SOCIETY'S PERCEPTION OF THE ACCEPTABILITY AND OR DESIRABILITY OF THE PERSONALITY CHARACTERISTICS ASSOCIATED WITH CREATIVITY

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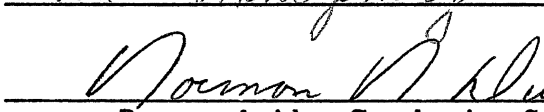

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CHAPTER I

INTRODUCTION TO THE STUDY

> If, as I believe, each man and woman is born a creative problem solver, such potential demands expression and exercise...The evidence that the mass of men lead lives of quiet desperation begs us to use more of our creative potential in attacking problems of work dissatisfaction and prejudice and even applying new solutions to underdeveloped countries and foreign relations (Prince, 1970, p.4).

Hitt (1975) used the above quote to express his belief that society, namely American society, needs to make better use of available creative talent. Discussing the views of Toynbee (1964), he described the need for society to utilize its potential creativity. Toynbee saw the utilization of creativity as a matter of survival for any society. He stated that America's destiny was to help the majority of mankind to move toward a better life. If society is to complete this mission successfully, then it must foster and utilize all of the creative ability it has. "Society's slogan must not be, I came, I saw, I concurred" (Hitt, 1975, p. 9).

"We need a different kind of human being to be able to live in a world which changes perpetually, which doesn't stand still" (Maslow, 1963, p. 4). Maslow went on to express a need for each of us to quit trying to make everything stay the same. He felt we should not have to do what our fathers did for a living. He felt we must be confident and be able to improvise in situations which have never existed before. Only the society which can produce such people will survive, the others will die (Maslow, 1963).

Creativity Studies

"Creativity" became the educational "buzz" word in the era of the Sputnik. Guilford's presidential address of 1950 (Guilford, 1950) to the American Psychological Association had already created interest in work on creativity. Studies began to be done. Creativity emerged as "the" field of study for the era (Getzels & Csikszentmihalyi, 1975). Many educators said creativity needed to be encouraged. Those same educators, however, did not want the creative child in their classroom (Taylor and Ellison, 1975). We, as American educators, gave lip service to the need for creative individuals in our ever changing society. Education began, it seemed, to put an emphasis on identifying and nurturing creative potential, at least for a time. Educational leaders, however, were pressed to complete a required amount of material so their students would obtain higher scores on

standardized achievement tests. Thus teachers felt they would get no reward or backing whatsoever for cultivating creativity (Taylor and Ellison, 1975). The backing of a teacher who allowed and rewarded creativity was rare since creative potential was characterized by traits which society condones only if a product which is useful is the outcome of this creativity or perhaps only recognizes the product's worth when the producer is no longer living. Maddi (1975) stated that those interested in the creative individual should not be fooled into believing that society values creativity. Our social structure, warns Maddi, is not prepared to accept change or disruptions. Things which leads to change are regarded by society as dangerous.

Creativity and Environment

It is a common belief among some psychologists, although major disagreements occur in the field, that all humans posses some creative potential at least as children (Getzels & Jackson, 1962; Torrance, 1962). Few adults, however, retain it (Renzulli, 1973). This potential, for full development, must have conditions at home and at school that permit its development at all levels of the educational process (Soriano, 1985). Does our society tolerate a deviation from the traditional, the way we have always done it, or does it require conformity in the school, the home, and the community? Do we allow and reward the individual to seek new experiences on his/her own, or do we (parents and

teachers) spoon-feed our children so that they can only find ready-made solutions? According to Stein (1967), a culture fosters creativity to the extent that it provides an individual with the opportunity to experience it.

Many educators and parents profess a belief in creativity as a trait to be nurtured (Taylor and Ellison, 1975); but in what do these educators and parents really believe? A group of Brazilian teachers were asked to list the kinds of persons they would like to see their pupils become and to double check the five characteristics which they considered most important. They were also asked to stress the characteristics which they considered undesirable and which should be discouraged and punished. The teachers listed the following as desirable characteristics: obedience, sincerity, consideration for others, popularity, industry, and a capacity for self-starting. These are not necessarily traits that are thought of when speaking of creativity. They listed the following as undesirable characteristics: A tendency toward disturbing class organization and process, nonconformity, and a tendency to find fault in others. These characteristics are frequently mentioned as being associated with creativity. Other characteristics related to creativity, such as independence in thinking and judgment, curiosity, willingness to take risks, were not encouraged among this sample of teachers who preferred an obedient and industrious student who is considerate of others and is well liked by his/her peers

(Soriano, 1985). Would not a majority of parents and educators in America feel the same as the Brazilian teachers? Bachtold (1974), found American teachers found the same characteristics desirable in their students. Is there anything, with the exception of some type of major world crisis, that could make society more accepting and tolerant of the creative individual?

Odyssey of the Mind

Problem solving models exist to train young students to maximize their creative potential. Do these programs improve societal views of creativity as far as parent, teachers, and school systems are concerned? Odyssey of the Mind, formerly Olympics of the Mind, is a creative problem solving competition which began in New Jersey in 1977-78. Its creators were Theodore Gourley and C. Samuel Micklus (Micklus, 1981). Dr. Micklus is now the director of the Odyssey of the Mind program at the national level. The purpose of the program is to provide creatively gifted students with an opportunity to develop and display their talents. The team members are children grades K-College. The coaches are interested parents, teachers, or community leaders. It began with twenty-five schools in New Jersey (Gourley and Micklus, 1981) and now includes forty-five states and several foreign countries. Could this type of activity improve views of both children and adults of our

society about the acceptability and desirability of creative individuals?

Purpose of the Study

The main thrust of this study was to determine if participation in Odyssey of the Mind had any effect on society's perception of the acceptability and/or desirability of the personality traits associated with creativity. Society, for the purpose of this study, was defined as parents and teachers of children of the Middle School Age (grades 6-8) in Oklahoma. The study looked at the responses of parents and teachers of those teams who had won a state competition, those who had not won a state competition, and those who had never participated in OM. The study also looked at the parents and teachers knowledge of OM, no knowledge of OM, educational levels, age, and other demographic elements such as the size of the community in which the parents and teachers reside.

Need for Research on the Acceptability and Desirability of Creativity and The Effect That Creative Problem Solving Plays

There have been numerous articles written and many studies done that show that creativity is not generally accepted or seen as a desirable characteristic (Balsamo, 1988; Bull, 1978; Cobb, 1967; MacKinnon, 1970; Torrance,

1962 and 1979b). Two ERIC searches were conducted in the fall of 1989 and the spring of 1990, and no research was located that related to society's perception of creativity and/or methods of changing those perceptions. The review of the literature found no empirical evidence, except authors' own views, that cited any relationship between a specific creativity training and societal views of creativity.

In the 1960's the United States seemed to be on the forefront of leadership in creativity. We had major scientific breakthroughs, we landed on the moon, creativity research was being done. Now these trends are being reversed (Torrance, 1979b). Research needs to be done to see if any model, program, seminar, or creativity training can improve societal views of creativity so our nation might again flourish.

Definition of Terms

Creativity

Creativity has been variously defined over the years. In the OK-OM coach's training manual, Bull and Fishkin (1984) compiled a variety of definitions. Two that seem appropriate for this study follow:

> Shaw (1964) said it was "a special class of problem solving activity characterized by novelty."
>
> Fromm (1959) defined it as "The ability to see (or be aware of) and to respond."

Davis and Rimm (1985) gave examples of many varied definitions or ethical responses to the question, "What is creativity?" The most common definition, according to Davis, focuses upon the product and the process. Some view creativity as originality plus value--It must be useful and have social acceptance as well! Another view is that creativity is a mysterious mental happening or that creativity comes from the unconscious. For the purpose of this research and because it most nearly fits the type of creativity involved in creative problem solving, creativity will be defined as a new combination of previously unrelated ideas.

Creative Problem Solving

A creative process that includes:

Problem Finding-Recognizing that a problem exists.

Problem awareness-Brainstorming of all possible related problems.

Problem definition-Restatement of the problem.

Preparation-Idea finding-Brainstorming

Frustration

Insight-Solution Finding

Testing of Solutions or experimentation to develop a product

Elaboration, redefinition

Acceptance of the final solution (Bull, 1984).

OM

Formerly Olympics of the Mind, now Odyssey of the Mind is a team creative problem solving competition program, (Gourley, 1978). Team members develop a workable solution to one of five long-term problems. These problems are ambiguous in nature and open-ended. The team also develops style (anything added that is not required to solve the long term problem) and spontaneous problem solving (Fishkin, 1988). There are 500 members (schools or non-profit organizations supporting a team) in New York alone. In 1987, half a million children were involved totally, and 50 states plus foreign countries involved in the 1987-88 year (Balsamo, 1988).

Statement of the Problem

Perceptions of creativity deal with social desirability and acceptability as well as personal recognition of creativity as a desirable and educationally supportable classroom activity. Teachers and parents from schools involved in OM should be more sensitized to the personality traits generally associated with creativity and thus may, possibly, find creative behavior more socially and educationally desirable/acceptable than those who have not been exposed to an organized, school sponsored, creativity program. There may also be differences, particularly among parents, in their perceptions based on age, level of

education, and size of town lived in. This research endeavored to establish those relationships. There also may be differences in perceptions of parents and teachers of children who have never participated in OM.

Research Hypothesis

1. There are no differences in perceptions of social desirability/acceptability of creativity or personality traits associated with creativity among parents and teachers who are exposed to OM and those who are not exposed to OM.

2. There are no differences in perceptions of personal desirability/acceptability of creativity or personality traits associated with creativity in schools among parents and teachers who are exposed to OM.

3. There are no differences among parents for any of the following factors: Knowledge of OM, Age of parent, Level of Education of the parent, and Town Size.

4. There are no differences between teachers for any of the following factors: Knowledge of OM, Age of teacher, Level of Education of the teacher, and Town Size.

CHAPTER II

REVIEW OF THE LITERATURE

Society and Creativity

Big business has realized the need for creativity. The Center for Creative Leadership in Greensboro, North Carolina is one of at least six schools in this country that teach business people how to be creative--that is how to generate new ideas or novel ideas and how to do something with the ideas when they are generated. Gilbert (1986) said that to be creative a person must be willing to take risks, to prefer working alone, to want to be distinctive, and to not run with the pack. One of the projects doing ongoing research in creativity is Harvard's Project Zero.

Project Zero offers classes to big business. These schools and workshops don't come cheap. Big Business such as IBM, Mead and Kodak pay from $250 a head for a day long workshop to more than $1,000 for a week long session. They think the price is small when they are plunging more than $45 billion a year into research and development. Anything that teaches methods for generating high-quality ideas should eventually pay for itself with new and of course

profitable products (Gilbert, 1986). This view has not, it seems, carried over to the general public. However, a growing number of corporations, school systems and government agencies have become believers.

Many companies want more innovations and are frustrated by the lack of innovative ideas in their Organizations. International Business Machines, now the corporate sponsor for the national organization of Odyssey of the Mind, has sent its employees off to Synectics to be trained in the art of problem solving. The prices for this training range from a few thousand dollars to as much as $500,000. New product development sessions typically range from $40,00 to $70,000 (Mohl,1986).

Synectics leaders have discovered something that creative people have realized for a long time. They discovered that most meetings are hostile environments. As much as people may say they are open to new ideas, their supposedly helpful criticism signals an opposition to new ideas and the people that propose them. The highly creative students may do one of two things: rebel and cause trouble or start hiding their creative abilities (Tardif & Sternberg (1988). At most meetings, the focus is on why ideas will not work. Everyone is on the defensive and, as a result, few, if any, innovative ideas emerge. New ideas die or are stifled. Synectic leaders went on to say that the same things occur on an individual level (Mohl, 1986). They feel that individuals have vast amounts of material from

which to draw when attacking a problem; but because of self-censorship, the creative process is blocked.

Highly creative students are highly critical of themselves and their work and many times prefer to not present their idea because it is not good enough (Barron, 1952; Cattell and Drevdahl, 1955). Synectics had the job of teaching the participants use a variety of techniques to unlock the creative mind. Richard Harriman, president of Synectics was interviewed by Mohl (1986) and stated that he felt corporations were pursuing creativity now because they realized their organizational structure tended to stifle it.

Balsamo (1988), in an interview with Dr. Sam Micklus quoted Dr. Micklus as saying, "Creative people have always had an upward battle." (p. 4) Many of our greatest creative minds, in terms of contributions to society--Da Vinci, Michelangelo, Beethoven, Mozart-- have been in fields that we call frivolous. When asked if he had found opposition to the program, money or the membership fee was the opposition he had found.

In talking with parents, teachers, and OM coaches, this author found opposition in the form of it can not be educationally sound if it is that much fun (M. Rexroad, personal communication, September 27, 1989). Many felt the educational benefits did not measure up to the time and effort expended by the students. The biggest disappointment, according to Micklus, is that schools did not give students the opportunity to try the OM program

because they are already involved in an academic program such as a G/T program or the Future Problem Solving Bowl. Micklus said he was a great believer in creativity, but that our educational system does not seem to be (Balsamo, 1988). In 1989 learning packets (Micklus, 1989) were developed to go along with language arts, math, social studies and science for each of the problems. This approach, which seems more academic in nature, may encourage the schools that are reluctant to participate in OM at the present time to feel a little better about the program or at least be willing to give the program some consideration as a justifiable form of education for the creative student.

Lillian Smith (1949) in her book, Killer of the Dream on the unfavorable national climate associated with creativity stated we value beautiful things, but import them from Asia and Europe thus belittling our own American products as less beautiful. We are afraid of those who create, but honor those who destroy. In the South, according to Smith, it was a sin to do anything creative. The South went through a period where learning science was considered sinful. Curiosity was sinful. Dancing was sinful. Most things were sinful.

Torrance (1984) felt this was not limited to the South or to a time prior to 1957. He stated that even now, in our times of economic crisis, our inventors and researchers are treated rather shabbily. We purchase high technology from Japan or Germany rather than permit our inventors and

researchers to develop their own. Torrance became interested in creativity when he began teaching. He wondered why he had so much trouble with a few creatively gifted students. He had little problem identifying them. He felt and saw their creativity in the numerous strategies they thought up to defeat him. He had to interrupt his teaching assignment in 1945 to because of his involvement in World War II. After the war, his job was counseling disabled veterans. Again he saw men who were in trouble because of their creativity. It also became clear, when he began intensive personality studies, that a distinguishing characteristic of the ace pilots during the war was their creativity.

Cobb (1967) stated he felt that humans did not like new ways, different paths, or things they did not know about. He felt most of us fear the unknown and would prefer to use the most traveled road because it seems safe. If all individuals took this most traveled road, we as a nation would become static. The creative genius prefers the unknown and will go where no one else has ever gone. Our children need to see these creative personalities as desirable or they may never have a model, a guide down that untraveled road. They might follow the safest path. Creativity might be wasted by never being used.

Toynbee (1964) warned that society must give a fair chance to creativity. He felt creativity was a matter of life and death for society. This may sound a bit too

dramatic unless you think of the small child, who because of being punished, seeks at all costs the conformity that society seems to reward (Torrance, 1979).

Is our nation at risk? It needs the creativity that is being wasted if it is to meet the challenges and demands of the future. Our nation needs to find and develop the talent that some think is available in every individual--creativity.

Educators have been aware for a long time that the outstanding breakthroughs in science, art, social improvement, and industrialization have been made by creative individuals. We are now living in an age where the old tested methods of solving problems are no longer adequate. We need the use of creative problem solving and the wise use of the special abilities of creative children and adults from all cultures (Bell, 1972).

Since creativeness is of such value to the race, it should be encouraged and developed. Why is it not encouraged and developed? Many qualities which characterize creativeness are not encouraged. In schools, teachers do not try to maximize creative potential because the creative child is harder to deal with. They ask questions, say what they think, and even disagree with teachers (Bull, 1978). Sensitivity, imagination, and intuitive perceptions are usually not acceptable in our society. Sensitivity is acceptable if it is slight sensitivity. Imagination is discounted in favor of the real world. Intuition is often

met by disbelief or "prove it" . What are the characteristics of creativity and what kind of home, school, and activity encourages it?

The Creative Personality

One of the main ingredients for creativity is becoming aware that something is wrong, or lacking, or mysterious. A creative person sees problems that others do not see. This often makes him/her unpopular because the creative person insists on pointing out these problems to others who wish to deny there is a problem. This questioning attitude is not easy for a parent or teacher to live with (MacKinnon, 1970). The creative child is not the child who accepts something as fact just because it is in a book. This child might question authority, point out mistakes to adults, not settle down to do his/her work easily, and become bored with presented ideas. Most teachers are not prepared to work with this type of child. Many children are labeled behavioral problems until they finally conform. A few gifted children have been found because they did not fit anywhere else. They must be gifted. They sometimes are creatively gifted.

Creative persons are, in general, intelligent. A certain level of intelligence is necessary to be creative but being intelligent does not guarantee creativity. There is no correlation between IQ and creativity beyond 120 IQ. Creative persons do not always demonstrate achievement by

good grades or high test scores. Another creative characteristic may come into play here. Creative persons are independent in thought and action. It is this independence that causes them to make high grades in courses they like and that challenge them; and causes them to make low grades in those that do not. Creative people may be strongly motivated to achieve in situations in which independence of thought and action are called for rather than those that demand conformity.

Creative people are curious. They are capable of refusing to leave a subject or project until their curiosity has been satisfied. They are also capable of dropping a subject in an instant for one that is more intriguing. Schools do not approve of this behavior. Everyone must be on the same page doing the same thing (MacKinnon, 1970).

Creative students are more likely to ask questions, disagree with their teachers and peers, and voice their own opinions. They are often seen as uncooperative, demanding, and egocentric. These behaviors are not readily accepted by a traditional classroom teacher (Bull, 1978). Other behaviors that are not readily excepted are:

> Low sociability; feminine interests; domination and self-assertion; introversion; boldness; silly ideas; playfulness; ego-centeredness; lack of cooperation; radical outlooks; less interest in small details; nonconformity ; lack of courtesy or adherence to conventions; emotionalism; self-satisfaction;

> excessive questioning; stubbornness; caprice; timidity; withdrawnness; and resistance to teacher domination (Smith, 1966 p. 16).

Roe (1975) concluded, after investigating eminent people, especially highly creative painters and scientists, that curiosity, persistence, a high energy level, and a need for independence along with a strong motivation to succeed were common characteristics among those she researched. MacKinnon (1975) found that highly creative persons tend to be self-confident, to be flexible, to be self-accepting, to have little concern with social restraints, to pay little attention to other people's opinions, and to have a greater awareness of both the "outer and inner" world.

Barron (1975) found that creative people prefer the modern, experiential, primitive, and sensual. They disliked, he felt, the aristocratic, traditional, and things that are emotionally controlled. He found the creatives to prefer complex rather than simple tasks. He found they are impulsive, sensual, original, and tended to be less aware of feminine/masculine roles assumed by the mass population.

Creativity is many times only accepted by society if the creative person achieves eminence. Maybe it should be said it overlooks the unusual behavior rather than accepts it. Society is less willing to overlook such actions in those who have not received world renown. The creative march to a different drummer. From the very beginning, those who think

differently are a minority of one. This leads to loneliness and alienation (Schiever, 1985).

Rimm (1984) summarizes the personality traits the GIFFI (Group Inventory for Finding Interests) looks for to identify creativity. High scores in creative arts and writing enjoy creative art, stories, poetry, and music. High scores on the challenge and inventiveness are willing to take risks. They enjoy difficult tasks. They enjoy inventing and thinking of new ideas. High scores on questions related to confidence find school easy. These students believe they have good ideas. The students who score high on confidence are more independent of peer pressure and willing to try new opportunities. High scores in imagination are curious, enjoy questioning, being alone, and travel. These students who have high scores in imagination like new and imaginary ideas. High scores in the interests area indicate the students have many hobbies and are interested in drama, literature, life in other countries, the past, the future, and many other topics.

In another article by Rimm, Davis, and Bien (1982), a list of characteristics from PRIDE (Preschool Interest Descriptor Evaluation) emerge: Creative children have make-believe friends. They like to make up jokes. The children like to take things apart and see how they work. The children often do two things at the same time that are not usually done together. These children have many interests. They enjoy make believe play.

