instructional procedures it was intended to cover. This was accomplished by a comparison of questionnaire content with courses of study, instructional materials and procedures, educational goals, and by review of the processes required for making an accurate response to an item (Mitchell, 1984).

An original questionnaire was designed based on previous research and extensive literature review related to the variables being studied. This research and literature was reviewed in great detail in Chapters Two and Three. The questionnaire was reviewed by three

panels in order to achieve content validity. The first panel was composed of six graduate degree students studying the area of educational psychology, at the University of Northern Iowa, in Cedar Falls, Iowa. The second panel was made up of twelve experienced elementary school teachers at Los Ninos, a private school, in San Diego, California. The panels were encouraged to make suggestions and comments regarding all of the questionnaire items and the relevance and clarity of the questionnaire. Feedback from the panels was used in making further revisions. The questionnaire was revised, and sent to a panel of three professors in the Department of Educational Psychology at the University of Northern Iowa. They were encouraged to identify major deficiencies, and to make comments and/or suggestions concerning specific questionnaire items and the general directions.

The Results of the Hypotheses

The hypotheses for this research were stated as follows:

1. Selected elementary and secondary teachers will not significantly demonstrate (at a level of 70% or higher) the use of instructional procedures to foster creativity in their students.

Table 12

Total Percentages of the Responses to Questionnaire

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
1 +	6%	26%	45%	18%	1%	6%
2 +	31%	51%	11%	7%	0%	0%
3 +	9%	23%	31%	23%	6%	8%
4 +	46%	38%	13%	2%	0%	1%
5 +	46%	46%	8%	0%	0%	0%
6 +	15%	34%	23%	12%	6%	10%
7 +	20%	48%	21%	7%	1%	3%
8 +	10%	38%	41%	6%	0%	5%
9 +	63%	21%	8%	5%	0%	3%
10 +	30%	29%	18%	8%	6%	9%
11 +	53%	33%	10%	1%	0%	3%
12 +	34%	34%	20%	7%	1%	4%
13 +	12%	43%	32%	5%	5%	3%
14 +	20%	39%	26%	6%	5%	4%
15 +	15%	39%	28%	6%	1%	11%
16 +	43%	37%	16%	2%	0%	2%
17 +	40%	47%	13%	0%	0%	0%
18 +	22%	48%	26%	3%	1%	0%
19 +	27%	56%	8%	5%	0%	4%
20 +	16%	38%	38%	3%	2%	3%
21 +	23%	37%	32%	6%	1%	1%
22 +	55%	38%	7%	0%	0%	0%
23 +	60%	26%	10%	3%	0%	1%
24 +	36%	37%	24%	1%	2%	0%
25 -	23%	22%	29%	14%	3%	9%
26 +	13%	38%	28%	11%	2%	8%
27 +	22%	38%	20%	9%	2%	9%
28 +	14%	35%	23%	10%	8%	10%
29 +	1%	7%	15%	7%	48%	22%
30 +	6%	11%	20%	18%	32%	13%
31 +	13%	13%	11%	10%	30%	23%
32a+	1%	1%	11%	8%	23%	56%
32b+	3%	21%	16%	6%	30%	24%
33 +	5%	17%	22%	6%	26%	24%
34 +	2%	5%	17%	3%	47%	26%
35 +	34%	45%	17%	3%	1%	0%
36 +	48%	31%	10%	5%	1%	5%
37 +	19%	56%	14%	7%	1%	3%
38 -	3%	17%	45%	19%	11%	5%
39 +	14%	45%	27%	10%	1%	3%
40 +	62%	31%	5%	1%	1%	0%
41 +	44%	32%	13%	7%	2%	2%
42 +	10%	35%	39%	9%	5%	2%
43 +	9%	22%	30%	16%	5%	18%
44 +	16%	13%	16%	14%	15%	26%
45 +	21%	39%	26%	6%	2%	6%
46 +	16%	37%	27%	8%	7%	5%
47 +	15%	18%	46%	13%	2%	6%
48 +	18%	32%	35%	9%	1%	5%
49 +	69%	24%	5%	1%	1%	0%
50 +	28%	38%	16%	8%	1%	9%