Rimm, Davis, and Bien (1982) add the following as characteristics to be looked for in the culturally diverse students who are creative. These characteristics are observable in most creative students: Creative children often repeat activities so they can do them differently. They make up imaginative lies. They recognize hidden meaning and cause and effect. These children will write and illustrate a story without being asked to do so. These children will use their free time to make up games. They use a great deal of imagination when writing stories. They see more possibilities for the characters. These children might decorate their paper while doing an assignment or taking a test. They will not copy others art because they prefer doing it their way. The materials used in creating things might not be ordinarily used for that purpose. They will ask unusual questions during class discussion. These children prefer to use their ideas rather than those of the class even when it is a class project. Creative children want to do activities in an alternate way rather than do what was assigned. Creative children will express their views even if it means losing a friend. They are enthusiastic about new activities. They may find new ways to get attention. These students come up with fresh, original comments or answers questions with an unusual answer. Creative children find many ways of getting attention and try original methods to get out of doing an assignment.

Torrance, in 1986, compiled a list of eighty-four characteristics found in one or more studies designed to differentiate the highly creative from their less creative peers. (See Appendix A) James Alvino (1986) used a list compiled by Torrance and added some sample statements by children that reflect those traits. He calls it Twenty-Three Signals of Creativity. (See Appendix B) From these lists of traits, one can see a problem for these children in the traditional classroom or for that matter in the traditional home. Dr. Torrance was quoted by Kathy Goff (1987) editor of the Torrance Center newsletter as giving the following as a list of what underachievers are made of: An imagination scorned; a thought interrupted; a question rejected; a daydream that is forbidden; an idea unexpressed; a judgment that is unsought; a picture unpainted; a song unsung; a poem safely hidden; talents unused (Torrance, 1962).

How many underachievers are we as society creating by forcing conformity on these highly creative children? What kind of environment is necessary for creativity to be nurtured? Which traits which seem negative to society as a whole are a must if creativity is to bloom?

Conditions that Foster Creativity

Creativity can not be forced; it must be allowed to emerge. Just as a farmer can not force a seed to develop into a plant, educators and parents can not force

creativity. We must, however, provide an atmosphere where the student can develop to his or her full potential (Rogers, 1970).

Rogers goes on to list the necessary conditions that make up the safety and freedom requirements necessary for the likelihood of creativity to emerge. The first condition is accepting the individual as of unconditional worth. This condition can only be met by those teachers, parents, or other adults who feel that all have worth and accept the student regardless of his/her present behavior. They realize the possible potential of the student. This gives the necessary safety climate and takes away the need to conform.

The second condition Rogers feels is necessary is providing a climate in which external evaluation is absent. Evaluation, Rogers feels, is always felt as a threat. If the student must please someone else, the teacher or parent, he is being led away from creativity. OM stresses this in the brainstorming section of its program. Negative criticism is not allowed.

The third condition, understanding emphatically, being able to accept the student even though you know nothing of the real person. Being able to accept and see what the student is trying to do from his/her point of view. This allows for more safety and thus fostering creativity.

The final condition which must be met, according to Rogers, is psychological freedom. When a teacher, parent,

therapist permits the individual a complete freedom of expression, this creativity is encouraged. This permissiveness gives the individual complete freedom to think, to feel, to be (Rogers, 1970).

Torrance (1962) felt that creative students also need help in understanding their divergence. Many times they are puzzled by their own behavior. There are times in their lives that creative children just needs to be understood. If they are understood then they can cope with the crisis and continue to build his/her creativity. Another thing necessary for creativity to grow is to allow the creative child to communicate his/her ideas. Many times creative students do not share their ideas because their ideas are so far ahead of their peers and teachers that they have quit trying to communicate. They must have an atmosphere that respects questions and ideas to sustain the creativity in a child.

Torrance (1962) said that one of the most tragic plights he has seen among highly creative individuals stems from the failure of their parents to understand them. Frequently the child becomes destructive or shows great amounts of hostility. This hostile behavior is due to the failure the child feels. If it is a teacher that fails to understand the highly creative child may refuse to learn, misbehave or totally withdraw. He goes on to say that parents and teachers should not use criticism --make fun of the child's ideas or laugh at him/her--but should stimulate

the child to explore, ask questions, and try to find answers.

Another area Torrance (1962) talked about is fantasy. He feels that parents attempt too early to eliminate fantasy from the child's thinking. Torrance says he has seen many instances in his testing that indicate children, especially in first and second grade, who have very little imagination have been subjected to stern efforts on the part of parents and teachers to eliminate fantasy too early. This makes these children afraid to think.

Most can understand or at least be sympathetic with the teacher or parent who is irritated by the questions that will not stop, or the curiosity that puts the child into all kinds of unusual predicaments, or the unending experimentation that can be most inconvenient at times; but this is the stuff of which creativity is made. It is also a worthwhile form of learning. Learning by trial and error is the best kind of learning. Allowing the child to view mistakes as a learning experience rather than "you are a bad person" not only helps the child cope but helps him/her develop independence and, of course, independence is a necessary characteristic of the creative personality (Torrance, 1962).

Being able to stick to the task, to concentrate at the expense of all other projects around you is a necessary component of creativity. This is a component that creates tension for the child who will not drop what he is working

on because it is time for dinner or time for math. This author has found this to be the number one complaint by teachers about creative student. "I can't get him interested in anything but.....He won't do his work for..... He says he's not interested in....."

Stephen Spender (1973), a poet, explains his need for total concentration. Writing poetry, according to Spender, is a spiritual activity which makes him completely forget, for the time being, that he has a body. It is a spiritual compulsion to Spender, a straining of his mind.

Spender brings another trait of creativity to light by discussing his sensitivity--his desire to please someone, maybe a parent or teacher who did not believe in him at childhood. He believes that one gradually realizes that there is always someone who will not like your work. He feels that all anyone can hope is that this criticism might contain something that will help in producing something extremely precious. The following is a poem that he feels expresses his thoughts on the act of creating:

> Bring me peace bring me power bring me assurance.
> Let me reach the bright day, the high chair, the plain desk, where my hand at last controls the words, where anxiety no longer undermines me. If I don't reach these I'm thrown to the wolves, I'm a restless animal wandering from place to place, from experience to experience.
> Give me the humility and the judgment to live

> alone with the deep and rich satisfaction of my own creating: not to be thrown into doubt by a word of spite or disapproval. In the last analysis don't mind whether your work is good or bad so long as it has the completeness, the enormity of the whole world which you love (Spender, 1973 p. 74).

Education--A Closed Non-Creative Environment

Education has long been concerned with the memorizing of facts, formulas, and acquiring and storing of information. There is little room for originality in learning how to spell, or memorizing capitals. The child must learn what others feel is important, have already discovered, and feel others must know in order to be educated. If a child attempts to be creative and is original or rearranges the material, he/she is "bad". This child is thought of as a nuisance. He/ or she has, according to educators, made a mistake. He/she learns what is right or wrong, learns to follow directions and not deviate from them, and maybe most harmful--to do what he/she is told.

Educators only allow problem solving if there is one correct answer--the one in the back of the teacher's manual, or been agreed upon by the culture, or is the answer that the teaching machine says is correct. Instead of creativity, education fosters conformity to the cultural norms (Anderson, 1961; Clark, 1983; and Moustakas, 1967).

Bachtold (1974) warned that the school or for that matter, the home did not reward behavior that facilitated imagination. As a result, creativity is not usually endorsed as educationally beneficial.

Most agree that creativity can be developed through learning if there is an interaction between the person, other people, and his/her environment. Given opportunities to interact, creativity will emerge. If not given these opportunities, creativity will not emerge (Taylor, 1975).

Taylor felt it is not just acceptance or a permissive environment that is needed for creativity to flourish. There also must be large amounts of stimulation. The environment which allows the stimulation will produce greater creativity. Taylor also said that the leaders of Synectics have strongly implied the importance of interpersonal interactions to be necessary for the development of creativity.

Odyssey of the Mind

Since most schools teach students to look for the right answer, students encounter, on a daily basis, many blocks which limit a free flow of ideas. They are afraid of being wrong or worse yet, different. They often disregard or ignore any creative thoughts they might have. Many children have become robotic. Since the classroom situation is inflexible in nature, they want to be right, not come up with unusual answers, give safe answers, or as many put it,

they learn to play the game. They play the game because they know that otherwise they will not be accepted. They stifle their original responses because if they do not, they will become know as show-offs and be considered behavior problems. Many retreat into books as a way to free their creative minds without interacting with the school environment (Miller, 1987). OM, a creative problem solving competition, gives an outlet to these creative children. It allows for unusual and yes even bizarre ideas to emerge. It encourages the unusual.

OM is a program geared primarily to the highly creative person. Problems are available for those interested in art, performing arts, creative writing, science, technology and the humanities. It was modeled after athletics programs because it was felt that varsity sports have the best gifted program available to students. OM fosters group creative problem solving which involves challenges and learning experiences for everyone involved. It helps develop trust, leadership, communication skills, and cooperation. The team members are encouraged to contribute and be supportive of the risk taking efforts of other team members (Bull and Fishkin, 1986).

OM has the philosophy that creative problem solving is the wave of the future in teaching. It is no longer good enough to teach only content; educators must teach students to think. OM also helps the students better understand many subjects which they might never be exposed to in the

regular curriculum until much later in their school experience or possibly never at all.

OM allows students to pick from 5 problems. Students are either chosen for the team or try out. Since all students have creative potential, although many do not think they do, participation on a team opens the door for developing creativity in each team member. It can build self-confidence and encourage the team members to initiate investigation of a topic on their own. OM encourages experimentation. Even if the result of the experimentation is negative, a learning experience has been provided, and the student has not been embarrassed or made to feel bad (Micklus and Micklus, 1984).

OM is finding new and different ways of doing things or looking at questions. It is a way of ridding the mind of self-imposed rules and regulations that were only thought to exist. It is a method of allowing young people to exert their energies (especially creative abilities) in a productive and nondestructive direction. It provides challenging problems which have no right answer. The team can take whatever direction it wants to solve the problem. This program leads to a constructive avenue to unleash creative talent and instead of getting negative feedback, most teams are rewarded by community and peer recognition (Micklus & Micklus, 1984).

The traits, according to Bull (1980), that make good team members are task commitment such as persistence,

industry, tenaciousness, and determination; high energy level; enthusiasm; ability to become absorbed in a task; single-mindedness in goal seeking; willingness to work hard; motivation to achieve; productive; a need for quality; a need for creative production; and self-critical in terms of product development.

Torrance (1979b) felt that creative behavior is achieved by combining creative abilities with skills and having the necessary motivation to create. This seems to be an area many people, especially teachers and parents, misunderstand. Creativity must combine with skill and knowledge or no creativity can be exhibited. He felt that although people tend to be most highly motivated to do the things they do best, societal attitudes concerning creativity are such that many times there is little, if any, relationship between creativity and the motivation necessary to achieve . Stifled rather than motivated, the creative accomplishments that could occur remain only a dream left to wither and die. OM can provide both the skills and motivation necessary for creative productivity. Torrance also felt that no creative thinking is likely to occur unless there is an awareness that a problem exists. Again, OM supplies the students with problems which beg to be solved. The competition requires the students to define the problem and then commit themselves to solving it.

OM problems also lend themselves to allowing for emotions which Torrance (1979a) feels are necessary if true

creativity or an "aha" is to occur. Once the aha experience, satori, eureka experience, or breakthrough has occurred, the result or solution must stand the test of logic. However, the ideas themselves do not occur through logic. The ideas come from the emotional and nonrational portion of our brains and are more important than the intellectual and the rational. Torrance feels that in most cultures there are serious blocks to the development of emotional awareness and many methods of facilitating growth in this area are prohibited. Schools are oriented toward control of emotion. Emotional experiencing or searching for truth has been the young people of middle class America's rebellion. Communes, marijuana, and other psychedelic drugs became widespread to help in this search--in this case a self destructive search, according to Torrance (1979a).

OM also provides a disciplined process. It has deliberate procedures for aiding the problem solver in getting an unusual perspective of the problem. Brainstorming in a group allows for many perspectives and refinement of the most zany ideas. Because OM allows for and rewards creativity, will acceptance of creative trait or even a desire to develop these traits occur in parents and teachers who have observed the use of this creative potential in the OM creative problem solving competition? Dr. Crypton (1985), in talking about our nation and our inventions and inventors, describes men like Alexander Graham Bell and Thomas Edison as "wizards and tinkerers who, through

inspiration, perspiration and serendipity, were able to make their dreams come true" (p.42). All of these men, these inventors, succeed despite being misunderstood and often ridiculed. Unflappable persistency could be a trait required to invent.

Can participation in creative problem solving help clear up much of the misunderstanding and ridicule society has inflicted upon the highly creative? This is what this research will attempt to find out. Will it legitimize the things that top innovators said were their motivation(s) for their creative innovations--things like failed experiments; challenges of it can never be done, or even small things like building models of things? Will society accept without fear the person who like Yoshihisa Tsuda writer of a "Utilization of Biomass to Produce Chemicals", says, "The discovery was a series of revelations or clicks in my mind. It was a flash of ideas, and then I used math to work out the ideas" quoted in Gilbert (1986, p. 74). Will society accept and desire the nurturing of creativity and realize it is a useful and necessary function which is vital to a healthy and productive life or society? Does OM create a more positive attitude? Thomas J. Watson chief of IBM, was quoted by Moore (1985) as saying that an invention is the product of imagination and human aspiration achieved through hard work. The purpose of creative invention is to improve the way of life. Does OM help parents and teachers understand that creative productivity is not possible unless

opportunities to practice and develop teachers who have been involved with OM be more understanding and more responsive when they see a child daydreaming or committing some other unforgivable action.

Klinger (1987) feels that daydreaming is a natural way to use brain power efficiently. Daydreams often begin spontaneously when what we are doing requires less than our full attention (Hearing the same math problem explained for the 4th time that day.) Our brains move our conscious attention automatically away so it can work on other things. Daydreaming keeps our minds active. It also helps us cope and create. Klinger goes on to denounce some societal misinformation about fantasy and daydreams. First he states that current research indicates that the old notions about daydreams are completely wrong. People who daydream do not go on to become schizophrenic. He states that evidence shows that people who are given to fantasy may even have special psychological strengths. Psychologist Roni Beth Tower, while being interviewed by Klinger (1987), stated she found that in general, imaginative children (those who pretend easily and comfortably) are more lively, concentrate better, are more attractive to others, tolerate frustration better, tend to show less fear, are more alert and are generally happy.

Koberg and Bagnall (1980) felt that there were many opportunities to be wrong in an active, creative life. This fear is unfounded since few errors carry stiff penalties and

because of a fear of being wrong we tend to wait until we know it all. Because few of us ever seem to become that expert who knows everything, we never create. Our pride, fear, or maybe even competitiveness has blocked our creativity.

Goff (1988) remarked on a speech made by Treffinger concerning OM and the Future Problem Solving Program. Both programs were cautioned to seriously look at the competitive nature of their programs. Treffinger felt this aspect hampered rather than promoted creativity. This is one aspect that might not be as positive. However, this author feels it might just be the one thing that will allow parents and teachers to view the creative process. Schools are under pressure to involve the students in competitive endeavors. The parents and community want to see their school win. Although this should not be the focus, the learning and the opportunity should be the focus, parents and teachers will be more likely to endorse and view competitive events. This opens the doors which allows teachers, already under pressure to have the children compete, and parents, swollen with pride, to be able to see on a first hand basis, the positive aspects of the creative process. It allows them to be more tolerant and accepting of the different view of the creative students. It legitimizes the questioning attitude and strong curiosity. It opens doors to the student for more experiences which are more stimulating than those traditionally offered. This

research endeavored to see if OM did make a significant difference in the attitudes of society toward creativity.

CHAPTER III

METHODOLOGY

Subjects

The subjects in the study included three groups:

Group 1:

Parents and Teachers of Winning OM Participants (N=75). Parents who had children or Teachers who had been involved with students who had participated on an OM team and won state competition.

Group 2:

Parents and Teachers of Non winning OM participants (N=26). Parents whose children had participated in OM and Teachers who had been involved with students who had participated but had not won a state competition.

Group 3:

Parents and Teachers of Students never involved in OM (N=62). Parents and Teachers whose children have never participated in OM.

The list of OM participants who had won, who had participated but not won, and schools not associated with OM were obtained through the OK-OM Executive Board Secretary, Dr. Eugene Hobbs. Winning and participating teams from the Oklahoma State competition were used. Schools with enrollments similar to those who participate in OM were chosen for the group that has never participated.

Collection of Data

The coaches of the winning teams at State competition were given questionnaires for parents and teachers associated with team members. The coaches were given a return envelope and asked to send the completed forms. School districts of similar size to those participating in OM were contacted to obtain permission to sample some of their parents and teachers. Questionnaires were mailed to the administrator and were given to the students by the administrators to take to their parents. The administrator of the schools who had never participated were given enough copies for each teacher in his/her building. A self-addressed, stamped envelope was provided for each respondent.

Coaches of teams that participated but did not win were sent enough questionnaires for their team members, parents, and teachers. The respondents were provided with a self-addressed, stamped envelope. A follow up call in two to three weeks was made if the questionnaires had not been

returned. This was done to insure a sufficient number of respondents. Although enough to do the study, the number of non winning OM participants should have been larger. This would have allowed for a more accurate appraisal of the effect OM has on society's perception of creativity and whether the competition factor played a major role in the findings.

Measurement Instrument

The measurement instrument was developed for this research. It is a Likert-like Scale which rated the desirability and/or acceptability of creative traits in children. The instrument had been screened by two faculty members who have worked in the field of creativity. The instrument has also been screened by four professionals who work with creativity. This was done so the instrument would be more reliable and valid. The screeners were asked to review the questions and mark each as a question pertaining to acceptability or desirability. They were also asked to check the questions for clarity of meaning. Their evaluations of the questions were used in the finalization of the questionnaire. The questions measure the acceptability and/or desirability of traits associated with creativity but generally viewed by society as undesirable. Questions related to personal creativity are also included to see how the respondents feel about their own creativity. This section of the questionnaire was adapted from a

questionnaire by Fishkin (1988). Demographic information makes up the remainder of the questionnaire. The references used for question and format design include: (Berdie, 1974; Borg, 1983; and Sudman, 1982). (See Appendix C)

Procedure

Due to the length of the questionnaires, and the number of cities involved, the questionnaires were filled out by each individual without any verbal direction. A cover letter was attached. (See Appendix C). The coaches and administrators gave the questionnaires to the appropriate people. The questionnaires were included in the winners packets at our state competition. Copies for parents of each team member and at least one teacher per student were included. A self-addressed envelope was included for each questionnaire. A follow up was conducted by phone after two to three weeks. Another set of questionnaires were mailed if there was no response within two weeks.

The non participant groups were chosen according to school size. This was done after the state competition. The questionnaires were mailed to a the administrators who had given their permission to do the study. The questionnaires were handed out to students to take home to their parents and to teachers in the school. A follow up call was made approximately two to three weeks later, followed by a new packet after two weeks.

Measurements Used

A Likert-like scales was used. The total score for each respondent was used to evaluate the respondents views of the acceptability/desirability of creativity. A copy of the instrument can be found in Appendix B.

A principal components factor analysis with a varimax rotation was performed using SYSTAT (Wilkenson, 1987) statistical software package. All factors with an eigen value of 1 or greater were extracted. Six interpretable factors were found. These factors are reported in Chapter 4.

The data from the questionnaires was sorted into groups of OM, Non winning OM, and Non OM. Another grouping of OM and Non OM was made. This was done to see if the Non winning scores significantly changed the degree to which OM would or would not effect the views of the respondents. The second reason for using a second grouping was the number of respondents N=163. When analyzing some data such as Town Size and Education Level, cells remained empty. In these cases, a 2x3 ANOVA using the second grouping was used.

ANOVAs were conducted with the Total Factor Score as the dependent variable and knowledge of OM, age, education level, parent type, and town size as the independent variables.

When a significant difference was found, a Tukey HSD Post-Hoc was conducted to discern the nature of the relationship. The Tukey tests the null and alternative

hypothesis for all possible pairs of group means. A matrix of critical differences and a matrix of probabilities were produced. The comparisons that were found to be significant were used to determine which means in the main effects and/or interactions within or between groups were significantly different.

CHAPTER IV

RESULTS

A principal component factor analysis was performed using the factor section of SYSTAT (Wilkinson, 1987). A covariance matrix with pairwise deletion was used for the input to the data analysis. A varimax rotation was performed and all factors with an eigen value of 1 or greater were extracted. All questions were included and the analysis produced six factors. Of all the questions, thirty-six total, twenty-five were retained.

Factor one was labeled Desirability and/or Value of Creativity. It was composed of items such as: "I value my student's/children's ideas" and "I appreciate my child's/student's creative products." Cronbach's Alpha was computed and yielded r=.778 for this factor. (See Table 1, Appendix D for a full set of items in this factor.)

Factor two was labeled Desirability of Creative Environment. It was composed of items such as: "Most parents would like to have schools provide an open atmosphere that promotes creativity" and "Most parents would like to have their children trained in school to increase their creativity." Cronbach's Alpha was computed and

yielded r=.686 for this factor. (See Table 15, Appendix D for a full set of items on this factor.)

Factor three was labeled Acceptance of Behaviors Considered Non Conforming by Society. It was composed of items such as "Children should be able to concentrate their attention on classwork" and "Children should accept school rules without question." Cronbach's Alpha was computed and yielded r=.701 for this factor. See Table 28, Appendix D for a full set of items and loadings on this factor. Response scales for the items on this factor were reversed.

Factor four was labeled Acceptance of Creativity by Schools and consisted of such items as "Schools value a keen sense of humor in a child" and "Schools show appreciation for creative products." Cronbach's Alpha yielded a r=.789 on this factor. For a complete list of items for this factor and loadings, see Table 28, Appendix D.

Factor five was labeled Desirability/Value of the Creative Process and consisted of items such as "Creative children should be allowed to make mistakes without being punished for them" and "Mistakes should be treated as learning experiences rather than as an occasion for punishment." Cronbach's Alpha yielded a r=.814 on this factor. For a complete list of items and loadings for this factor, See Table 52, Appendix D.

Factor six was labeled Attitude Toward Personality Traits Commonly Associated With Creativity Which Give A Negative View of Creativity and consisted of items such as

"Creative children are overly active" and "Creative children are trouble-makers." Cronbach's Alpha yielded an r=.708 for this factor. For a complete listing of items and loadings, see Table 64, Appendix D. The items on this factor were scored in the opposite direction.

Questions twenty-seven through forty-six dealt with the respondent's personal creativity. No significant differences were found. Personal creativity will not be discussed further in this study.

An ANOVA for an unbalanced factorial design was conducted using each Factor total score, defined as the sum of scores from all items in the factor, as the dependent variable and the following as independent variables: group, age, town size, and education level. The unbalanced factorial design required a least square ANOVA program like SYSTAT's MGLH. This program automatically adjusts for an uneven design.

A Tukey HSD, a Post-hoc multiple comparison test, was conducted on those variables that showed significance ($p<.05$). This was done to find the simple effects breakdown. Exact p values are reported.

Factor One--Desirability and/or Value of Creativity

Factor scores were computed for Factor one and several comparisons using these scores are reported below. A 2x2 ANOVA comparing groups (OM and Non OM) and Age (under 40 and

40 and over) for Factor One scores yielded a significant interaction $F_{1,159}$ 13.293, p=.000, See Table 2 in Appendix D. The interaction is shown graphically in Figure 1, Appendix E. The graph and the Tukey HSD Test indicates that Non OM members age 40 & Over scored highest while OM members 40 & Over scored the lowest, See Table 3, Appendix D.

A 2x3 ANOVA for Factor One scores comparing Age (under 40, 40 and over) by group (OM, Non winning OM, and Non OM) also yielded a significant interaction. $F_{2, 157}$ 6.581, p=.002, See Table 4 in Appendix D. Again, when examined graphically (See Figure 2, Appendix E) and with Tukey's HSD Post-Hoc, (See Table 5, Appendix D) the results show the highest score for Non OM 40 & Over and correspondingly lower scores for OM and for OM Non winning 40 & Over, See Table 4 in Appendix D.

A 2x3 ANOVA for Factor One Scores was conducted comparing group (OM, Non OM) to Parent Type (Parent Only, Teacher Only, Both Parent and Teacher). This analysis is shown in Table 6, Appendix D. The Analysis yielded a significant main effect for parent $F_{2,157}$ 6.571, p=.002 (See Table 7, Appendix D) and for group x parent, $F_{2, 157}$ 3.669, p=.028. The follow up Tukey HSD Test on the main effect showed that the Parent Only Type had the significant difference with the highest means. (See Table 8, Appendix D). The means (See Table 7, Appendix D) showed the lowest scores came from the Both Parents and Teacher type. This is shown graphically in Figure 4, Appendix E. The means

decline across Parent Types. On the interaction, Non OM Parent Only and Non OM Teachers Only both scored significantly higher than the Non OM Both Parent and Teacher. The OM Teacher Only scored significantly higher than the Non OM both Teacher and Parent (See Table 8, Appendix D). The graph of the interaction shows that while scores decline across Parent, Teacher, and Both Parent and Teacher for the Non OM group, this pattern is not followed for OM. Teachers Only have the highest score among those involved in OM, See Figure 3, Appendix E.

A 2x3 ANOVA for Factor One Scores compared group (OM, Non OM) and EdLevel (High School or below, Some college to Bachelors, Masters and Above) and yielded a significant main effect for EdLevel, $F_{2,157}$ 4.455, p=.013. See Tables 9, 10, and 11, in Appendix D. This is shown graphically in Figure 5, Appendix E. The graph shows there is an increase in scores from Education Level (High School and Below to Education Level (Some College to Bachelors). The scores then decline from Level 2 to Level 3 (Masters and Above). For main effect, Tukey's HSD test indicated the Some College to Bachelors and Masters and Above Education Levels have significant differences. (See Table 11, Appendix D).

A 2x3 ANOVA on Factor One Scores was conducted comparing group (OM, Non OM) to Town Size (10,000 or less, 10,001-20,000, 20,001+) and yielded a significant main effect $F_{2,157}$ 5.153, p=.007, (See Table 12, Appendix D) and a significant Town Size x Group interaction $F_{2,157}$ 3.107,

p=.048, shown graphically in Figure 6, Appendix E. Tukey's HSD Test for main effect indicated a significant difference between Town Size 10,001-20,000 and Town Size 20,001 and Larger (See Table 13 and 14, Appendix D). This is shown graphically in Figure 7, Appendix E. For the interaction of Town Size x Group, Tukey's HSD test indicated the Non OM group's scores declined when the Town Size increased. There was also a significant difference within the OM group. The OM group showed the 10,001-20,00 Town Size to have the highest means.

Factor Two--Desirability of Creative Environment

A 2x3 ANOVA for Factor Two scores was conducted comparing Age (Under 40, 40 and Over) by group (OM, Non winning OM, and Non OM) and yielded a significant main effect for age $F_{1, 154}$ 11.794, p=.001, See Table 16, Appendix D and for main effect group $F_{2,154}$ 19.289, p=.000, and for Age x Group $F_{2,154}$, 4.594, p=.012. See Table 17, Appendix D for means of main effect group and age. The follow up Tukey HSD Test for main effect Age showed that a significant difference was found between the Under 40 group and the 40 & Over group (See Table 19, Appendix D). This is shown graphically in Figure 9, Appendix E. For main effect, group, the Tukey HSD Test (Table 18, Appendix D) indicated significant differences in OM and Non winning OM, Non OM and Non winning OM, and OM and Non OM. (See Table 19, Appendix

D). This is shown graphically in Figure 10, Appendix E. Graphically represented, the OM scores are the highest. The Non OM group's scores are also higher than the Non winning OM group. See Figure 10, Appendix E. A graph showing an ordinal interaction in scores to Age for all groups with the OM group having the highest scores can be seen in Figure 8, Appendix E.

A 2x3 ANOVA for Factor Two Scores was conducted comparing group (OM, Non OM) to Parent Type (Parent Only, Teacher Only, and Both Parent and Teacher). This analysis is shown in Table 20, Appendix D. The analysis yielded a significant main effect for Parent $F_{2,\ 154}$ 45.137, p=.000. The follow up Tukey HSD Test on the main effect showed that Teachers Only group and Both Parent and Teacher had significant differences (See Table 22, Appendix D). The means (See Table 21, Appendix D) showed that the Teacher Only group scored highest while Parents Only had the lowest score. The graph of the main effect showed the Teacher Only group had the highest scores, See Figure 11, Appendix E.

A 2x3 ANOVA for Factor Two Scores compared group (OM, Non OM) and EdLevel (High School or below, Some college to Bachelors, Masters and Above) yielded a significant main effect for Education Level $F_{2,\ 151}$ 12.473, p=.000, See Table 23 in Appendix D. Tukey's HSD indicated a significant difference in Masters and Above Education Level and both the High School and Below and Some College to Bachelor Education

Levels, (See Table 25, Appendix D). The means indicate the highest education level, Masters and Above, also had the highest means and that the means decrease as the education levels decrease (See Table 24, Appendix D). This is shown graphically in Figure 12, Appendix E.

A 2x3 ANOVA on Factor Two scores was conducted comparing group (OM, Non-OM) to Town Size (10,000 or less, 10,001-20,000, 20,001+) and yielded a significant interaction of Town Size x Group $F_{2, 154}$ 6.473, p=.002, See Table 26, Appendix D. The follow up Tukey HSD Test on the interaction showed a difference between pairs (See Table 27, Appendix D). The means indicated that in the Non OM group, the scores increased with town size but this was not true of the OM group where the OM Town Size 10,001-20,000 had the highest score. The interaction is shown graphically in Figure 13, Appendix E. The disordinal interaction shows OM scoring highest except in town size 20,001 and larger.

Factor Three--Acceptance of Behaviors Considered Non Conforming by Society

Factor scores were computed for Factor Three and several comparisons using these scores are reported below. A 2x3 ANOVA for Factor Three Scores was conducted comparing Age (under 40, 40 and Over to group (OM, Non winning OM, Non OM)). The analysis shown in Table 29, Appendix D yielded a significant main effect for age $F_{1,157}$ 4.033, p=.046 and

group $F_{2, 157}$ 18.502, p=.000. The follow up Tukey HSD Test on the main effect age showed no significant differences in the 40 & Over and Under 40 age groups (See Table 30, Appendix D). For main effect group, the means indicated the OM group scored significantly higher than the Non winning OM or Non OM groups with the Non OM group having the lowest scores (See Table 30 and 31, Appendix D). This is shown graphically in Figure 14, Appendix E.

A 2x3 ANOVA for Factor Three Scores was conducted comparing group (OM, Non OM) to Parent Type (Parent Only, Teacher Only, Both Parent and Teacher). This analysis is shown in Table 32, Appendix D. The analysis yielded a significant main effect for parent $F_{2, 157}$ 9.555, p=.000 and for main effect group $F_{1, 157}$ 8.268, p=.005. The follow up Tukey HSD Test on the main effects showed that Teachers Only and Parent Only were significantly different. A significant difference was also indicated between Both Parents and Teacher Type and Parent Only Type (See Table 32, Appendix D). The means showed the Teacher Only type scored highest while the Parents Only scored lowest (See Table 33, Appendix D). This is graphically represented in Figure 15, Appendix E. For main effect, group, the means indicate the OM group's scores to be significantly higher than the Non OM group's scores (See Table 33 and 34, Appendix D). The information is graphically represented in Figure 15, Appendix E.

A 2x3 ANOVA for Factor Three Scores compared group (OM, Non-OM) and EdLevel (High School or below, Some College to BA, Masters and Above) yielded a significant main effect for group, $F_{1, 157}$ 6.496, p=.012, and EdLevel $F_{2,157}$ 11.103, p=.000. See Table 35 in Appendix D. The follow up Tukey HSD Test on main effect for group showed Education Level (Some College to Bachelors) and Education Level (High School and Below) and Some College to Bachelors and Masters and Above to be significantly different (See Table 37, Appendix D). The graph in Figure 18, Appendix E, shows the EdLevel, Some college to Bachelors, had the highest score. EdLevel, Masters and Above had the lowest score (See Table 36, Appendix D for means). For main effect, group, the means indicate the OM group scored significantly higher than the Non OM group (See Table 36, Appendix D). This information is graphically represented in Figure 17, Appendix E.

A 2x3 ANOVA on Factor Three scores was conducted comparing group (OM, Non-OM) to Town Size (10,000 or less, 10,001-20,000, 20,001+) and yielded a significant main effect for group $F_{1, 157}$ 7.913, p=.006, for main effect Town Size $F_{2\ 157,}$ 3.582, p=.030, and an interaction for Town Size x Group $F_{2, 157,}$ 4.879, p=.009. See Table 38, Appendix D and Figure 19, Appendix E for a graphic representation. The follow up Tukey's HSD Test on main effect Town Size showed that the Town Size 20,001 and larger and the 10,001-20,000 to be significantly different (See Table 40, Appendix D). A significant difference was also indicated between

Town Size 10,000 or less and Town Size 10,001-20,000. This is shown graphically in Figure 20, Appendix E. The means indicate the largest Town Size also has the highest means (See Table 38, Appendix D). For main effect, group, the means indicated a significantly higher mean for the OM group (See Table 40, Appendix D and Figure 21, Appendix E). The Tukey HSD test for the interaction group x town size indicated significant pair differences and is graphically represented in Table 41, Appendix D. For the interaction, the OM scores stayed relatively equal across town size. The Non OM group in Town Size 10,001 to 20,000 had significantly higher scores and town size 10,000 or less in the Non OM group had the lowest, but only slightly lower than, town size 20,001 and larger.

Factor Four--Acceptance of Creativity by School

Factor scores were computed for Factor Four and several comparisons using these scores are reported below. A 2x2 ANOVA comparing Group (OM and Non-OM) and Age (under 40 and 40 and Over) for Factor four scores yielded a significant main effect for Age $F_{1, 156}$ 7.310, p=.008 and for the interaction of Age x Group $F_{1, 156}$ 4.449, p=.037 (See Table 43, Appendix D). The Tukey HSD Post-Hoc indicated a difference in pairs of the OM Under 40 and Non OM 40 & Over group (See Table 45, Appendix D). The means indicated the Non OM in the Under 40 age group had the highest scores.

The Non OM 40 and Over had the lowest scores. The OM group showed little difference in scores by age group. The interaction is shown graphically in Figure 23, Appendix E. For main effect age, the means indicated the Under 40 age group to have significantly higher scores than the 40 & Over group (See Table 44, Appendix D). This information is graphically represented in Figure 23, Appendix E.

A 2x3 ANOVA for Factor Four scores comparing Age (Under 40, 40 and Over) by group (OM, Non winning OM, and Non OM) yielded no significant differences (See Table 47, Appendix D).

A 2x3 ANOVA for Factor Four Scores was conducted comparing group (OM, Non OM) to Parent Type (Parent Only, Teacher Only, Both Parent and Teacher). This Analysis is shown in Table 47, Appendix D. The analysis yielded no significant main effects or interaction.

A 2x3 ANOVA for Factor Four scores compared group (OM, Non OM) and EdLevel (High School or Below, Some College to Bachelors, Masters and Above) and yielded a significant main effect for EdLevel $F_{2\ 154}$, 2.890 p=.059. This analysis is is shown in Table 48, Appendix D. A follow up Tukey HSD Test indicated no significant difference in pairs (See Tables 47, 49, and 50, Appendix D).

A 2x3 ANOVA for Factor Four scores was conducted comparing group (OM, Non OM) to Town Size (10,000 or less, 10,001-20,000, 20,001+) and yielded no significant differences (See Table 51, Appendix D).

Factor Five--Desirability/Value of the Creative Process

Factor scores were computed for Factor Five and several comparisons using these scores are reported below. A 2x3 ANOVA for factor four comparing Age (under 40, 40 and Over) by Group (OM, Non winning OM, and Non OM) and yielded a significant interaction $F_{2, 157}$ 9.752 p=.000. See Table 53 in Appendix D. When graphically examined and the results of Tukey's HSD Post-Hoc are considered, a disordinal interaction is evident. A disordinal interaction is one that is not parallel. The Tukey HSD Test found significant differences in the Non OM group and the Non winning OM group (See 54, Appendix D). The OM group is linear across ages while the Non winning OM scores decline with age and the Non OM scores increase with age. Non OM age 40 & Over have the highest scores. The Non winning OM age 40 & Over have the lowest scores. A graphic representation is presented in Figure 24, Appendix E.

A 2x2 ANOVA for Factor Five scores was conducted comparing group (OM, Non OM) to Age (40 and under, over 40) yielded a significant main effect for age $F_{1,156}$ 7.310 p=.008 and a significant interaction $F_{1, 156}$ 4.449 p=.037, See Table 55, Appendix D. A Tukey HSD Post-Hoc was conducted (See Table 56, Appendix D) and the results are graphically represented in Figure 25, Appendix E. The interaction showed that the Non OM 40 & Over group had the highest scores and the Non OM under 40 group had the lowest

scores. The interaction is disordinal. The OM group scores decline with age and the pattern is in reverse for the Non OM group. No significant Tukey was found for main effect age (See Tables 55 and 56, Appendix D for means).

A 2x3 ANOVA for Factor Five scores was conducted comparing Group (OM, Non OM) and Parent Type (Parent Only, Teacher Only, Both Parent and Teacher) yielded a significant main effect for Group $F_{1,157}$ 7.888 p=.006 and a significant interaction $F_{2,157}$ 7.713 p=.001 (See Table 57, Appendix D). Tukey's HSD Test indicated an interaction within the Non OM group and between the two groups (See Table 59, Appendix D). The interaction is graphically represented in Figure 27, Appendix E. The graph shows the OM Parent Only Type and Both Parent and Teacher Type scored significantly higher than the Non OM Teacher Only. The Non OM group had the highest score in the Parent Only section with significant differences between the Non OM Parent Only and Teacher Only, and between Parent Only and Both Parent and Teacher. The Both Parent and Teacher Parent Type scored significantly higher than the Teacher Only in the Non OM group. For main effect group, no significant Tukey was found (See Tables 58 and 59, Appendix D for means).

A 2x3 ANOVA on Factor Five scores was conducted comparing group (OM and Non OM) and Ed Levels (High School and Below, Some College to Bachelors, and Masters and Above) and yielded a significant interaction $F_{2,154}$ 3.087 p=.018. See Table 61, Appendix D for the analysis information. The

follow up Tukey HSD Post-Hoc showed a disordinal interaction (See Table 62, Appendix D). The Non OM group's scores descended from Ed Level (High School and Below and Ed Level (Some College to Bachelors and then ascended to Ed Level (Masters and Above). The pattern was reversed for the OM group and is shown graphically in Figure 29, Appendix E.

A 2x3 ANOVA for group (OM and Non OM) and Town Size (10,000 or less, 10,001-20,000, and 20,001+) yielded no significant differences (See Table 63, Appendix D).

Factor Six--Attitude Toward Personality Traits Commonly Associated With Creativity Which Give a Negative View of Creativity

A 2x2 ANOVA for Factor Six scores was conducted for Group (OM and Non OM) and Age (Under 40 and 40 & Over) and yielded a significant interaction $F_{1,159}$ 17.071 p=.000, See Table 65, Appendix D. A follow up Tukey HSD Post-Hoc showed a significant difference in the OM and Non OM group (See Table 66, Appendix D). The means showed the Non OM group's scores rose with age. The pattern is reversed for the OM group. The interaction is disordinal. A graphic display of the interaction is shown in Figure 30, Appendix E. Items in this factor were scored in the opposite direction.

A 2x3 ANOVA for Factor Six scores was conducted for Age (Under 40 and 40 & Over) and Group (OM, Non winning OM, Non OM) and yielded a significant interaction of Age by Group $F_{2, 157}$ 11.180 p=.000, See Table 67, Appendix D. A follow up Tukey HSD Post-Hoc (Table 68, Appendix D) which is graphically represented in Figure 31, Appendix E, shows a disordinal interaction. The Non OM, age 40 & Over have the highest scores while the OM, Under 40 have the lowest. Both Non winning OM and Non OM scores increased with age. The OM group follows the opposite pattern and declines with age.

A 2x3 ANOVA for Factor six scores was conducted comparing Group (OM, Non OM) to Parent Type (Parent Only, Teacher Only, and Both Parent and Teacher). This analysis is shown in Table 69, Appendix D. The analysis failed to show any significant differences.

2x3 ANOVA's were also conducted on Factor Six for comparing Group (OM, Non OM) to Ed Level (High School and Below, Some College to Bachelors, Masters and Above) and also for Group (OM, Non OM) to Town Size (10,000 or less, 10,001-20,000, and 20,001+). The results are shown in Tables 70, 71 and 72, Appendix D for Education Level and Table 73, Appendix D for Town Size in Appendix D. Neither analysis yielded any significant differences for Factor Six.