An examination of Tables 12 indicates that the first hypothesis was proven as a predicted theoretical concept. The data indicate that the original hypothesis was correct, because less than seventy percent of the selected subjects used the instructional procedures that foster creativity in their students. This researcher used seventy percent as a cut-off point for use or nonuse of instructional procedures, because it was an acceptable research percentage based on Mehren's selection ratio (Mehren, 1973). Overall, within the variables only thirty-four percent of the instructional procedures listed were used "always" or "often" by the teachers surveyed.

2. The variable of learning and its instructional procedures demonstrated the most implementation by teachers; this was followed by motivation and development instructional procedures.

The second hypothesis was not proven as a predicted theoretical concept. Within the five variables the instructional procedures listed under the variable of discipline were used "always" or "often" by seventy-eight percent of the subjects. This variable was the only one used by at least seventy percent of the teachers surveyed. In order of use, it was

followed by motivation at forty-four percent and learning at thirty-eight percent.

3. The variables of discipline and measurement and their instructional procedures showed the least implementation by teachers.

The third hypothesis was proven as a predicted theoretical concept. The variable of measurement showed the least implementation by teachers. This was the only portion of the hypothesis that was proven to be correct in that none of the instructional procedures listed under the variable of measurement were used "always" or "often" by at least seventy percent of the subjects surveyed. The portion of this hypothesis that was proven to be incorrect was that the variable of discipline showed the most implementation by the teachers surveyed.

Discussion of the Hypotheses

The data indicate that the original hypothesis number one was proven to be correct as a predicted theoretical concept, because less than seventy percent of the instructional procedures that foster creativity in their students were used by selected subjects (see Table 12, page 80). The fifty instructional procedures listed in the questionnaire indicated that seventeen (34%) of these instructional procedures were used by

seventy percent or more of the subjects surveyed as "always" or "often". None of the statements had seventy percent or more of the teachers responding "seldom" or "never" to the statements. Fifty percent of the senior high school teachers surveyed indicated that I.Q. scores can "always" or "often" help identify creative students. This research statement was worded as a negative statement and research has indicated that I.Q. scores do not correlate with creativity in an individual.

The second hypothesis was proven to be incorrect as a predicted theoretical concept. Within the five variables the instructional procedures listed under the variable of discipline were used "always" or "often" by seventy-eight percent of the subjects (see Table 3, page 72). The variable of motivation indicated that forty-four percent of the instructional procedures stated were used by at least seventy percent of the teachers surveyed (see Table 5, page 73). Thirty-eight percent of the instructional procedures listed under the variable of learning showed implementation by at least seventy percent of the teachers responding (see Table 1, page 71). Thus, the second hypothesis was not proven as a predicted theoretical concept.

The third hypothesis was proven as a predicted theoretical concept, in that the instructional procedures listed under the variable of measurement showed the least implementation by the teachers in the study (see Table 4, page 73). None of the selected subjects indicated use of the instructional procedures "always" or "often" at a level of seventy percent or more. Three of the statements had fifty percent or more of the teachers responding "seldom" or "never" to the statements. More teachers responded that they felt the instructional procedures stated were "not applicable" to them within this variable more than any other. The portion of this hypothesis that was proven to be incorrect was that the variable of discipline showed the most implementation by teachers surveyed.

CHAPTER FIVE

Summary, Conclusions, and Recommendations

Summary

The final chapter includes the summary, conclusions, and recommendations. This chapter is followed by the appendices and the bibliography. The subjects for this study were selected from elementary and secondary school teachers in the San Diego Unified School District. An original questionnaire was designed to assess use of classroom instructional procedures correlated to foster creativity of elementary and secondary students by their classroom teachers.