CHAPTER V

DISCUSSION

The lack of respondents for the Non winning OM groups, even though several attempts were made to get data from this group, could point to a problem of the Odyssey of the Mind program. The questionnaires were distributed shortly after state competition. The lack of responses may correlate with a bad feeling toward the program itself. Competition has been documented as a negative when dealing with creativity. Perhaps, the parents saw the decrease in the self-esteem of their children when the child's team did not win and allowed the loss to overshadowed the fact that their children had been successful because they tackled the problem and solved it. Few parents feel good when their child doesn't win "if" winning is the main objective. This point deserves further investigation.

The second interesting fact was the lack of responses from the male population--13 total. Upon further investigation, all males responding were educators mostly in higher education or administration. From general observation of the program itself, in Oklahoma, the program coaches and even the executive board of directors is made up of mostly women. There is a need for more males to become

actively involved with participation in and promotion of the program. Education, itself, could use a greater percentage of males in the elementary and middle schools.

Factor One--Desirability and/or Value of Creativity

On Factor One, desirability and value of creativity, the significance of the Non OM group's scores rising with age and the OM group's scores decreasing could cause one to draw the conclusion that OM has a negative effect on valuing creativity. Possibly a more accurate conclusion would be that those who are actively involved with the creative process and creative children become less enthusiastic and energetic as they age due to the intenseness of both the program and children. The energy required is enormous. "Burn-Out" could be associated with those who coach OM teams. The intenseness of the activity would seem to require at least a sabbatical after a few years of coaching. These results seem to indicate that this is why older people who have been involved versus those who have not experienced the intenseness showed less value.

Self-esteem and feeling good about creativity could have interacted here as the questionnaires were distributed shortly after and during the state competition when the emotions attributed to competition were at their highest. If the competition were down played and the experience was

the main focus, this difference may have been less noticeable.

It would be interesting to know if in the OM Non winning group, this was the child's first OM experience and possibly their first school experience which allowed the student to experience creativity to this extreme. If studied over a period of time, one might find that the competition factor's effect would decrease with each year of participation or the child would no longer participate. Likewise, parents and teachers would have a more positive feeling about creativity or they would discourage their child/students from participating.

Another interesting conclusion can be drawn from the data pertaining to the relationship of the adult respondent to the child. In the OM group, the Teacher Only category showed a significantly higher mean score than the Both (or teacher and parent) category. This result seemed confusing until the fact that the respondent in Both deals with the child, probably a creative child, on a 24 hour/day basis was considered. This type of child is generally very active, questioning, a risk-taker, etc. They are considered by many, harder to handle. One parent once told me life would be easier if her child were less creative. The behaviors associated with creativity might be difficult for a Both to handle on a 24 hour/day basis unless they themselves were highly creative or had had creativity training which helped them understand the child's actions better.

Educational Levels played a part in the analysis. The highest Education Level found creativity less desirable and of less value. Education and educators focus on one right answer. This result would seem to imply that the more education one receives, the less creative one becomes. The fact might actually be that conformity has finally won over risk taking. This factor dealt with valuing creativity, ideas, sense of humor, independence, and an atmosphere conducive to creativity. As one progresses through the educational systems, the valuing of creativity can create more problems for the individual than they can benefit the individual. If the student is punished consistently for such behaviors, the student will soon learn not to display the behavior and feel guilty if the behavior inadvertently appears. The same is true of the higher education system. One must conform to the expectations of the professor. Deviating from the norm is not normally encouraged.

When Town Size was considered, the largest town size group showed the lowest means. This finding agrees with the Oklahoma OM membership count. The major large cities in Oklahoma do not participate. When paired with OM, the lowest means were in the Non OM Town Size 20,001 & Larger. The parents and teachers of the OM group scored higher in all but the Town Size 10,000 or less. This could explain the low enrollment of this Town Size in the OM program in Oklahoma. Smaller towns tend to have a more conservative atmosphere and are less likely to value many of the

characteristics commonly associated with creativity whether in a child or in an adult.

Factor Two--Desirability of the Creative Environment

Factor Two deals with the climate provided by the school or caretaker which either promotes or avoids creative endeavors. Here the parents and teachers of the OM winners felt that the climate and appreciation for creativity was provided by the school and caretaker. When compared against the parents and teachers of Non Winning OM participants, the OM Winners parents and teachers showed significantly higher mean scores than the parents and teachers of the Non Winning Teams.

The self esteem factor could play a major part in this finding. The questionnaires, as previously stated, were distributed at the state competition. The winning teams had been presented trophies and medals at the awards ceremony. They returned home to cheering parents, peers, and faculty. They received attention from newspapers, television stations, and businesses. The Non Winning teams received no awards, no praise, no articles, and no attention. Both groups worked many months to achieve a solution. One team received the honor. The other teams received a certificate of participation. This interpretation is further verified by the fact that the Non OM group's mean scores were significantly higher than the Non Winning groups. This can

mean only one thing, more attention needs to be paid to the negative effect the winning/losing has on the self esteem of the teams, the parents of the team members, and the teachers of the team members. Coaches and parents must be trained to emphasize that winning is not the desired outcome --the creative solution is.

A Ranatra Fusca award is given for high creativity. The governing board of Odyssey of the Mind has made the suggestion that more attention be given to this award at the ceremonies so it can once again take its rightful place as the most coveted award in the Odyssey of the Mind Program.

When age and group were considered, the parents and teachers of the winning OM group in both age categories had the highest scores. When age was considered independently, the means increased with age. When group was considered independently, the parents and teachers of the OM group had the highest scores and the parents and teachers of the Non winning OM group had the lowest scores. This agrees with the interaction described previously.

The Teacher Only group had a much more realistic attitude about the school's dedication to providing a creative atmosphere than did the Parent Only group or those who were Both Parent and Teachers. Teachers who are involved with the OM program, especially as a coach or contact person, would necessarily need to be more realistic or they could become very discouraged by the lack of

enthusiasm and support shown by the faculty and administration.

Interestingly enough, the parents of the OM groups felt the most positive about how society views an environment that promotes creativity and felt that the school provided that environment and encouraged creative endeavors. Although many schools allow children to participate in the program, the coaches are the ones who really support creativity and creative endeavors. Other adults usually "put up with " the program and the behaviors. The coaches are to be commended for the positive attitude they are able to project to the parents of the students involved. A recent comment by the board of education of an Oklahoma school district that regularly sends teams to World OM competition, discouraged participation for the elementary level schools. They insisted that if the elementary schools participated, they would do so without school support.

When Town Size was considered, both the largest and the smallest Town Sizes felt a creative environment was not provided or regarded as something of value. The most positive responses came for the Town Size 2 group (10,001 to 20,000). The records of Oklahoma Odyssey of the Mind indicate that the majority of the memberships do come from the town size 2 group. Few small or large schools become involved in Odyssey of the Mind. Small schools cite too few students as a reason for not participating. The smaller schools also have a much more controlled and structured

attitude. Everyone knows everyone else. If you are bad (possibly creative), your family, peers, and teachers know immediately. The largest school systems fear they will have more discipline problems. If more research were done on their part, they may find this would help reduce instances of poor behavior because it allows the creative individual a constructive rather than destructive avenue in which to vent the creativity.

Town size was a factor in the Non OM group. Those from the largest towns felt that the school and parents provided an environment conducive to creativity. Those from the smallest towns felt this was not true. This finding, logically, is inherent to town size. The largest schools and towns with many people would have least control of their population while the small towns would have the most control and thus be more conforming.

The OM groups had a significantly more positive attitude than the Non OM groups in all but the OM small town vs. the Non OM largest town. Again the town size played a more notable role than did the OM program in the findings in this particular case.

Education Level Masters and Above had a more realistic view of what type of environment is provided for the creative child. The higher the education level, the higher the mean score.

Factor Three--Acceptance of Behaviors Considered Non Conforming by Society

Factor Three dealt with socially unacceptable behaviors sometimes associated with the creative child. OM played a significant part in the results on this factor. Parents and teachers of OM participants, both winners and non winners, felt it was acceptable to question authority at times, to take something apart in class to see how it works, and to take risks with projects. The Non OM groups had a negative feeling about the above. This would indicate that parents and teachers who have worked with their students and children in OM realize these are positive rather than negative traits and should be encouraged.

Age played a role, however less than OM or Non OM, in that the under 40 age group consistently had a higher mean in both groups. This seems consistent with society in general. We expect what was expected of us. The 40 & Over group grew up in a more structured, less permissive society. With the sixties came more room for experimentation of all types. The Under 40 group was raised by a group of adult individuals who were not as pressured to conform.

Teachers Only scored higher than the Parent Only or Both, parents who are also teachers, groups. Teachers seem to have the best understanding of what is acceptable. Some know what is acceptable but have trouble allowing the behaviors in their classrooms. Chaos is feared. Students

might ask questions that the teacher cannot answer. The parents and teachers of the participants in OM valued the non conforming personality more than the parents and teachers of the Non OM group. This would indicate OM does play a part in society's perceptions of the acceptability and/or desirability of creativity. Parents and Teachers of OM participants scored consistently higher.

It is interesting to note that the lowest mean scores came from the Non OM participants with only a High School diploma or less. We might wonder if these parents dropped out of school because they were not allowed to take apart, question, and experiment. The OM group with this same education level was the lowest of the OM group. Their children might be involved because the parents wished they had been allowed to participate in this type of program when they were young.

When education was considered independently, the Masters & Above Education Level attained the lowest scores. This probably reflects the respondents (administrators and professors in many cases) feel the students should conform in order to succeed. The Some College to Bachelor Education Level, realistically, feel conforming is not necessary. OM, when paired with town size, seemed to play the major part in the differences observed. The OM group, regardless of town size, scored higher means than the Non OM groups in all town sizes. OM rather than town size seemed to be the major factor in this difference. As in earlier factors, the

mid sized town (which is the size that encompasses the majority of OM memberships in Oklahoma) when paired with OM was the most favorable to allowing the behaviors. When Town Size alone was considered, the mid-size town scored lowest. This confirms OM's role. When group was considered independently, the parents and teachers of the OM participants had a significantly higher mean than the parents and teachers of the Non OM group.

Factor Four--Acceptance of Creativity by Schools

Factor Four looks at schools as anti-creative and society pro-creative. The questions within this factor are associated with the school encouraging humor, open atmosphere, and creativity in general. The mean scores for the parents and teachers of the OM participants showed the participants viewed the school as being anti-creative. The means of the parents and teachers of the Non OM group showed a similar pattern but not quite as negative. The Non OM group was almost neutral as a whole.

When using age with the groups, no differences were found within the parents and teachers of the OM group. The parents and teachers of the Non OM group, showed a significant difference between the Under 40 group and the 40 & Over group. The younger group viewed the school as anti-creative. This may be due to the fact that they have experienced school more recently than the older group either

through children or themselves attending classes. This did not hold true when age was considered alone. Here the 40 & Over group had a lower mean showing they felt schools were anti-creative.

When using education as a variable for this factor, no significant differences were found when Parent Type, Education Level, or Town Size were considered.

Factor Five--Desirability/Value of the Creative Process

Factor Five dealt with the desirability or value of the creative process itself. The results were interesting. The parents and teachers of the participants in the OM group in both ages had a mean of 28 of a possible 30. This was a highly positive score. They did not, however, have the highest scores. The parents and teachers of the Non winning OM group had a higher score in age Under 40. This same group's scores dropped to the lowest at age 40 & Over. These results could indicate a more conservative and more conforming older group. It could also be a factor in the success of the children with which these parents and teachers worked. If the 40 & Over group felt no debate or mistakes should occur, the creative experience of OM might suffer.

The parents and teachers of the Non OM group's means were in reverse. The youngest group's scores were lowest and for the age group over forty, the highest. This might reflect

an atmosphere in the schools and homes which is much more conservative. The older group, upon reflection, might understand that children should be allowed to make mistakes without fear of punishment, should be allowed to be creative, and should be given some options.

When the groups were divided into OM and Non OM, they look like exact opposites. The scores of the parents and teachers of the Non OM group rose with age. One might assume that the adults have passed through the strict disciplinarian type of system and realized they would have gained more from a different form of system.

The scores of the parents and teachers of the participants in the OM group declined with age. The older group, even though associated with OM and creativity training, might still hold more to the old school of it must be perfect and my way. It may also reflect a desire of the older members who have worked with highly creative children and have allowed an atmosphere conducive to creativity to want or at least wish for less debate, fewer experiment, and fewer trials.

When Parent Type and Group were paired for Factor Five, the OM group Teacher Only category had the highest means. The parents and teachers of the OM group had significantly higher means in all but the Parent Only Type. Teachers Only in the Non OM group had the lowest scores. This point is interesting as one could assume either the more conservative teachers are hired because of their conservative philosophy

or that they have conformed to the expectations of their work environment. These observations are made because the study seems to indicate that the more conservative populations and schools will choose not to participate in OM. Teachers in the OM group, however, show a more positive view.

When education and group were paired for Factor Five, OM again proved to influence the valuing of the creative process, especially within the education level (Some college to Bachelors). The OM group in this education level scored significantly higher. An observation must be made at this time in regards to the number of respondents. In the OM group, the number of respondents increased with each level of education. In the Non OM group, the reverse happened. This seems to indicate that when OM is available but the respondents do not participate, the main factor might be a more conservative and less educated respondent.

No relationships or differences were found for factor five when town size and group were compared.

Factor Six--Attitude Toward Personality Traits Commonly Associated with Creativity Which Give a Negative View of Creativity

Factor six dealt with attitudes toward personality traits associated with creativity which are negative. These traits

include overly active, trouble-makers, and immaturity.

When age was paired with group on this factor, it is noted that whether grouping was OM, Non winning OM, or Non OM or the grouping was OM and Non OM, the results were the same. The greatest difference was found in the 40 & Over group with the parents and teachers of the Non OM group scoring significantly higher than the parents and teachers of the OM group. Again, this seems to reflect a negative reaction by those involved with OM. Some reflection on what a parent/teacher encounters with these students might help explain this finding.

The children, when working on an OM problem, are highly active and high spirited. They frequently seem to explode with enthusiasm. Because of their creativity, they think of unusual things to do in their time while they are thinking of a solution such as take the thermostat apart to get the mercury or grow things on rotted food left over from a previous practice in a locker. They check it weekly, of course, to see how much mold the food has grown. This food also is given a name. They crush a spray can to get the ball from the bottom and all end up with green spray paint in their faces. Sometimes during the incubation period or when their ideas seem challenged by the group, they may seem immature. For the 40 & Over coach who has had these children and these actions and reactions for over six months, the time usually required to complete a long term solution, the exhaustion he/she feels might make them more

critical. Here again the reader must be reminded that the questionnaires were given out shortly after state competition. Many coaches say they will never coach again until they have had a few months rest. When the children come to them in September with the question, "When do we start OM?", the frustration and exhaustion gives way to enthusiasm. Some research needs to be done where time is the main thing being studied. It would be interesting to see if views about creativity change with the amount of time spent on the problem and the closeness in time to the contest.

Another point not previously made is the frustration felt by the adult who knows an appropriate solution and is not able to share it. OM does not allow outside assistance even by the coach. They watch while cloth is mangled because the children are attempting to make a costume. They see sets fall over until at last the students find a way to make them stand up. They watch as everything is put together with hot glue and tape. They watch the children learn by their failures. This, watching them have to do it again and again, is the hardest for the adult. They want to do it for them. When they can not, the frustration builds and the patience dwindles. A note might be made here that the children usually end up with a solution superior and much more creative than the one the adult was thinking of originally.

No differences were found in the groups by Town Size, Education Level, or Parent Type for this factor.

Summary

This study has shown evidence that OM does effect perception differences on the desirability/acceptability of creativity both in a positive and negative manner. The negative influence seemed to be mainly in the perceptions of the parents and teachers of the Non winning OM group. Perhaps the Non winning OM group's perceptions could be assumed to be lower due to the competitive aspect rather than the program itself. The perceptions of the parents and teachers of the OM group, quite possibly were higher due to the same competitive aspect. These adults, instead of seeing their child/student suffer a defeat, had seen their child/student win a victory.

The parents and teacher of the Non OM group, not having the competition itself as a variable, scored in a more conservative manner. It seems consistent that a more conservative person, when given the opportunity to do the OM projects, would choose not to participate. The education level of this group was also lower, showing a more conservative personality.

Suggestions for Further Study

More study needs to be done on the effect of competition itself. This study was done after a state competition. It

would be wise to do the study at a different time period such as two months prior to the competition, or just after the children have started working on the problems.

Further study also needs to be done to determine if sex plays a role in perceptions. This was not available since only 13 males responded. The High School OM teams are made up primarily of boys. It seems consistent that the male population would have a higher mean average. This deserves further study. A study of why females tend to drop from the OM program in the Junior High and Senior High Level is also needed. This could deal with peer pressure to conform or society's perception that females should not be creative. This factor also deserves further study.

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APPENDIXES

APPENDIX A

EIGHTY-FOUR CHARACTERISTICS FOUND IN HIGHLY CREATIVE

EIGHTY-FOUR CHARACTERISTICS FOUND IN HIGHLY CREATIVE

Compiled by Torrance (1976)

Accepts Disorder

Strong Affection

Awareness of Others

Attracted to Disorder

Attempts Difficult Jobs

Constructive in Criticism

Deep, Conscientious Convictions

Defies Conventions of Health

Determination

Dominant (Not in a power sense)

Discontented

Emotionally Sensitive

A Fault-Finder

Feels Whole Parade Is out of Step

Appears Haughty and Self Satisfied at Times

Independence in Thinking

Adventurous

Altruistic

Always Baffled by Something

Attracted to Mysterious

Bashful Outwardly

Courageous

Defies Conventions of Courtesy

Desires to Excel

Differentiated Value-Hierarchy

Disturbs Organization

Emotional

Energetic

Doesn't Fear Being Different

Full of Curiosity

Likes Solitude

Independence in Judgment

Intuitive

Introversive

Lacks Business Ability

Never Bored

Not Hostile or Negative

Odditites of Habits

Becomes Preoccupied with a Problem

Questioning

Receptive to External Stimuli

Regresses Occasionally

Rejection of Repression

Reserved

Self-Assertive

Self-Sufficient

Sense of Humor

Shuns Power

Not Interested in Small Details

Spirited in Disagreement

Stubborn

Individualistic

Industrious

Keeps Unusual Hours

Makes Mistakes

Nonconforming

Not Popular

Persistent

Preference for Complex Ideas

Receptive to Ideas of Others

Rejection of Suppression as a Mechanism of Control

Resolute

Self-Starter

Self-Confident

Sense of Destiny

Sensitive to Beauty

Sincere

Speculative

Strives for Distant Goals

Temperamental

Tenacious

Timid

Unconcerned About Power

Unsophisticated, Native

Versatile

Visionary

Tender Emotions

Thorough

Somewhat Uncultured--Primitive

Unwilling to Accept Anything on Mere Say-So

Willing to Take Risks

Somewhat Withdrawn and Quiescent

APPENDIX B

PARENT CHECKLIST

PARENT CHECKLIST
Alvino (1986)

1. Intense absorption in listening, observing or doing: "But I didn't hear you call me for dinner."
2. Intense animation and physical involvement: "But I can't sit still--I'm thinking."
3. Use of analogies in speech: "I feel like a caterpillar waiting to become a butterfly."
4. Tendency to challenge ideas of authority: "Why do I have to go to school until I'm sixteen?"
5. Habit of checking many sources: "Mom, I looked at all the books and watched a TV special and asked my teacher, and I still cannot figure out where God lives."
6. Taking a close look at things: "Hey this centipede only has ninety-nine legs."
7. Eagerness to tell others about discoveries: "Guess what! Guess what! Guess what!"
8. Continuing in creative activities after scheduled time for quitting: "I did my art work right through recess!"
9. Showing relationships among apparently unrelated ideas: "Hey, Mom, your new hat looks just like a flying saucer!"
10. Following through an idea: "Tomorrow I'm going to dig for gold in our backyard."
11. Various manifestations of curiosity and wanting to know: "I just wanted to know what the yard looked like from the top of the roof.

12. Spontaneous use of discovery or experimental approval: "I thought flour and water would make bread, but all I got was white goo."
13. Excitement in voice about discoveries: "Flour and water make paste."
14. Habit of guessing and testing outcomes: "I put detergent in the birdbath, but no birds came to clean up. May I try bubble bath today?"
15. Honesty and intense search for truth: "Mom, I hope this won't upset you, but I don't think there is a tooth fairy."
16. Independent action: "There are no good books on racing cars, Dad. I am going to write my own."
17. Boldness of new ideas: "But I think that children should be allowed to vote."
18. Low distractibility: "I cannot come out to play. I'm waiting for my chemicals to dissolve."
19. Manipulation of ideas and objects to obtain a new combination: "I'm going to take this string and this pencil and make a compass."
20. Penetrating observations and questions: "When the snow melts, where does the white go?"
21. Tendency to seek alternative and explore new possibilities: "This old shoe would make a great flowerpot."
22. Self-initiated learning: "Yesterday I went to the library and checked out all the books on dinosaurs."

23. Willingness to consider or toy with new ideas: "What if dogs were masters and people were pets?"

APPENDIX C

QUESTIONNAIRE AND COVER LETTERS

QUESTIONNAIRE

INSTRUCTIONS:

Please circle the abbreviation that best represents your opinion.

SD--Strongly Disagree
D--Disagree
N--Neutral
A--Agree
SA--Strongly Agree

1	Parents should accept creative acts as long as they are not destructive.	SD	D	N	A	SA
2	Children should be allowed to be creative in the public schools.	SD	D	N	A	SA
3	Parents should not pressure a child to conform.	SD	D	N	A	SA
4	Creative children should be allowed to make mistakes without being punished for them. (Example--A failed experiment)	SD	D	N	A	SA
5	Children should be allowed to debate with adults over the validity of a creative idea	SD	D	N	A	SA
6.	Creative children should have direct input into their learning experiences.	SD	D	N	A	SA
7	Children should be allowed to question the validity of school rules.	SD	D	N	A	SA
8	Generally, people feel that children should be creative.	SD	D	N	A	SA
9.	Children should always do what the teacher tells them to do	SD	D	N	A	SA
10	A creative product should always be useful if it is a classroom activity.	SD	D	N	A	SA
11.	A creative product should be technically correct if it is a classroom project (Spelling, punctuation, etc.)	SD	D	N	A	SA
12	Children should be able to concentrate their attention on classwork.	SD	D	N	A	SA

QUESTIONNAIRE

CONTINUED

13.	A creative project must work if it is turned in for a classroom activity	SD	D	N	A	SA
14.	Children should not ask too many questions unless they are directly related to the material being studied.	SD	D	N	A	SA
15	Most parents would like to have their children trained in school to increase their creativity.	SD	D	N	A	SA
16.	Most parents would like to have schools provide an open atmosphere that promotes creativity.	SD	D	N	A	SA
17.	Schools view creativity in children as desirable.	SD	D	N	A	SA
18.	Schools show appreciation for creative products.	SD	D	N	A	SA
19.	Schools should discourage dependence on highly structured materials, (example--workbooks, coloring sheets) when creativity is desired.	SD	D	N	A	SA
20.	Schools value a keen sense of humor in a child.	SD	D	N	A	SA
21.	Most parents provide a creative environment to enhance their children's creativity.	SD	D	N	A	SA
22.	Children should not try to dominate classroom activities.	SD	D	N	A	SA
23.	Creative children are trouble-makers	SD	D	N	A	SA
24.	Creative children are overly active.	SD	D	N	A	SA
25.	Mistakes should be treated as learning experiences rather than as an occasion for punishment.	SD	D	N	A	SA
26	Children should accept school rules without question.	SD	D	N	A	SA
27.	It is unacceptable for children to "fool around" in class. (Example--taking something apart just to see how it works) without the teacher's permission.	SD	D	N	A	SA
28.	Creative children act immature.	SD	D	N	A	SA
29	I would like my children/students to be more creative.	SD	D	N	A	SA

QUESTIONNAIRE

CONTINUED

30.	I would like to know more about creativity so I could work with my children/students in this area.	SD D N A SA
31	I would like my children/students to be more independent	SD D N A SA
32	I value my child's/student's sense of humor.	SD D N A SA
33	I appreciate my child's/student's creative products	SD D N A SA
34.	I view creativity in my child/student as desirable	SD D N A SA
35.	I would like to work in an open atmosphere that promotes creativity.	SD D N A SA
36	I value my student's/children's ideas.	SD D N A SA

Below is a list of ten statements which describe how people might see themselves For each item circle the number which most clearly describes the way you feel about yourself. Please read carefully and think before you make your choice Note that the direction of the scale is not the same for all items. To help indicate direction, <u>often</u> is underlined for each question

37	In a group situation, I am the one who provides a great many ideas	<u>Often</u> 1 2 3 4 5 Seldom
38	When I need to, I find uncommon uses for everyday objects.	<u>Often</u> 1 2 3 4 5 Seldom
39.	When the first solution to a problem fails, I am able to come up with other solutions.	Seldom 1 2 3 4 5 <u>Often</u>
40.	I come up with new ways to solve everyday problems.	<u>Often</u> 1 2 3 4 5 Seldom
41.	My friends consider me to be a creative person.	Seldom 1 2 3 4 5 <u>Often</u>
42	My solutions or products are different from my peer's.	Seldom 1 2 3 4 5 <u>Often</u>

QUESTIONNAIRE

CONTINUED

43 Even when ideas are very different from each other, I can find relationships between them. Often 1 2 3 4 5 Seldom

44. When in a group discussion, I suggest unusual ideas. Seldom 1 2 3 4 5 Often

45. I have more ideas than most of my friends. Often 1 2 3 4 5 Seldom

46. My thinking is very creative. Seldom 1 2 3 4 5 Often

The following will be used in making comparisons of different group's feelings toward creativity. Please place a check in the appropriate blank

47. Community size. (In which your children go to school or in which you teach)

_____0-5,000
_____5,001-10,000
_____10,001-15,000
_____15,001-20,000
_____20,001-25.000
_____ over 25001

48. Are you familiar with Odyssey of the Mind (formerly Olympics of the Mind)? _____Yes _____No

49. Have you ever been involved in Odyssey of the Mind?
_____No--If no, please go to question 51.
_____Yes--If yes, please check in which capacity you were involved.

_____ Coach
_____ Parent
_____ Contact Person
_____ Judge
_____ Other--If other please explain on the line below

_____

50. Are you currently involved with Odyssey of the Mind.
_____ Yes
_____ No--If no, how long has it been since you were involved?___

51. My age· _____ Below 20
_____ 21-30
_____ 31-40
_____ 41-50
_____ 51-60
_____ Over 61

QUESTIONNAIRE

CONTINUED

52 I am· _____ Male _____ Female

53. Educational Level
(Please check highest level achieved.)

_____ Below High School
_____ High School Diploma
_____ Some College
_____ Bachelor's Degree
_____ Master's Degree
_____ Doctoral Degree

54. Are you a . _____Parent only (If so, please skip to number 58.)
_____Teacher only. (Please indicate number of years of teaching experience below.)
_____ Both parent and teacher. (Please indicate number of years of teaching experience below.)

_____ 1-5 years
_____ 6-10 years
_____ 11-15 years
_____ 16-20 years
_____ over 20 years

55 Please check those that best describes you

_____ Contact person but not a coach for an Odyssey of the Mind team.
_____ Not a contact person or coach but my teaching assignment is primarily gifted and talented.
_____ Not a coach or contact person and my teaching assignment is primarily regular classroom.
_____ Coach for Odyssey of the Mind team and my teaching assignment is primarily gifted and talented.
_____ Coach for Odyssey of the Mind team and my teaching assignment is primarily regular classroom.
_____ Judge for Odyssey of the Mind competition.
_____ Other--Please explain _____

56 Have you had any creativity training· _____ Yes _____ No

57. Do you use creativity training in your classroom· _____ Yes
_____ No

58. Please check the one that best describes you.

_____Never coached an Odyssey of the Mind team but I have had a child/student who has participated
_____Never had a child/student on an Odyssey of the Mind team.

QUESTIONNAIRE

CONTINUED

59 If you have had a child/student participate on an Odyssey of the Mind team or you have coached an Odyssey of the Mind team:

Did the team work after school? _____ Yes _____ No
Did you observe a team meeting on at least two occasions?
_____ Yes _____ No
Have you attended an Odyssey of the Mind competition?
_____ Yes _____ No
Have you been trained as an OM coach? ___Yes ___ No
If yes, were you trained.
_____ at a state training session
_____ by your contact person

IF YOU WOULD LIKE A SUMMARY OF THIS RESEARCH, PLEASE INCLUDE YOUR NAME AND ADDRESS.

Name_____

Address_____

_____

IF YOU WOULD LIKE FURTHER INFORMATION ON OKLAHOMA ODYSSEY OF THE MIND, I WOULD BE HAPPY TO MAIL IT TO YOU.

_____ I would like further information. (Please place name and address below

_____ I would not like further information.

Name_____

Address_____

_____

Thank you for spending a little of your time filling out this questionnaire. I appreciate it and am hopeful I will gain valuable information we as parents and teachers can use.

Sincerely,

Ruthie Christy
10736 N 168th East Ave
Owasso, Oklahoma 74055

LETTER TO COACH OF

WINNING TEAM

Dear Coach

Congratulations' The University of Maryland awaits your arrival I am sure you will represent our great state of Oklahoma well I hope to see you there I have been invited by nationals to judge

I know your team has a million things to do in preparation for the world finals. My list never seems to end. I would ask that you add this one favor to your list for me. Will you fill out the enclosed questionnaire and give two copies to your team members for their parents to fill out You will not need to explain the questionnaires to the parents A cover letter explaining the study is included Have the team members bring the questionnaires back to you when they have been completed. You can then just shove them in the enclosed envelope and put them in the mail before you leave for Maryland. Why before? You'll need a month to recover after competition and I'm hoping to have the results of this study by July.

Why am I asking these questions? As a teacher of the gifted, an Odyssey of the Mind coach, contact person, executive board member, and parent of a student participant, I am interested in seeing if participation in OM has any positive effect on society's views of the personality traits associated with creativity This might be of interest to you also This is the topic of my Master's Thesis at Oklahoma State University.

Again, congratulations and thanks for carrying just one more responsibility around on your shoulders.

GO OKLAHOMA OM TEAMS--TAKE WORLD

Sincerely,

Ruthie Christy
OK-OM Executive Board

Research Approval
Dr K. S Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

LETTER TO COACH OF PARTICIPATING TEAM

Dear OM Coach

Will you do me a favor? Would you fill out the enclosed questionnaire? Would you also give each of your team members a set so their parents can fill one out also? The questions require only a circle or check for an answer and will only take a few minutes of your and their busy schedule.

Why am I asking these questions? As a teacher of the gifted, an Odyssey of the Mind coach, contact person, executive board member, and parent of a student participant, I am interested in seeing if participation in OM has any effect on society's perceptions of the personality traits associated with the creative student This is the topic for my Master's Thesis at Oklahoma State University.

Your response is important to me Please encourage your team members to have their parents complete the questionnaires and return them to you. You can then just put them in the enclosed envelope and drop them in the mail Please ask the team members to return them to you as soon as possible, since I hope to have the study completed by late June

Sincerely,

Ruthie Christy
OK-OM Executive Board

Research Approval
Dr. K S. Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

LETTER TO COACH OF PREVIOUS YEAR--WINNING TEAM

Dear OM Coach

Will you do me a favor? Will you fill out a questionnaire and send copies home with your last year's OM team members, or as many of them as you can still find. I am asking for this favor because I am doing a study that requires I obtain information from teams and coaches who have won on the state level for at least one of the last two years Because I know OM coaches are full of energy and extremely helpful, I am sure you will let me impose on you After the questionnaires have been completed, I have requested that the parents send them back to you If you will just stick them in the mail in the enclosed envelope, I will appreciate it

Why am I asking these questions? As a teacher of the gifted, an Odyssey of the Mind coach, contact person, executive board member, and parent of a student participant, I am interested in seeing if participation in OM has any effect on society's perception of the personality traits often associated with creativity. This is the topic of my Master's Thesis at Oklahoma State University.

I know how valuable your time is so I'm thanking you in advance for your help I would like the questionnaires back as soon as possible. I would like to have the study completed by late June.

Sincerely,

Ruthie Christy
OK-OM Executive Board

Research Approval
Dr. K S. Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

LETTER TO COACH OF PREVIOUS YEAR--PARTICIPATING TEAM

Dear Coach·

Will you do me a favor? Will you fill out a questionnaire and send copies home with your team members. I am asking for this favor because I am doing a study that requires I obtain information from parents and coaches of teams who have participated in OM problem solving competition. I know OM coaches are full of energy and extremely helpful, so I am sure you will let me impose on your precious time. After the questionnaires have been completed, I have requested that the parents send them back to you. If you will just stick them in the mail in the enclosed envelope, I will appreciate it.

Why am I asking these questions? As a teacher of the gifted, an Odyssey of the Mind coach, contact person, executive board member, and parent of a student participant, I am interested in seeing if participation in OM has any effect on society's perception of the personality traits often associated with creativity This is the topic of my Master's Thesis at Oklahoma State University.

I know how valuable your time is so I'm thanking you in advance for your help. I would like the questionnaires back as soon as possible. I would like to have the study completed by late June

Sincerely,

Ruthie Christy
OK-OM Executive Board

Research Approval
Dr. K S. Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

LETTER TO TEACHER

Dear Teacher

Will you do me a favor? Will you fill out a questionnaire? If your school does not compete in OM (formerly Olympics of the Mind, now Odyssey of the Mind), I have enclosed a brief overview. If your school does not participate, please give the parent questionnaires to your students for them to take home and have their parents complete They can return the completed questionnaires to you and you will just have to stick them in the enclosed envelope and drop them in the mail

I realize that the end of the school year is rapidly approaching I know all the things you must do before that last day I too am a teacher and realize the amount of paper work yet to be completed

Why am I asking these questions? As a teacher of the gifted, an Odyssey of the Mind coach, contact person, executive board member for OK-OM, and parent of a student participant, I am interested in seeing if participation in OM has any effect on society's perception of the personality traits often associated with the creative student This is the topic of my Master's Thesis at Oklahoma State University

I hope that this study will help all teachers who have that creative child in their classroom and don't know what to do with him/her Hopefully, I will find that OM does give this child an outlet for his/her creative energy--an outlet that is positive rather than negative

I know how valuable your time is so I'll thank you in advance for your help. I would appreciate it if you could send the questionnaires back as soon as possible I would like to have the study completed by late June.

Don't worry if you know nothing about OK-OM. Remember, I'm enclosing a brief summary If you think you might be interested, just check the box on the last sheet of the questionnaire. Please respond. I need teacher's opinions' Who knows children better?

Sincerely,

Ruthie Christy
OK-OM Executive Board

Research Approval
Dr K S Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

LETTER TO PARENTS

Dear Parent(s)

Will you do me a favor? Will you fill out the enclosed questionnaire? The questions require you to circle the abbreviation that best describes your opinion of the question. This will take a few minutes of your time, but I hope the information gained will be useful to both myself and your child. I'm enclosing two questionnaires so each parent can participate If you are a single parent, as I am, just toss the extra in the trash

Why am I asking these questions? As a teacher of the gifted, an Odyssey of the Mind coach, contact person, executive board member, and parent of an OM participant, I am interested in seeing if participation in OM has any effect on society's -- namely parents and teachers--views of the personality traits associated with the creative student This is the topic of my Master's Thesis at Oklahoma State University.

Your response will be extremely useful If you are not familiar with OM (Odyssey of the Mind), a brief overview has been enclosed I need responses from parents whose children have been involved in OM and from those who have not been involved and even those who have never heard of the program.

As soon as you have filled out the questionnaire, give it back to your child's teacher or coach They will return them to me

I realize your time is valuable and in short supply so if you would take a few minutes right now to fill out the questionnaire before someone has an emergency only you can solve, I would appreciate it immensely

Sincerely,

Ruthie Christy

Research Approval
Dr K S Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

LETTER TO ADMINISTRATOR

(Administrator's Name)
(School Name)
(Address)
(City, State zip code)

Dear Sir

I am doing a study for my Master's Thesis at Oklahoma State University. My study deals with society's perception of the personality traits associated with creativity and if participating in the Odyssey of the Mind creative problem solving program effects this perception. I know your school does not participate and that is why I need your help so desperately. My data, to be valid, must contain schools who do not participate as well as those who do participate. The schools must also be of similar size Your school fits my needs.

I am asking that you place the enclosed questionnaires in some of your teacher's mailboxes and ask one teacher to send a set home with each of his/her students for their parents to fill out They can return them to their teacher, who can put them in the large envelope enclosed and drop them in the mail You could enclose the teacher's replies in the same envelope. I know this will take some time but I feel this is a question we as educators need answered. Creativity has been an educational "buzz" word for years. We need to know what works

I have enclosed a brief description of Odyssey of the Mind so you will know a little of what the program is about and what kind of student might benefit from participation in the program

Thank you and your teachers for your help. If you would like more information concerning this program, or if you would like a summary of the results of my study, just check the boxes on the last page of the questionnaire.

Sincerely,

Ruthie Christy
OK-OM Executive Board
and G/T Teacher

Research Approval
Dr K. S. Bull
Associate Professor
Oklahoma State University
&
OK-OM Past President

APPENDIX D

TABLES

TABLE 1

LIST OF ALL QUESTIONS, THE COEFFICIENT ALPHA, THE ITEM NUMBER AND THE ROTATED LOADING FOR FACTOR 1 DESIRABILITY AND/OR VALUE OF CREATIVITY

Coefficient Alpha-All Items. .778

Percent of Total Variance Explained 10 768

ITEM #	ROTATED LOADING	ITEM
36	803	I value my student's/childrens ideas
33	752	I appreciate my child's/ student's creative products
30	748	I would like to know more about creativity so I could work with my children/ students in this area
32	634	I value my child's/students' sense of humor
34	594	I view creativity in my child/ student as desirable.
35	593	I would like to work in an open atmosphere that promotes creativity.
31	443	I would like my student/ children to be more independent

TABLE 2

ANOVA AND CELL MEANS FOR AGE
AND GROUP FOR FACTOR 1
DESIRABILITY AND/OR
VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	22 756	1	22 756	2 548	112
GROUP	20 977	1	20.977	2.349	127
AGE* GROUP	118 695	1	118.695	13 293	.000
ERROR	1419 760	159	8 929		

GROUP	MEAN	SD	n
OM			
Age Under 40	30 423	2 711	52
Age 40 and Over	29 367	3 444	49
NON OM			
Age Under 40	29 409	2 856	44
Age 40 and Over	32 056	2.733	18

TABLE 3

PROBABILITIES, GROUPS, AND MEANS
FOR SIGNIFICANT DIFFERENCES
FOR FACTOR 1 AGE AND GROUP
DESIRABILITY AND/OR VALUE
OF CREATIVITY

POST-HOC TUKEY'S HSD

p	Group	Age	< or >	Group	Age
007	Non OM	Over 40	>	Non OM	40 and Under
Mean	32 056		>		29 409
007	Non OM	Over 40	>	OM	Over 40
Mean	32 056		>		30 423

TABLE 4

ANOVA AND CELL MEANS FOR GROUP AND AGE
FOR FACTOR 1 DESIRABILITY AND/OR
VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	010	1	010	.001	973
GROUP	27 144	2	13.542	1.502	.226
AGE* GROUP	118.906	2	59.453	6.581	002
ERROR	1418 287	157	9 034		

GROUP	MEAN	SD	n
OM			
Age Under 40	30 438	2 758	32
Age 40 and Over	29.465	3 628	43
NON WINNING OM			
Age Under 40	30 400	2.703	20
Age 40 and Over	28.667	1.633	6
NON OM			
Age Under 40	29.409	2.865	44
Age 40 and Over	32.056	2.733	18

TABLE 5

PROBABILITIES, GROUPS, AND MEAN DIFFERENCES FOR GROUP AND AGE FOR FACTOR 1 DESIRABILITY AND/OR VALUE OF CREATIVITY

POST-HOC TUKEY'S HSD

p	Group	Age	< or >	Group	Age
007	Non OM	40 and Over	>	Non winning OM	40 and Over
Mean	32 056		>	28.667	
025	Non OM	40 and Over	>	OM	40 and Over
Mean	32 056		>	29 465	
033	Non OM	40 and Over	>	Non OM	Under 40
Mean	32 056			29 409	

TABLE 6

ANOVA AND CELL MEANS FOR PARENT TYPE AND GROUP FOR FACTOR 1 DESIRABILITY AND/OR VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	116.733	2	58 367	6.571	002
GROUP	3 966	1	3 966	447	.505
PARENT* GROUP	65 174	2	32 587	3 669	028
ERROR	1394 541	157	8 882		