The statements in the questionnaire were related to the variables being studied. Analysis of the data was obtained through frequencies (on the scores), means (both actual and a percentage of the number possible), standard deviations, medians, and a reliability analysis of similarities was obtained. Seventy percent was selected as a cut-off point for use or nonuse of instructional procedures. The validity for the questionnaire was established by having three panels review the questionnaire.

The first hypothesis was proven as a predicted theoretical concept. Selected elementary and secondary teachers did not demonstrate, at a level of 70% or better, the use of instructional procedures correlated to enhance creativity in their students.

The second hypothesis was not proven as a predicted theoretical concept. Within the five variables, the instructional procedures listed under the research variable of discipline were implemented more often than any of the other variables.The research variables of followed in order of usage were motivation, learning, development and measurement.

The third hypothesis was proven as a predicted theoretical concept in that the instructional procedures listed under the variable of measurement showed the least implementation by the teachers in the study. None of the instructional procedures listed under the variable of measurement had seventy percent or more of the teachers responding that they used the procedures "always or "often".

The research variable of motivation indicated that forty-four percent of the instructional procedures stated were used by at least seventy percent of the

teachers surveyed. Thirty-eight percent of the instructional procedures listed under the variable of learning showed implementation by at least seventy percent of the teachers responding. Seventeen percent of the instructional procedures listed under the research variable of development were implemented by at least seventy percent of the teachers surveyed.

Conclusions

The conclusions for this study are stated as follows:

1. The coefficients of reliability that were obtained for all of the variables suggest that all of the coefficients were acceptable at the p(0.5) level to indicate similarity between subjects and scores in this particular study.

2. The data obtained in this study suggest that the teachers surveyed do not make an overall attempt to foster creativity with their students using the correlated selected instructional procedures in this study, with the exception of discipline. They do not foster constructive originality, the ability of open-ended thought, or divergent thinking in their students. Educational psychology can be used to foster classroom creativity at all grade levels and in related

subjects. The exception to this is that the majority of the teachers surveyed do implement variables corresponding to discipline to encourage creativity in their students.

3. Based on the data obtained from the questionnaire, it can be concluded that thirty-four percent of the instructional procedures were used by at least seventy percent of the teachers surveyed. The instructional procedures that were used by teachers at all grade levels suggest that teachers encourage do divergent thinking in their students. Examples of this divergent thinking are: a) Teachers heightened anticipation and expectations at the beginning of a new topic or study; b) Students were encouraged to use the best of their abilities; and c) Teachers gave support when urging students to participate in creative work.

4. Under the research variable of development it can be concluded that seventy percent or more of the teachers surveyed do not implement development to foster creativity except some teachers realize that peer sanctions of differences are hard on students.

5. Instructional procedures under the research variable of discipline suggest that teachers strove to have classroom environments that are neither completely free or authoritarian. They wanted to be flexible when interruptions occurred in the classroom. Teachers often used class time to develop better student relationships and attitudes, attempting to promote a process whereby students could channel their energies constructively and creatively. It can be concluded that teachers recognized that nonconformity can be productive and as such they tried to protect student creativity from unnecessary criticism of other students.

6. Based on the data obtained from the research variable of measurement the selected subjects do not utilize the instructional procedures. This could be a problem related to time or lack of related knowledge.

7. Under the research variable of learning, it can be concluded that teachers employed creative problem-solving in combination with subject matter which encouraged students to go beyond the facts.

Teachers respected the creative ideas of their students by asking them to apply their knowledge to open-ended situations. Teachers respected their student's sense of curiosity and questioning. Teachers provided variety for their students in the learning situation using independent and group problem-solving.

Recommendations

The recommendations for this study are as follows:

1. It is recommended that inferences not be made from this study other than the use of the designated sample; more corresponding research would be needed to make a generalization that the results pertain to teachers in other public school districts. The results reflect the attitudes of teachers in the sampled school district.

2. Intelligence quotient scores should not be used as an indication of the creative potential of a student. I.Q. scores are not correlated to creativity scores. Creative students are not necessarily the best in the class or will not have the highest I.Q. Teachers should employ various measures of creativity assessment that are available.

3. Further study needs to be done in the area of

area of creativity. Specifically, research needs to be conducted into why students of public school systems have not learned to think for themselves. Students leave the school system unable to make decisions, and are unable to be creative. Research needs to explain what happens to students in the educational process whereby they lose their sense of curiosity and imagination.

Our society as a whole benefits from the creative results of too few students. What would our world be like if everyone could contribute by using the best of his or her creative potential? The data herein explain in detail the need for educational reform to include the realm of creativity in the classroom.

Appendix A

TABLE 13

Teachers (K-6) Percentages of Responses to Motivation Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
1 +	13%	13%	31%	31%	6%	6%
2 +	25%	50%	25%	0%	0%	0%
3 +	6%	50%	25%	6%	13%	0%
4 +	31%	44%	25%	0%	0%	0%
5 +	69%	18%	13%	0%	0%	0%
6 +	38%	31%	13%	6%	6%	6%
7 +	38%	31%	25%	6%	0%	O%
8 +	6%	31%	56%	0%	0%	6%
9 +	56%	25%	13%	0%	0%	6%

TABLE 14

Teachers (7-8) Percentages of Responses to Motivation Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
1 +	0%	27%	51%	19%	0%	3%
2 +	27%	54%	11%	8%	0%	0%
3 +	11%	16%	32%	22%	5%	14%
4 +	49%	46%	5%	0%	0%	0%
5 +	32%	68%	0%	0%	0%	0%
6 +	11%	38%	24%	11%	8%	8%
7 +	3%	65%	16%	13%	0%	3%
8 +	11%	35%	44%	5%	0%	5%
9 +	68%	16%	5%	8%	0%	5%

TABLE 15

Teachers (9-12) Percentages of Responses to Motivation Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
1 +	6%	32%	44%	9%	0%	0%
2 +	38%	47%	6%	9%	0%	0%
3 +	9%	18%	32%	32%	3%	6%
4 +	50%	26%	15%	6%	0%	3%
5 +	50%	35%	15%	0%	0%	0%
6 +	9%	32%	26%	15%	3%	15%
7 +	29%	38%	24%	0%	3%	6%
8 +	12%	44%	32%	9%	0%	3%
9 +	61%	24%	9%	3%	0%	3%

TABLE 16

Teachers (K-6) Percentages of Responses to Development Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
10 +	25%	50%	19%	0%	6%	0%
11 +	57%	31%	6%	0%	0%	6%
12 +	25%	31%	31%	7%	6%	0%
13 +	19%	25%	44%	6%	6%	0%
14 +	6%	57%	25%	6%	6%	0%
15 +	19%	13%	50%	0%	0%	0%

TABLE 17

Teachers (7-8) Percentages of Responses to Development Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
10 +	13%	33%	33%	5%	3%	13%
11 +	54%	27%	16%	0%	0%	3%
12 +	30%	38%	18%	11%	0%	3%
13 +	5%	52%	30%	3%	5%	5%
14 +	22%	30%	30%	5%	5%	8%
15 +	13%	49%	22%	5%	0%	11%

TABLE 18

Teachers (9-12) Percentages of Responses to Development Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
10 +	29%	15%	23%	15%	9%	9%
11 +	50%	41%	6%	3%	0%	0%
12 +	44%	32%	15%	3%	0%	6%
13 +	18%	44%	29%	6%	3%	0%
14 +	26%	41%	24%	6%	3%	0%
15 +	15%	40%	24%	9%	3%	9%

TABLE 19

Teachers (K-6) Percentages of Responses to Discipline Variable

ITEM#	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
16 +	50%	25%	19%	6%	0%	0%
17 +	34%	44%	19%	0%	0%	0%
18 +	25%	50%	13%	6%	6%	0%
19 +	31%	50%	13%	6%	0%	0%
20 +	18%	38%	38%	0%	6%	0%
21 +	25%	56%	6%	13%	0%	0%
22 +	56%	38%	6%	0%	0%	0%
23 +	69%	25%	6%	0%	0%	0%
24 +	31%	38%	25%	6%	0%	0%