GROUP	MEAN	SD	n
OM			
Parent Only	30 148	2 641	27
Teacher Only	30 400	3 397	15
Both Parent and Teacher	29 678	3 272	59
NON OM			
Parent Only	31 158	3 071	38
Teacher Only	30 400	3 397	9
Both Parent and Teacher	27.600	1 993	15

TABLE 7

ANOVA AND CELL MEANS FOR PARENT TYPE FACTOR 1 DESIRABILITY AND/OR VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	79.675	2	29 837	4.359	.014
ERROR	1462 300	160	9.139		

GROUP	MEAN	SD	n
Parent Only	30 738	2.641	65
Teacher Only	30 375	2 856	24
Both Parent & Teacher	29 257	3 158	74

TABLE 8

PROBABILITIES, GROUPS, AND MEAN DIFFERENCES FOR FACTOR 1 PARENT TYPE AND GROUP DESIRABILITY AND/OR VALUE OF CREATIVITY

POST-HOC TUKEY'S HSD

INTERACTION PARENT TYPE AND GROUP

p	Group	Parent Type	<>	Group	Parent Type
016	Non OM	Parent Only	>	Non OM	Both Parent and Teacher
Means		31 158			27.600
.032	Non OM	Teacher Only	>	Non OM	Both Parent and Teacher
Means		30 333			27 600
000	OM	Teacher Only	>	Non OM	Both Parent and Teacher
Means		30 400			27.600

PROBABILITIES, GROUPS, AND MEAN DIFFERENCES FOR FACTOR 1 MAIN EFFECT PARENT TYPE DESIRABILITY AND/OR VALUE OF CREATIVITY

POST-HOC TUKEY'S HSD

MAIN EFFECT FOR PARENT TYPE

p	Parent Type	<>	Parent Type
011	Parent Only	>	Both Parent & Teacher
Means	30.738		29 257

TABLE 9

ANOVA AND MEAN CELLS FOR GROUP AND EDUCATION LEVEL FOR FACTOR 1 DESIRABILITY AND/OR VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	17.527	1	17 527	1.911	.169
EDLEVEL	81 728	2	40 864	4 455	013
GROUP* EDLEVEL	16 297	2	8 148	0 888	413
ERROR	1440 057	157	9 172		

GROUP	MEAN	SD	n
OM			
Ed Level HS or below	32 000	2 739	5
Ed Level Some College to Bachelor	30 550	2 891	40
Ed Level Masters and Above	29 268	3 177	56
NON OM			
Ed Level HS or below	30.105	2.424	19
Ed. Level Some College to Bachelor	30.657	3.343	35
Ed Level Masters and Above	28 250	2 493	8

TABLE 10

ANOVA AND MEAN CELLS FOR EDUCATION LEVEL FOR FACTOR 1--DESIRABILITY AND/OR VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
EDLEVEL	80 241	2	40 121	4 392	014
ERROR	622 210	157	3.963		

GROUP	MEAN	SD	n
Ed Level HS or below	30 500	2.554	24
Ed Level Some College to Bachelor	30 600	3 089	75
Ed Level Masters and Above	29.141	3 101	64

TABLE 11

PROBABILITIES, GROUP, MEAN DIFFERENCES FOR FACTOR 1 MAIN EFFECT EDUCATION LEVEL DESIRABILITY AND/OR VALUE OF CREATIVITY

	POST-HOC	TUKEY'S HSD	
p	Education Level	< or >	Education Level
022	Some College to Bachelor	>	Masters & Above
Means	30 600		29.141

TABLE 12

ANOVA AND CELL MEANS FOR GROUP AND TOWN SIZE FOR FACTOR 1--DESIRABILITY AND/OR VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
TSIZE	93 589	2	46 795	5 153	007
GROUP	13 346	1	13 346	1 470	227
TSIZE* GROUP	56 422	2	28 211	3 107	048
ERROR	1425 692	157	9 081		

GROUP	MEAN	SD	n
OM			
Town Size 10,000 or less	29 880	3 022	75
Town Size 10,001-20,000	30 727	2 573	11
Town Size 20,001 & Larger	29 467	3 962	15
NON OM			
Town Size 10,000 or less	30 714	2 782	35
Town Size 10,001-20,000	30.500	3.220	20
Town Size 20,001 & Larger	26.571	787	7

TABLE 13

ANOVA AND CELL MEANS FOR TOWN SIZE FOR FACTOR 1--DESIRABILITY AND/OR VALUE OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
TSIZE	59 300	2	29 650	3 20	043
ERROR	1482 676	160	9 267		

GROUP	MEAN	SD	n
Town Size 10,000 or Less	30 145	2 961	110
Town Size 10,001-20,000	30.581	2 964	31
Town Size 20,001 & Larger	28 545	3 542	22

TABLE 14

PROBABILITIES, GROUPS, AND MEAN DIFFERENCES FOR FACTOR 1 INTERACTION TOWN SIZE AND GROUP DESIRABILITY AND/OR VALUE OF CREATIVITY

		POST-HOC	TUKEY'S HSD		
P	Group	Town Size	< or >	Group	Town Size
.006	Non OM	10,000 or less	>	Non OM	20,001 & Larger
Mean	30 714			26.571	
005	Non OM	10,001-20,000	>	Non OM	20,001 & Larger
Mean	30 500			26 571	
043	OM	10,000 or less	>	Non OM	20,001 & Larger
Mean	30.727			26.571	
.045	OM	20,001 & Larger	>	Non OM	20,001 & Larger
Mean	29.880			26.571	

PROBABILITIES, GROUPS, AND MEAN DIFFERENCES FOR FACTOR 1 MAIN EFFECT TOWN SIZE DESIRABILITY AND/OR VALUE OF CREATIVITY

	POST-HOC	TUKEY'S HSD	
p	Town Size	< or >	Town Size
003	10,001-20,000	>	20,001 & Larger
Means	30 581		28 545

TABLE 15

LIST OF ALL QUESTIONS, ITEM NUMBERS, ROTATED LOADINGS AND COEFFICIENT ALPHA FOR ALL ITEMS IN FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT*

Coefficient Alpha-All Items: 686

Percent of Total Variance Explained: 6 866

ITEM #	ROTATED LOADING	ITEM
16	.737	Most parents would like to have schools provide an open atmosphere that promotes creativity.
15	615	Most parents would like to have their children trained in school to increase their creativity.
10	608	Creative products should always be useful if it is a classroom activity
21	.495	Most parents provide a creative environment to enhance their children's creativity.

*Items scored in the opposite direction

TABLE 16

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	39 704	1	39 704	11 794	001
GROUP	129.865	2	64 933	19 289	.000
AGE* GROUP	30 927	2	15.463	4 594	012
ERROR	518 420	154	3 366		

GROUP	MEAN	SD	n
OM			
Age Under 40	14 656	1 599	32
Age 40 and Over	16 930	1 421	43
OM NON WINNER			
Age Under 40	12.588	1 938	20
Age 40 and Over	13.833	2 229	6
NON OM			
Age Under 40	14.136	1.837	44
Age 40 and Over	14.389	2 704	18

TABLE 17

ANOVA AND CELL MEANS FOR AGE FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	204.113	2	102.057	25 803	000
ERROR	620 980	157	3.955		

GROUP	MEAN	SD	n
OM	15 970	1 870	75
OM Non Winner	12 913	2 043	26
Non OM	14 210	2 105	62

ANOVA AND CELL MEANS FOR GROUP FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	146 250	1	146.250	34 040	000
ERROR	678.844	158	4 296		

GROUP	MEAN	SD	n
Age Under 40	14.032	1 902	96
Age 40 and Over	15 970	2 289	67

TABLE 18

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR FACTOR 1 AGE AND GROUP INTERACTION DESIRABILITY OF CREATIVE ENVIRONMENT

	POST-HOC		TUKEY'S HSD		
P	Group	Age	< or >	Group	Age
000	OM	Over 40	>	Non winning OM	Under 40
Means		16 930			12 588
000	Non OM	Over 40	>	Non winning OM	Under 40
Means		14 136			12 588
001	OM	Under 40	>	Non winning OM	Under 40
Means		14 656			12 588
004	Non OM	Under 40	>	Non winning OM	Under 40
Means		14.136			12 588
005	OM	Over 40	>	Non winning OM	Over 40
Means		16 930			13 833
008	OM	Over 40	>	Non OM	Under 40
Means		16 930	>		14.136

TABLE 19

PROBABILITIES, GROUPS, MEAN DIFFERENCES
FOR FACTOR 1 MAIN EFFECT AGE
DESIRABILITY OF CREATIVE
ENVIRONMENT

	POST-HOC	TUKEY'S HSD	
p	Age	< or >	Age
000	Under 40	>	40 & Over
Means	15 970		14 032

PROBABILITIES, GROUPS, MEAN DIFFERENCES
FOR FACTOR 1 MAIN EFFECT GROUP
DESIRABILITY OF CREATIVE
ENVIRONMENT

	POST-HOC	TUKEY'S HSD	
p	Group	< or >	Group
000	OM	>	Non winning OM
Means	15 960		12 913
001	Non OM	>	Non winning OM
Means	14 656		12 913
000	OM	>	Non OM
Means	15 960		14 656

TABLE 20

ANOVA AND CELL MEANS FOR PARENT TYPE AND GROUP FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	284 516	2	142 258	45.137	000
GROUP	2 391	1	2 391	.759	385
PARENT* GROUP	15 987	2	7.994	2.536	082
ERROR	485 362	154	3 152		

GROUP	MEAN	SD	n
OM			
Parent Only	12.875	1 727	24
Teacher Only	16 867	1 846	15
Both Parent & Teacher	15 797	1 883	59

GROUP	MEAN	SD	n
NON OM			
Parent Only	13.184	1.799	38
Teacher Only	15 333	1.000	9
Both Parent & Teacher	16.133	1 598	15

TABLE 21

ANOVA AND CELL MEANS FOR PARENT TYPE
FACTOR 2 DESIRABILITY OF
CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	323 745	2	161.872	50 691	000
ERROR	501 349	157	3 193		

GROUP	MEAN	SD	n
Parent Only	13 065	1 764	62
Teacher Only	16.292	1.732	24
Both Parent & Teacher	15 865	1 823	74

TABLE 22

PROBABILITIES, GROUPS, MEAN DIFFERENCES
FOR FACTOR 2 PARENT TYPE
DESIRABILITY OF CREATIVE
ENVIRONMENT

	POST-HOC	TUKEY'S HSD	
p	Parent Type	< or >	Parent Type
.000	Teacher Only	>	Parent Only
Means	16 292		13.065
000	Both Parent		Parent Only
	Teacher	>	
Means	15 865		13 065

TABLE 23

ANOVA AND CELL MEANS FOR GROUP AND EDUCATION LEVEL FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	2 216	1	2 216	0 363	.696
EDLEVEL	76.149	2	38 074	12.473	.000
GROUP* EDLEVEL	15.653	2	7.826	1 282	.280
ERROR	460.932	151	3 053		

GROUP	MEAN	SD	n
OM			
Ed Level 1 High School & Below	12.353	1 656	20
Ed Level 2 Some College to Bachelors	15 080	1.631	25
Ed Level 3 Masters & Above	16.196	1 967	56
NON OM			
Ed Level 1 High School & Below	13.184	1.799	38
Ed. Level 2 Some College to Bachelors	15 563	814	16
Ed. Level 3 Masters & Above	16 375	2.200	8

TABLE 24

ANOVA AND CELL MEANS FOR EDUCATION LEVEL
FOR FACTOR 2 DESIRABILITY
OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
EDLEVEL	202.884	2	101 442	25 596	.000
ERROR	3124.938	160	19.531		

GROUP	MEAN	SD	n
Ed Level 1 High School & Below	13 714	1.419	58
Ed Level 2 Some College to Bachelors	13 987	2 128	41
Ed Level 3 Masters & Above	16 219	1 980	64

TABLE 25

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR MAIN EFFECT EDUCATION LEVEL FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

	POST-HOC	TUKEY'S HSD	
p	Education Level	< or >	Education Level
000	Masters & Above	>	High School & Below
Means	16 219		13.714
000	Masters & Above	>	Some College to Bachelors
Means	16.219		13.987

TABLE 26

ANOVA AND CELL MEANS FOR TOWN SIZE AND GROUP FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
TOWN SIZE	14.657	2	7.328	1 581	209
GROUP	2 282	1	2.282	492	.484
TOWN SIZE* GROUP	60 008	2	30.004	6.473	002
ERROR	713 881	154	4.636		

GROUP	MEAN	SD	n
OM			
Town Size 10,000 or less	13 571	2.657	24
Town Size 10,001-20,000	16.137	1 732	51
Town Size 20,001 & Larger	14 846	2 185	26
NON OM			
Town Size 10,000 or less	12.913	2.372	23
Town Size 10,001-20,000	14.250	1.138	12
Town Size 20,001 & Larger	15.296	1.540	27

TABLE 27

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR INTERACTION FOR EDUCATION LEVEL AND GROUP FOR FACTOR 2 DESIRABILITY OF CREATIVE ENVIRONMENT

POST-HOC TUKEY'S HSD

p	Group	Town Size	< or >	Group	Town Size
000	OM	10,001-20,000	>	OM	10,000 or Less
Mean	16 137			13 571	
000	OM	10,001-10,000	>	Non OM	10,000 or Less
Mean	16 137			12 913	
007	Non OM	20,000 & Larger	>	OM	10,000 or Less
Mean	15 296			13 571	
014	OM	10,001-20,000	>	Non OM	10,001-20,000
Mean	16 137			14 250	
000	Non OM	20,000 and Larger	>	Non OM	10,000 or Less
Mean	15.296			12 913	

TABLE 28

LIST OF ALL QUESTIONS, ITEM NUMBERS, ROTATED LOADING AND COEFFICIENT ALPHA FOR ALL ITEMS FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY*

Coefficient Alpha-All Items. .701

Percent of Total Variance Explained. 8.206

ITEM #	ROTATED LOADING	ITEM
12	801	Children should be able to concentrate their attention on classwork
27	.698	It is unacceptable for children to "fool around" in class, (Example--taking something apart just to see how it works) without the teacher's permission.
26	532	Children should accept school rules without question
22	532	Children should not try to dominate classroom activities
11	518	A creative product should be technically correct if it is a classroom project. (Spelling, punctuation, etc.)
19	501	Schools should discourage dependence on highly structured materials, (example--workbooks, coloring sheets) when creativity is desired.
14	429	Children should not ask too many questions unless they are directly related to the material being studied.

*Items scored in opposite direction

TABLE 29

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	69 616	1	69 616	4 033	.046
GROUP	638 789	2	319.395	18 502	.000
AGE* GROUP	13.500	2	6 750	391	677
ERROR	2710 255	157	17 263		

GROUP	MEAN	SD	n
OM			
Age Under 40	24 000	4.600	32
Age 40 and Over	21 512	4 131	3
OM NON WINNER			
Age Under 40	19 800	3 037	20
Age 40 and Over	18 667	4 320	6
NON OM			
Age Under 40	18 977	3.800	44
Age 40 and Over	17.667	5 134	18

TABLE 30

ANOVA AND CELL MEANS FOR AGE
FOR FACTOR 3 ACCEPTANCE OF
BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	14 160	1	14.160	.669	.415
ERROR	3407.631	161	21.165		

GROUP	MEAN	SD	n
Under 40	20 823	4.526	96
40 & Over	20.224	4.706	67

ANOVA AND CELL MEANS FOR GROUP
FOR FACTOR 3 ACCEPTANCE OF
BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	570.064	2	285.032	15.992	.000
ERROR	2851.728	160	17.823		

GROUP	MEAN	SD	n
OM	22 573	4.482	75
Non Winning OM	19.538	3.313	26
Non OM	18 597	4 229	62

TABLE 31

PROBABILITIES, GROUP, AND MEAN DIFFERENCES FOR MAIN EFFECT AGE FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

No significant Tukey was found

PROBABILITIES, GROUP, AND MEAN DIFFERENCES FOR MAIN EFFECT GROUP FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

POST-HOC TUKEY'S HSD

p	Group		< or >	Group
006	OM		>	Non winning OM
Means		22 573		19.538
000	OM		>	Non OM
Means		22.573		18.597

TABLE 32

ANOVA AND CELL MEANS FOR PARENT TYPE AND GROUP FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	328 512	2	164 256	9.555	000
GROUP	142.128	1	142 128	8 268	005
PARENT * GROUP	209	2	.104	.006	994
ERROR	2698 796	157			

GROUP	MEAN	SD	n
OM			
Parent Only	19.741	3.312	27
Teacher Only	23 533	1 933	15
Both Parent & Teacher	22 288	3 824	59
Non OM			
Parent Only	17.368	4.402	38
Teacher Only	21.333	2.179	9
Both Parent & Teacher	20 067	3.575	15

TABLE 33

ANOVA AND CELL MEANS FOR MAIN EFFECT
PARENT TYPE FOR FACTOR 3 ACCEPTANCE
OF BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	547.917	2	273.959	15.252	.000
ERROR	3873.874	160	17.962		

GROUP	MEAN	SD	n
Parent Only	18.354	4 129	65
Teacher Only	22 708	5.505	24
Both Parent & Teacher	21.838	2 593	74

ANOVA AND CELL MEANS FOR MAIN EFFECT
GROUP FOR FACTOR 3 ACCEPTANCE
OF BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	392.238	1	392.238	20.845	.000
ERROR	3029.553	161	18.817		

GROUP	MEAN	SD	n
OM	21.792	4 403	101
Non OM	18 597	4 229	62

TABLE 34

PROBABILITIES, GROUPS, MEAN DIFFERENCES
FOR FACTOR 3 PARENT TYPE ACCEPTANCE
OF BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

POST-HOC TUKEY'S HSD

p	Parent Type	< or >	Parent Type
000	Teacher Only	>	Parent Only
Means	22 708		18 354
002	Both Parent & Teacher	>	Parent Only
Means	21 838		18 354

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR FACTOR 3 MAIN EFFECT GROUP ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

POST-HOC TUKEY'S HSD

p	Group	< or >	Group
000	OM	>	NON OM
Means	21 792		18 597

TABLE 35

ANOVA AND CELL MEANS FOR GROUP AND EDUCATION LEVEL FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	109 443	1	109.443	6 496	012
EDLEVEL	374 125	2	374.125	11.103	000
GROUP* EDLEVEL	24.966	2	12 483	.741	478
ERROR	2645 158	157	16.848		

GROUP	MEAN	SD	n
OM			
Ed. Level 1 High School & Below	19 050	3 220	20
Ed. Level 2 Some College to Bachelors	23 640	5 276	25
Ed Level 3 Masters & Above	21 964	3.908	56
NON OM			
Ed. Level 1 High School & Below	17 368	4.402	38
Ed. Level 2 Some College to Bachelors	20 313	2.915	16
Ed Level 3 Masters & Above	21 000	3.703	8

TABLE 36

ANOVA AND CELL MEANS FOR GROUP FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	392 238	1	392 238	20 845	.000
ERROR	3029 553	161	18.817		

GROUP	MEAN	SD	n
OM	21 792	4 403	101
NON OM	18 597	4 229	62

ANOVA AND CELL MEANS FOR EDUCATION LEVEL FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
EDLEVEL	295.854	2	148.427	7 600	.001
ERROR	3124 938	160	19 531		

GROUP	MEAN	SD	n
High School & Below	17 750	4.674	24
Some College to Bachelors	20 400	4 765	75
Masters & Above	13.813	2.031	64

TABLE 37

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR FACTOR 3 GROUP ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

p	POST-HOC Group	TUKEY'S HSD < or >	Group
000	OM	>	Non OM
Means	21 792		18 597

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR FACTOR 3 MAIN EFFECT EDUCATION LEVEL ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

p	POST-HOC Education Level	TUKEY'S HSD < or >	Education Level
000	Some College to Bachelors	>	Masters & Above
Means	20 400		13 813
028	Some College to Bachelors		High School & Below
Means	20 400		17 750

TABLE 38

ANOVA AND CELL MEANS FOR GROUP AND TOWN SIZE FOR FACTOR 3 ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
TSIZE	125 716	2	62.858	3 582	.030
GROUP	138.866	1	138 866	7.913	006
TSIZE* GROUP	171.254	2	85.627	4.879	009
ERROR	2755 160	157	17.549		