TABLE 20

Teachers (7-8) Percentages of Responses to Discipline Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
16 +	41%	41%	13%	0%	5%	0%
17 +	44%	49%	7%	0%	0%	0%
18 +	18%	41%	41%	0%	0%	0%
19 +	27%	65%	3%	0%	0%	5%
20 +	11%	35%	46%	0%	8%	0%
21 +	19%	38%	35%	5%	0%	0%
22 +	62%	30%	8%	0%	0%	0%
23 +	68%	27%	5%	0%	0%	0%
24 +	27%	38%	35%	0%	0%	0%

TABLE 21

Teachers (9-12) Percentages of Responses to Discipline Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
16 +	41%	38%	18%	3%	0%	0%
17 +	38%	47%	15%	0%	0%	0%
18 +	21%	55%	18%	6%	0%	0%
19 +	26%	50%	12%	9%	0%	3%
20 +	21%	38%	29%	9%	3%	0%
21 +	26%	26%	42%	3%	3%	0%
22 +	47%	47%	6%	0%	0%	0%
23 +	47%	24%	17%	9%	0%	3%
24 +	47%	35%	12%	0%	6%	0%

TABLE 22

Teachers (K-6) Percentages of Responses to Measurement Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
25 -	19%	19%	37%	6%	0%	19%
26 +	13%	31%	25%	6%	6%	19%
27 +	13%	44%	19%	0%	6%	18%
28 +	19%	37%	25%	0%	6%	13%
29 +	0%	6%	6%	6%	44%	38%
30 +	0%	13%	12%	12%	50%	13%
31 +	13%	0%	19%	0%	37%	31%
32a+	0%	6%	6%	6%	32%	50%
32b+	6%	6%	6%	6%	13%	63%
33 +	6%	6%	13%	6%	25%	44%
34 +	0%	0%	18%	6%	32%	44%

TABLE 23

Teachers (7-8) Percentages of Responses to Measurement Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
25 -	22%	22%	27%	18%	0%	11%
26 +	9%	49%	32%	5%	0%	5%
27 +	24%	44%	16%	11%	0%	5%
28 +	8%	49%	19%	8%	8%	8%
29 +	0%	5%	16%	5%	60%	14%
30 +	5%	11%	16%	22%	32%	16%
31 +	8%	22%	14%	8%	24%	24%
32a+	0%	0%	13%	8%	11%	68%
32b+	0%	30%	22%	5%	32%	11%
33 +	5%	11%	22%	3%	32%	27%
34 +	0%	5%	22%	0%	59%	14%

TABLE 24

Teachers (9-12) Percentages of Responses to Measurement Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
25 -	26%	24%	26%	12%	9%	3%
26 +	18%	29%	24%	20%	3%	6%
27 +	24%	29%	11%	3%	1%	9%
28 +	18%	18%	26%	18%	9%	11%
29 +	3%	9%	18%	9%	37%	24%
30 +	9%	11%	26%	18%	24%	12%
31 +	18%	9%	5%	18%	32%	18%
32a+	3%	0%	12%	9%	32%	44%
32b+	5%	18%	15%	6%	35%	21%
33 +	3%	29%	26%	9%	21%	12%
34 +	5%	5%	13%	6%	42%	29%

TABLE 25

Teachers (K-6) Percentages of Responses to Learning Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
35 +	25%	50%	13%	12%	0%	0%
36 +	31%	44%	13%	0%	6%	6%
37 +	6%	63%	18%	13%	0%	0%
38 -	0%	18%	38%	38%	0%	6%
39 +	0%	63%	18%	13%	6%	0%
40 +	44%	44%	6%	6%	0%	0%
41 +	31%	38%	13%	6%	6%	6%
42 +	13%	18%	50%	6%	13%	0%
43 +	6%	50%	25%	13%	0%	6%
44 +	25%	25%	19%	0%	12%	19%
45 +	19%	50%	19%	0%	6%	6%
46 +	19%	38%	31%	6%	6%	0%
47 +	13%	13%	50%	18%	6%	0%
48 +	18%	25%	44%	13%	0%	0%
49 +	56%	38%	0%	6%	0%	0%
50 +	25%	31%	25%	6%	0%	13%