GROUP	MEAN	SD	n
OM			
Town Size 10,000 or less	21 542	3.845	24
Town Size 10,001-20,000	22 255	4 677	51
Town Size 20,001 & Larger	21.115	4 385	26
Non OM			
Town Size 10,000 or less	17 217	5.393	23
Town Size 10,001-20,000	20.750	2 137	12
Town Size 20,001 & Larger	18.815	3.397	27

TABLE 39

ANOVA AND CELL MEANS FOR TOWN SIZE
FOR FACTOR 3 ACCEPTANCE OF
BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
TSIZE	212 382	2	106 191	5.294	.006
ERROR	3209.409	160	20.059		

GROUP	MEAN	SD	n
Town Size 10,000 or less	20.882	4 827	110
Town Size 10,001-20,000	18.387	3.621	31
Town Size 20,001 & Larger	22.136	3.629	22

ANOVA AND CELL MEANS FOR GROUP
FOR FACTOR 3 ACCEPTANCE OF
BEHAVIORS CONSIDERED
NON CONFORMING BY
SOCIETY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	40.697	1	40 697	8.198	.005
ERROR	784.397	158	4.965		

GROUP	MEAN	SD	n
OM	21.792	4 403	101
Non OM	18.597	4 229	62

TABLE 40

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR FACTOR 3 MAIN EFFECT OF TOWN SIZE ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

	POST-HOC	TUKEY'S HSD	
P	Town Size	< or >	Town Size
017	20,001 & Larger	>	10,001-20,000
Means	22 136		18 387
001	10,000 or Less	>	10,001-20,000
Means	20 882		18.387

PROBABILITIES, GROUPS, MEAN DIFFERENCES FOR FACTOR 3 MAIN EFFECT GROUP ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

	POST-HOC	TUKEY'S HSD	
P	Group	< or >	Group
000	OM	>	Non OM
Means	21.792		18.597

TABLE 41

PROBABILITIES, GROUPS, AND MEAN DIFFERENCES FOR FACTOR 3 TOWN SIZE AND GROUP ACCEPTANCE OF BEHAVIORS CONSIDERED NON CONFORMING BY SOCIETY

		POST-HOC	TUKEY'S HSD		
p	Group	Town Size	< or >	Group	Town Size
.000	Non OM	20,001 & Larger	>	Non OM	10,000 or Less
Means		18 815			17 217
000	OM	10,000-20,000	>	Non OM	10,000 or Less
Means		22 255			17.217
006	OM	10,000 or Less	>	Non OM	10,000 or Less
Means		21 542			17 217
010	OM	10,001-20,000	>	Non OM	20,001 & Larger
Means		22.255			18 815

TABLE 42

LIST OF ALL QUESTIONS, ITEM NUMBERS, ROTATED LOADINGS, AND COEFFICIENT ALPHA FOR ALL ITEMS IN FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

Coefficient Alpha-All Items .789

ITEM #	ROTATED LOADING	ITEM
20	839	Schools value a keen sense of humor in a child
18	738	Schools show appreciation for creative products.
17	658	Schools view creativity in children as desirable.
8	646	Generally, people feel that children should be creative.
26	400	Children should accept school rules without question

TABLE 43

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	41 650	1	41.650	7 310	008
GROUP	.176	1	.176	.031	.861
AGE* GROUP	25.346	1	25.346	4.449	037
ERROR	888 801	156	5 697		

GROUP	MEAN	SD	n
OM			
Age Under 40	14 408	2.661	52
Age 40 & Over	14 163	2.427	49
NON OM			
Age Under 40	15 205	1 812	44
Age 40 & Over	13.222	2.713	18

TABLE 44

ANOVA AND CELL MEANS FOR AGE FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	29 782	1	29 782	5 142	.028
ERROR	915 162	158	5 792		

GROUP	MEAN	SD	n
Under 40	14 785	2 321	93
40 & Over	13 910	2 521	67

TABLE 45

PROBABILITIES, GROUPS, MEANS FOR FACTOR 4 INTERACTION FOR GROUP AND AGE ACCEPTANCE OF CREATIVITY BY SCHOOLS

	POST-HOC	TUKEY'S HSD			
p	Group	Age	< or >	Group	Age
000	Non OM	Under 40	>	OM	40 and Over
Mean		15 205			13 222

PROBABILITIES, GROUPS, MEANS FOR FACTOR 4 MAIN EFFECT FOR AGE ACCEPTANCE OF CREATIVITY BY SCHOOLS

	POST-HOC	TUKEY'S HSD	
p	Age	< or >	Age
025	Under 40	>	40 & Over
Means	14 785		13.910

TABLE 46

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	11.875	1	11 875	2 072	152
GROUP	6 236	2	3.118	.544	582
AGE* GROUP	28 965	2	14 483	2.528	083
ERROR	882 442	157	5 730		

GROUP	MEAN	SD	n
OM			
Age Under 40	14 219	2 433	32
Age 40 & Over	14.070	2.324	43
Non Winning OM			
Age Under 40	14.765	3.093	17
Age 40 & Over	14.833	3.251	6
Non OM			
Age Under 40	15.205	1 812	44
Age 40 & Over	13.222	2 713	18

TABLE 47

ANOVA AND CELL MEANS FOR PARENT TYPE AND GROUP FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN SQUARE	F-RATIO	P
PARENT	3.455	2	1 728	288	.750
GROUP	6.255	1	6.255	1 041	.309
PARENT* GROUP	11.920	2	5 960	992	373
ERROR	925 355	154	6 009		

GROUP	MEAN	SD	n
OM			
Parent Only	14 792	3.176	27
Teacher Only	13.733	2.120	15
Both Parent & Teacher	2 342	2 342	59
NON OM			
Parent Only	14 447	2.226	38
Teacher Only	14.667	1.323	9
Both Parent & Teacher	15.067	2.865	15

TABLE 48

ANOVA AND CELL MEANS FOR EDUCATION LEVEL AND GROUP FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN SQUARE	F-RATIO	P
GROUP	10 606	1	10 606	1 855	175
EDLEVEL	33 041	2	16 320	2 890	059
GROUP* EDLEVEL	20 935	2	10 467	1.831	164
ERROR	880 330	154	5 716		

GROUP	MEAN	SD	n
OM			
Ed Level 1 H S and Below	13 706	2.910	20
Ed Level 2 Some College to Bachelors	15 920	2 999	25
Ed Level 3 Masters & Above	13.732	1 824	56
Non OM			
Ed Level 1 H S and Below	14 447	2.226	38
Ed Level 2 Some College to Bachelors	15.188	1.870	16
Ed Level 3 Masters & Above	14 375	3.249	8

TABLE 49

ANOVA AND CELL MEANS FOR EDUCATION LEVEL FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN SQUARE	F-RATIO	P
EDLEVEL	41 956	2	20 978	3.647	028
ERROR	902 988	157	5 752		

GROUP	MEAN	SD	n
Ed Level 1 H S and Below	15 145	2 651	21
Ed Level 2 Some College to Bachelors	14 733	2.606	75
Ed Level 3 Masters & Above	13 813	2 031	64

TABLE 50

PROBABILITIES, GROUP, MEANS FOR FACTOR 4
MAIN EFFECT EDUCATION LEVEL
ACCEPTANCE OF CREATIVITY
BY SCHOOLS

POST-HOC TUKEY'S HSD

No significant Tukey was found.

TABLE 51

ANOVA AND CELL MEANS FOR TOWN SIZE AND GROUP FOR FACTOR 4 ACCEPTANCE OF CREATIVITY BY SCHOOLS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN SQUARE	F-RATIO	P
TOWN SIZE	67 137	2	33 568	6 559	.200
GROUP	003	1	003	001	980
TOWN SIZE* GROUP	39 878	2	19.939	3.896	220
ERROR	788 210	154	5 118		

GROUP	MEAN	SD	n
OM			
Town Size 10,000 or less	14.190	2 639	21
Town Size 10,001- 20,000	13 745	1 831	51
Town Size 20,001 & Larger	15 423	3 276	26
Non OM			
Town Size 10,000 or Less	14 435	2.273	23
Town Size 10,001 to 20,000	15 250	1 545	12
Town Size 20,001 & Larger	14 519	2 563	27

TABLE 52

LIST OF ALL QUESTIONS, THE COEFFICIENT ALPHA, THE ITEM NUMBER AND THE ROTATED LOADING FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

Coefficient Alpha-All Items		708
Percent of Total Variance Explained		8 145
ITEM #	ROTATED	ITEM
4	782	Creative children should be allowed to make mistakes without being punished for them (Example--A failed experiment)
25	755	Mistakes should be treated as learning experiences rather than as an occasion for punishment
5	611	Children should be allowed to debate with adults over the validity of a creative idea
2	540	Children should be allowed to be creative in the public schools
34	513	I view creativity in my child/student as desirable
33	449	I appreciate my child's/ students' creative products

TABLE 53

ANOVA AND CELL MEANS FOR AGE AND AND GROUP FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	093	1	093	015	903
GROUP	8 338	2	4 169	662	517
AGE* GROUP	122 761	2	61 381	9 752	000
ERROR	988 159	157	6 294		

GROUP	MEAN	SD	n
OM			
Age Under 40	26 594	2 638	32
Age 40 and Over	26 047	2 734	43
OM NON WINNER			
Age Under 40	27 050	2.114	20
Age 40 and Over	24 667	2 658	6
NON OM			
Age Under 40	25 250	2.589	44
Age 40 and Over	28 000	1 715	18

TABLE 54

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 5 AGE AND GROUP DESIRABILITY/VALUE OF THE CREATIVE PROCESS

		POST-HOC	TUKEY'S HSD		
p	Group	Age	< or >	Group	Age
000	OM	40 & Over	>	Non winning OM	40 & Over
Mean		28 000			24 667
001	Non winning OM	Under 40	>	Non winning OM	40 & Over
Mean		27 050			24 667
010	Non OM	40 & Over	>	Non OM	Under 40
Mean		28 000			25 250

TABLE 55

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	41 650	1	41 650	7 310	008
GROUP	176	1	.176	031	.861
AGE* GROUP	25 346	1	25 346	4 449	037
ERROR	888 801	156	5 697		

GROUP	MEAN	SD	n
OM			
Age 40 and Under	25 769	2.438	52
Age Over 40	25 878	2.736	49
NON OM			
Age 40 and Under	25.250	2 589	44
Age Over 40	28.000	1.715	18

ANOVA AND CELL MEANS FOR AGE FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	5.544	1	5 544	801	037
ERROR	1115 057	161	6 926		

GROUP	MEAN	SD	n
Under 40	26 073	2 609	96
40 & Over	25 448	2 664	67

TABLE 56

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR AGE AND GROUP FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

POST-HOC TUKEY'S HSD

p	Group	Age	< or >	Group	Age
000	Non OM	Over 40	>	Non OM	40 & Under
Mean		28 000			25 250
012	Non OM	Over 40	>	OM	Over 40
Mean		28 000			25 878
000	OM	40 & Under		Non OM	40 & Under
Mean		26 769			25 250

PROBABILITIES, GROUPS, MEANS FOR SIGNIFICANT DIFFERENCES FOR AGE FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

POST-HOC TUKEY'S HSD

No significant Tukey was found

TABLE 57

ANOVA AND CELL MEANS FOR PARENT TYPE AND GROUP FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	27 553	2	13 776	2 164	118
GROUP	50 215	1	50 215	7 886	006
PARENT* GROUP	91 348	2	45 678	7 173	001
ERROR	999 657	157	6 367		

GROUP	MEAN	SD	n
OM			
Parent Only	26 370	2 467	27
Teacher Only	27 533	2 295	15
Both Parent & Teacher	26 017	2 701	59
NON OM			
Parent Only	26 816	2 448	38
Teacher Only	23 333	2 646	9
Both Parent & Teacher	25.733	2 187	15

TABLE 58

ANOVA AND CELL MEANS FOR GROUP FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	3 192	1	3.192	460	.049
ERROR	1117 409	161	6 940		

GROUP	MEAN	SD	n
OM	26 337	2.613	101
NON OM	26.048	2.670	62

TABLE 59

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 5 PARENT TYPE AND GROUP DESIRABILITY/VALUE OF THE CREATIVE PROCESS

POST-HOC TUKEY'S HSD

p	Group	Parent Type	< or >	Group	Parent Type
000	Non OM	Parent Only	>	Non OM	Teacher Only
Mean	26 816			23 333	
000	OM	Both Parent & Teacher	>	Non OM	Teacher Only
Mean	26 017			23 333	
000	OM	Teacher Only	>	Non OM	Teacher Only
Mean	27 533			23.333	
015	OM	Parent Only	>	Non OM	Teacher Only
Mean	26 370			23.333	
022	Non OM	Both Parent & Teacher		Non OM	Teacher Only
Mean	25.733			23.333	

TABLE 60

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 5 GROUP DESIRABILITY/VALUE OF THE CREATIVE PROCESS

POST-HOC	TUKEY'S HSD

No significant Tukey was found

TABLE 61

ANOVA AND CELL MEANS FOR GROUP AND EDUCATION LEVEL FOR FACTOR 5 DESIRABILITY/VALUE OF THE CREATIVE PROCESS

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	25 259	1	25 259	1 936	.148
EDLEVEL	11 690	2	5 845	896	411
GROUP* EDLEVEL	80 572	2	40.286	3 087	018
ERROR	1004 836	154	6 525		

GROUP	MEAN	SD	n
OM			
Ed. Level 1 H.S and Below	26 300	2 618	20
Ed Level 2 Some College to Bachelors	26.960	2 715	25
Ed Level 3 Masters & Above	26.071	2 564	56
NON OM			
Ed. Level 1 H S. and Below	26.816	2.448	38
Ed. Level 2 Some College to Bachelors	24.063	2 323	16
Ed Level 3 Masters & Above	26 375	2.560	8

TABLE 62

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 5 AGE AND GROUP DESIRABILITY/VALUE OF THE CREATIVE PROCESS

		POST-HOC	TUKEY'S HSD		
p	Group	Education Level	< or >	Group	Education Level
000	OM	Some College to Bachelor	>	Non OM	Some College to Bachelor
Mean	26 960			24 063	
006	Non OM	Masters & Above	>	Non OM	Some College to Bachelor
Mean	26 375			24 063	
038	OM	High School & Below	>	Non OM	Some College to Bachelor
Mean	26 300			24 063	
049	OM	Masters & Above	>	Non OM 24 063	Some College

TABLE 62

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 5 AGE AND GROUP DESIRABILITY/VALUE OF THE CREATIVE PROCESS

		POST-HOC	TUKEY'S HSD		
p	Group	Education Level	< or >	Group	Education Level
000	OM	Some College to Bachelor	>	Non OM	Some College to Bachelor
Mean	26 960			24 063	
006	Non OM	Masters & Above	>	Non OM	Some College to Bachelor
Mean	26 375			24 063	
038	OM	High School & Below	>	Non OM	Some College to Bachelor
Mean	26 300			24 063	
049	OM	Masters & Above	>	Non OM 24 063	Some College

TABLE 64

LIST OF ALL QUESTIONS, THE COEFFICIENT ALPHA, THE ITEM NUMBER AND THE ROTATED LOADINGS FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

Coefficient Alpha-All Items .708

Percent of Total Variance Explained 8.072

ITEM #	ROTATED LOADING	ITEM
24	.826	Creative children are overly active
23	.810	Creative children are trouble-makers.
28	.678	Creative children act immature

*Items are scored in opposite direction

TABLE 65

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A VIEW OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	6 648	1	6 648	1 220	271
GROUP	16 847	1	16 847	3.093	081
AGE* GROUP	92 999	1	92 999	17 071	000
ERROR	866 184	159	5 448		

GROUP	MEAN	SD	n
OM			
Age Under 40	11.519	2 429	52
Age 40 & Over	10.306	2 320	49
Non OM			
Age Under 40	10.568	2.574	44
Age 40 & Over	12.667	1 138	18

TABLE 66

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 6 AGE AND GROUP ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

			POST-HOC TUKEY'S HSD		
p	Group	Age	< or >	Group	Age
002	Non OM	Over 40	>	Non OM	40 & Under
Mean	12 667			10.568	
006	Non OM	Over 40	>	OM	Over 40
Mean	12 667			10 306	

TABLE 67

ANOVA AND CELL MEANS FOR AGE AND GROUP FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY GIVE A NEGATIVE VIEW OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
AGE	8.074	1	8 074	1 527	218
GROUP	24 732	2	12 366	2.339	100
AGE* GROUP	118.205	2	59 103	11 180	000
ERROR	829 964	157	5.286		

GROUP	MEAN	SD	n
OM			
Age Under 40	11.719	2.247	32
Age 40 and Over	10.000	2.278	43
OM NON WINNER			
Age Under 40	11.200	2.726	20
Age 40 and Over	12.500	1.225	6
NON OM			
Age Under 40	10.568	2.574	44
Age 40 and Over	12 667	1.138	18

TABLE 68

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 6 AGE AND GROUP ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

POST-HOC TUKEY'S HSD

P	Group	Age	< or >	Group	Age
.000	Non winning OM	Over 40	>	OM	Over 40
Mean		12 500			10 000
000	Non OM	Over 40	>	OM	Over 40
Mean		12 667	>		10.000
007	OM	40 and Under	>	OM	Over 40
Mean		11 719			10.000

TABLE 69

ANOVA AND CELL MEANS FOR PARENT TYPE AND GROUP FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
PARENT	22.352	2	11.176	1 964	144
GROUP	8 455	1	8.455	1 486	225
PARENT* GROUP	33 426	2	16 713	2 937	.056
ERROR	893 322	157	5 690		

GROUP	MEAN	SD	n
OM			
Parent Only	13 733	2 120	27
Teacher Only	12 000	2 478	15
Both Parent & Teacher	10 475	2 322	59
Non OM			
Parent Only	11 684	2 145	38
Teacher Only	9.667	2.784	9
Both Parent& Teacher	10 800	2 651	15

TABLE 70

ANOVA AND CELL MEANS FOR EDUCATION LEVEL AND GROUP FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
GROUP	1 496	1	1.496	.258	.612
EDLEVEL	44 926	2	22.463	3 877	023
GROUP* EDLEVEL	7 973	2	3.987	.688	.504
ERROR	909 750	157	5.795		

GROUP	MEAN	SD	n
OM			
Ed. Level 1 High School & Below	11.650	2.560	20
Ed Level 2 Some College to Bachelors	11 160	2.357	25
Ed Level 3 Masters & Above	10.571	2.411	56
NON OM			
Ed. Level 1 High School & Below	11.684	2.145	38
Ed. Level 2 Some College to Bachelors	10 500	2.360	16
Ed. Level 3 Masters & Above	10 125	3.441	8

TABLE 71

ANOVA AND CELL MEANS FOR MAIN EFFECT EDUCATION LEVEL AND GROUP FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
EDLEVEL	44 106	2	22 053	3.844	023
ERROR	917 796	160	5.736		

GROUP	MEAN	SD	n
Ed Level 1 High School & Below	10 625	2 392	24
Ed Level 2 Some College to Bachelors	11.587	2 273	75
Ed Level 3 Masters & Above	10 516	2 532	64

TABLE 72

PROBABILITIES, GROUPS, AND MEANS FOR SIGNIFICANT DIFFERENCES FOR FACTOR 6 MAIN EFFECT EDUCATION LEVEL ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

POST-HOC	TUKEY'S HSD

No Significant Tukey was found

TABLE 73

ANOVA AND CELL MEANS FOR TOWN SIZE AND GROUP FOR FACTOR 6 ATTITUDE TOWARD PERSONALITY TRAITS COMMONLY ASSOCIATED WITH CREATIVITY WHICH GIVE A NEGATIVE VIEW OF CREATIVITY

ANALYSIS OF VARIANCE

LABEL	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
TSIZE	18.172	2	9.086	1.542	.217
GROUP	326	1	.326	055	814
TSIZE* GROUP	21.247	2	10 624	1.802	.168
ERROR	925.407	157	5.894		

GROUP	MEAN	SD	n
OM			
Town Size 10,000 or less	10.917	2.062	24
Town Size 10,001-20,000	10 588	2.632	51
Town Size 20,001 & Larger	11.615	2.316	26
NON OM			
Town Size 10,000 or less	12.130	2.528	23
Town Size 10,001-20,000	9.250	2.137	12
Town Size 20,001 & Larger	11.222	2.025	27