TABLE 26

Teachers (7-8) Percentages of Responses to Learning Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
35 +	32%	46%	22%	0%	0%	0%
36 +	47%	24%	19%	5%	0%	5%
37 +	11%	62%	17%	5%	0%	5%
38 -	0%	21%	39%	16%	16%	8%
39 +	8%	41%	41%	5%	0%	5%
40 +	68%	27%	5%	0%	0%	0%
41 +	51%	22%	19%	8%	0%	0%
42 +	11%	43%	30%	13%	0%	3%
43 +	5%	16%	30%	22%	3%	24%
44 +	13%	11%	16%	19%	13%	27%
45 +	22%	46%	22%	5%	0%	3%
46 +	19%	41%	32%	5%	0%	3%
47 +	16%	19%	45%	11%	0%	9%
48 +	11%	43%	33%	5%	3%	5%
49 +	79%	16%	5%	0%	0%	0%
50 +	19%	40%	16%	11%	3%	11%

TABLE 27

Teachers (9-12) Percentages to Responses to Learning Variable

ITEM #	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER	N/A
35 +	37%	42%	15%	3%	3%	0%
36 +	59%	32%	0%	6%	0%	3%
37 +	32%	47%	9%	6%	3%	3%
38 -	9%	12%	55%	12%	12%	0%
39 +	25%	42%	15%	15%	0%	3%
40 +	65%	29%	3%	0%	3%	0%
41 +	41%	41%	6%	6%	3%	3%
42 +	9%	32%	44%	6%	6%	3%
43 +	15%	15%	32%	11%	9%	18%
44 +	15%	9%	15%	15%	17%	29%
45 +	21%	26%	35%	9%	3%	6%
46 +	12%	32%	21%	11%	15%	9%
47 +	15%	21%	44%	11%	3%	6%
48 +	26%	24%	32%	12%	0%	6%
49 +	65%	26%	6%	0%	3%	0%
50 +	38%	38%	12%	6%	0%	6%

Appendix B

PLEASE COMPLETE THE FOLLOWING:

Sex: 1 - Female 2 - Male
Grade level taught: 1 - Elementary (K-6)
2 - Secondary (7-8)
3 - Secondary (9-12)

DIRECTIONS:

Below is a list of statements about instructional procedures some teachers use or participate in while others do not. Please read each statement and indicate the extent to which you use or do not use them.

Please rate the following statements according to the scale below:

5	4	3	2	1	N/A
Always	Often	Sometimes	Seldom	Never	Not Applicable

1.	I provide students the opportunity to select topics of study that appeal to their curiosity...	5	4	3	2	1	NA
2.	I encourage divergent thinking (many solutions a single problem).....	5	4	3	2	1	NA
3.	I work with parents to help them understand and appreciate their children's imitiative and creative endeavors.....	5	4	3	2	1	NA
4.	I heighten anticapation and expectations at the beginning of a new topic of study.....	5	4	3	2	1	NA
5.	I help students learn to use their best abilities.....	5	4	3	2	1	NA
6.	I provide activity variety in my subject matter through free and spontaneous play or writing or painting or drawing.....	5	4	3	2	1	NA
7.	I provide experiences for self-discovery in the learning situation.....	5	4	3	2	1	NA
8.	Students accept and use my own creative classroom ideas.....	5	4	3	2	1	NA

9. I give support when urging students to participate in creative work.....5 4 3 2 1 NA

10. I attempt to satisfy Maslow's essential needs systems (physiological needs, security needs, esteem needs, autonomy needs, self-actualization needs) as it relates to creative thinking.....5 4 3 2 1 NA

11. I realize that peer sanctions against being "different" are often very hard for students to cope with at school.....5 4 3 2 1 NA

12. I help students see the benifits of being unique in their classroom activities.....5 4 3 2 1 NA

13. I offset slumps in creativity through the use of instructional materials that motivate creative potential.....5 4 3 2 1 NA

14. I allow students to display their creativity through flexibility and openness in the classroom.....5 4 3 2 1 NA

15. I approach creativity in a variety of ways by allowing for different procedures to all subjects and grade levels.....5 4 3 2 1 NA

16. I strive to have a classroom environment that is neither completely free nor authoritarian.....5 4 3 2 1 NA

17. I am flexible when accidents or interruptions occur in the classroom.....5 4 3 2 1 NA

18. I use some class time to help construct student relationships and better attitudes.....5 4 3 2 1 NA

19. I attempt to promote a process whereby students can channel their energy into constructive channels..5 4 3 2 1 NA

20. I allow students to help eliminate frustruation through creative expression and/or activities....5 4 3 2 1 NA

21. I recognize when a student's behavior is trying to be truly creative, and when he or she is trying to be difficult.....5 4 3 2 1 NA

22. I allow students to experience mistakes.....5 4 3 2 1 NA

23. I try to protect student creativity from unnecessary criticism of other students.....5 4 3 2 1 NA

24. I recognize that nonconformity can be productive.5 4 3 2 1 NA

25. I.Q. scores can help one to identify creative students.....5 4 3 2 1 NA

26. I attempt to employ multiple activities to assess creativity factors in my students.....5 4 3 2 1 NA

27. I provide opportunities for students to illustrate creative potential as well as creative performance.....5 4 3 2 1 NA

28. Some type of assessment of creativity is continuous in my classroom.....5 4 3 2 1 NA

29. I use some basic available measures of creativity such as the Torrance Tests of Creative Thinking..5 4 3 2 1 NA

30. I assess each student's creative potential in order to determine what he or she needs to do about their creative potential.....5 4 3 2 1 NA

31. I use creative tests that avoid racial and socioeconomic bias.....5 4 3 2 1 NA

32a. I administer figural tests of creative thinking to primary-level students which require related drawings.....5 4 3 2 1 NA

32b. I administer verbal tests of creative thinking to secondary students.....5 4 3 2 1 NA

33. I identify creativity in terms of a point of reference from interest and/or attitude scales...5 4 3 2 1 NA

34. I use teacher ratings as a criterion for creativity.....5 4 3 2 1 NA

35. I allow students to work independently.....5 4 3 2 1 NA

36. I encourage students to go beyond the facts.....5 4 3 2 1 NA

37. I employ creative problem-solving in combination with subject matter.....5 4 3 2 1 NA

38. I insist on systematic learning of factual material.....5 4 3 2 1 NA

39. I use brainstorming techniques to encourage formulation of many solutions to a given problem.....5 4 3 2 1 NA

40. I respect a student's sense of curiosity and questioning.....5 4 3 2 1 NA

41. I encourage students to apply their knowledge to open-ended situations.....5 4 3 2 1 NA

42. I put less emphasis on the acquision of knowledge for its own sake and stress creative production..5 4 3 2 1 NA

43. I provide time for play, providing a variety of materials for manipulation.....5 4 3 2 1 NA

44. I furnish plain paper for art activity.....5 4 3 2 1 NA

45. I share the creative talents of others.....5 4 3 2 1 NA

46. I use decision-making techniques to develop divergent thinking.....5 4 3 2 1 NA

47. I structure tasks only enough to give direction at the beginning of an open-ended activity.....5 4 3 2 1 NA

48. I implement problem-solving activities with creative approaches.....5 4 3 2 1 NA

49. I respect creative ideas of students.....5 4 3 2 1 NA

50. I expose students to more than one educational discipline at a time.....5 4 3 2 1 NA

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