APPENDIX E

GRAPHS

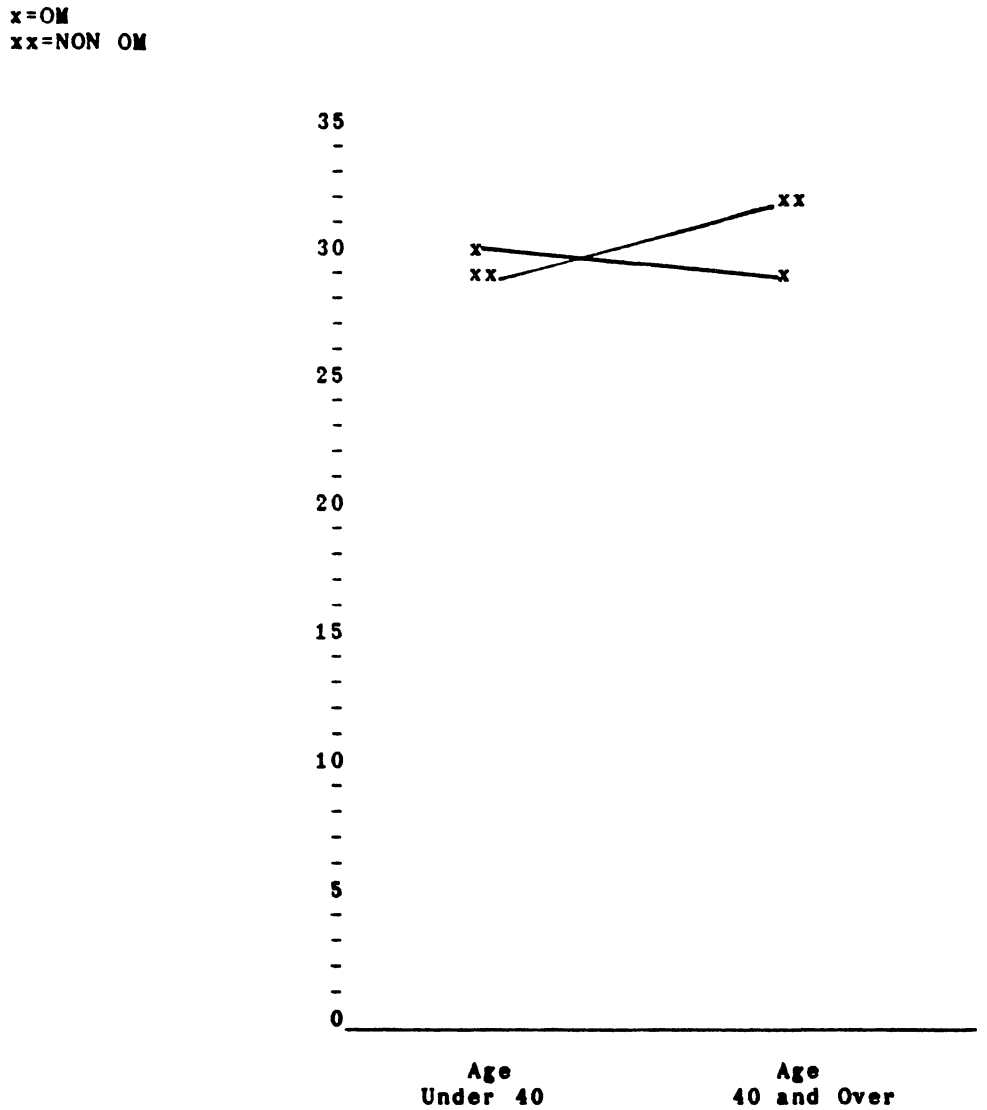

Figure 1. Graph of Interaction of Age and Group for Factor 1 Desirability and/or Value of Creativity

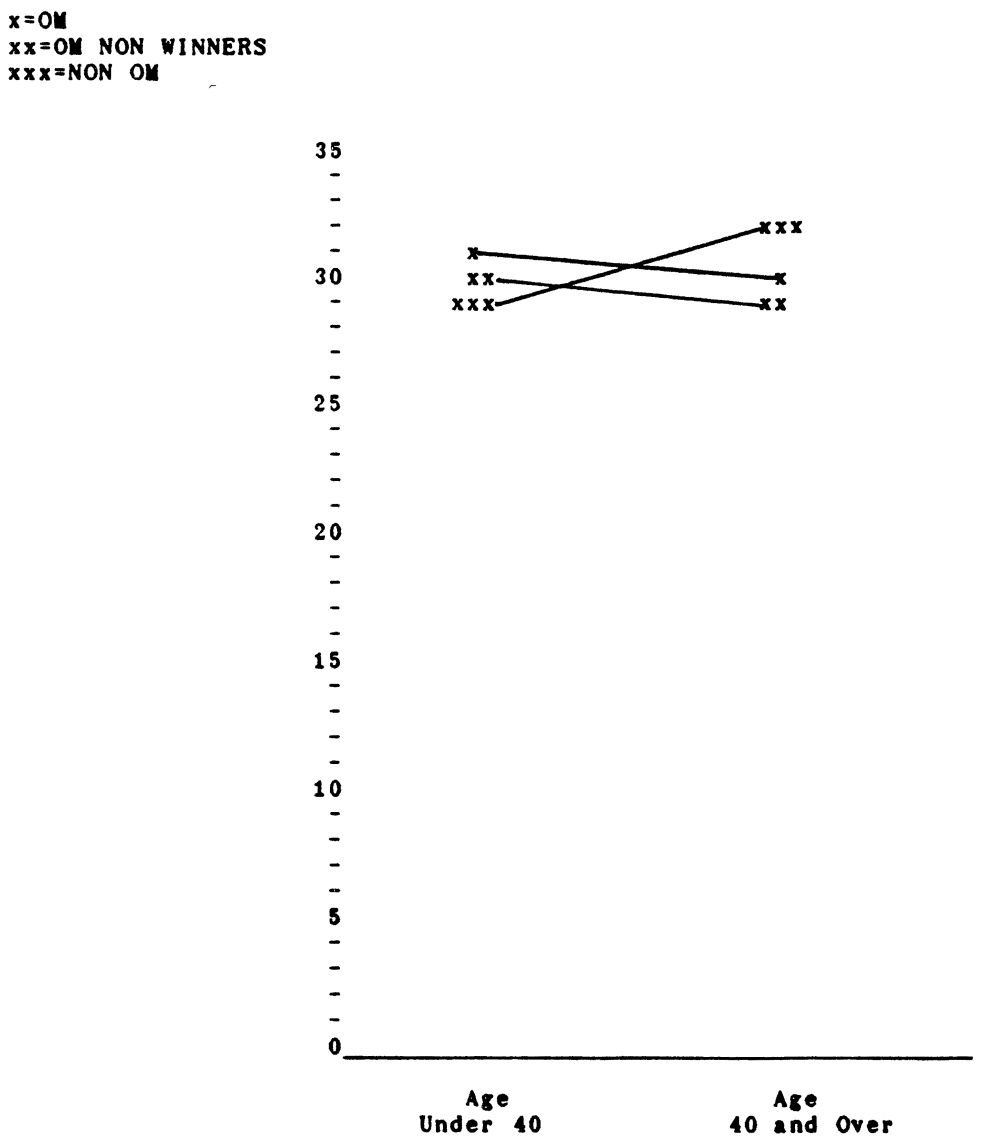

Figure 2. Graph of Interaction of Age and Group for Factor 1 Desirability and/or Value of Creativity

x=OM
xx=NON OM

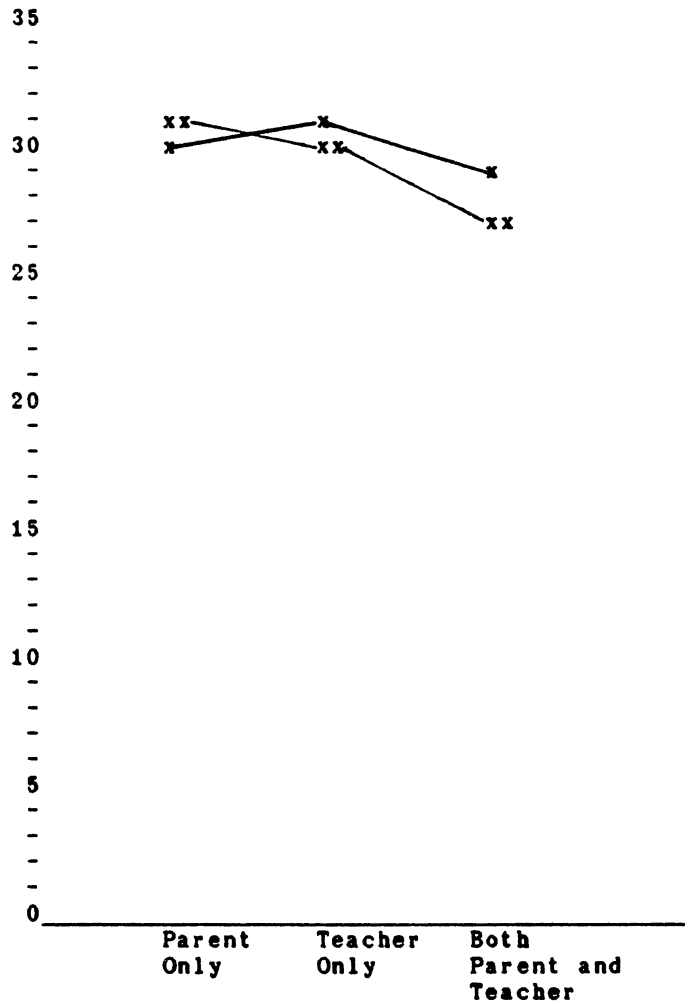

Figure 3. Graph for Interaction for Group x Parent for Factor 1 Desirability and/or Value of Creativity

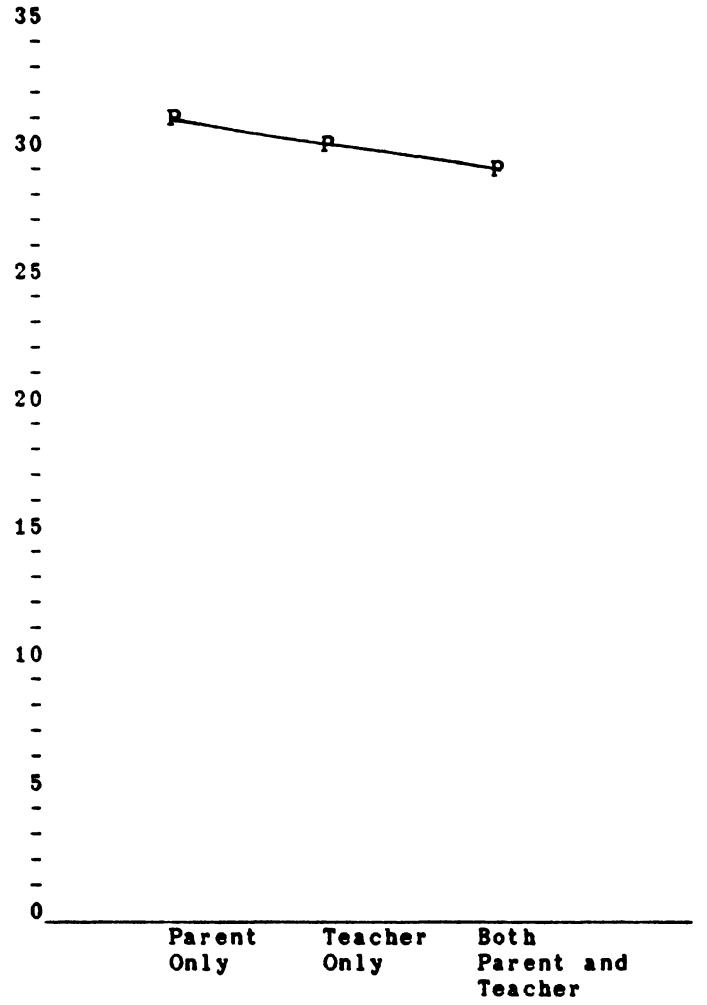

Figure 4. Graph for Main Effect for Parent for Factor 1 Desirability and/or Value of Creativity

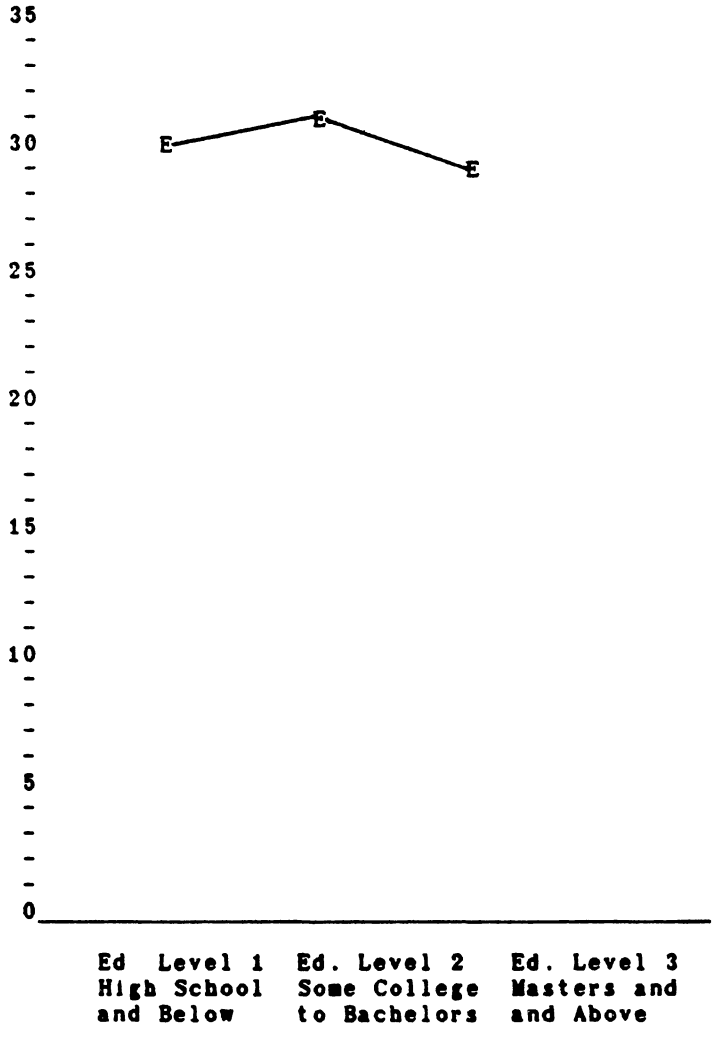

Figure 5. Graph for Main Effect Education Level for Factor 1 Desirability and/or Value of Creativity

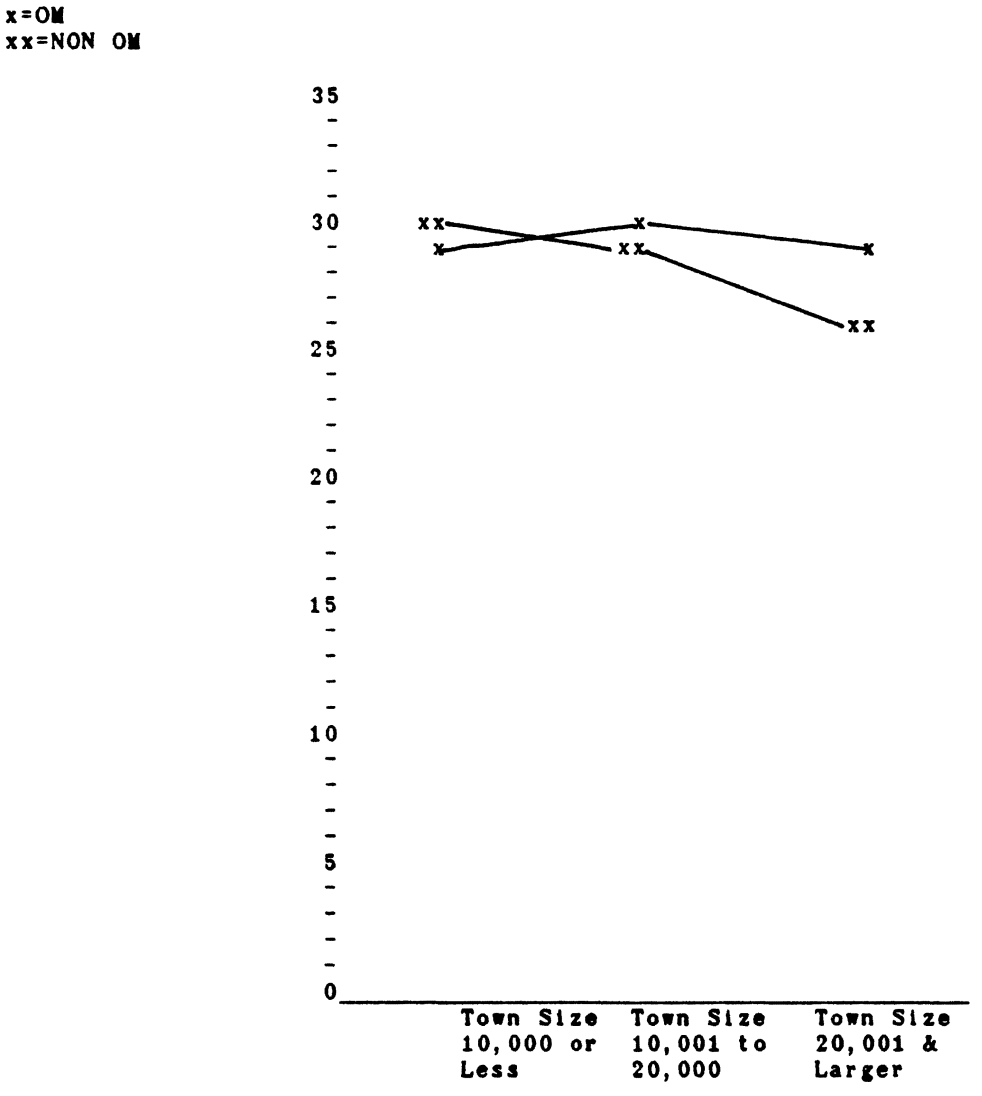

Figure 6. Graph for Interaction of Town Size and Group for Factor 1 Desirability and/or Value of Creativity

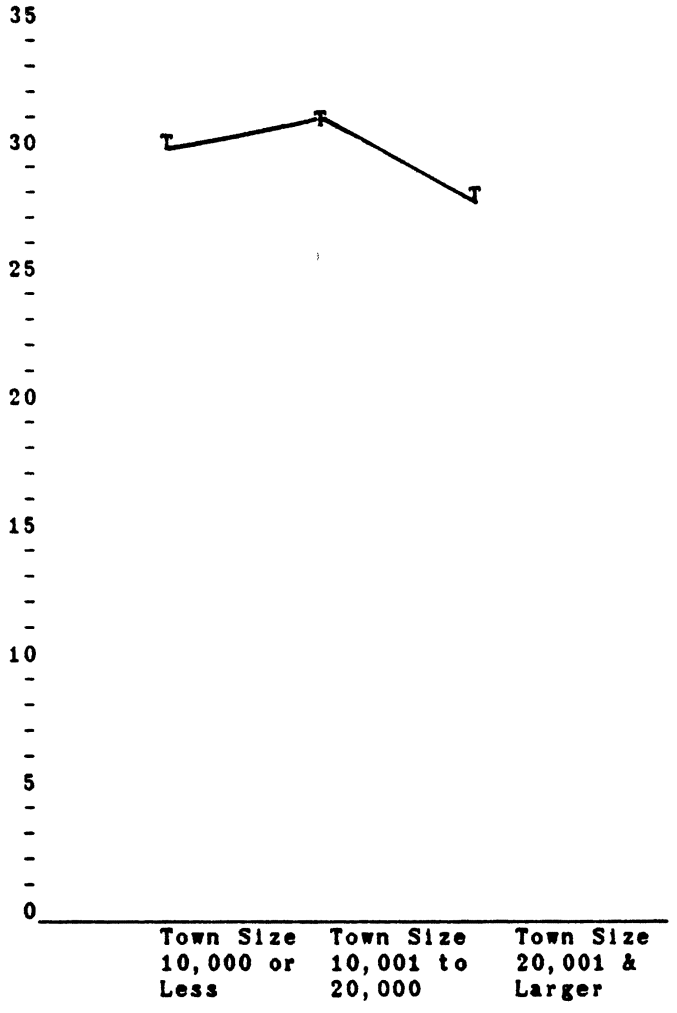

Figure 7. Graph for Main Effect for Town Size for Factor 1 Desirability and/or Value of Creativity

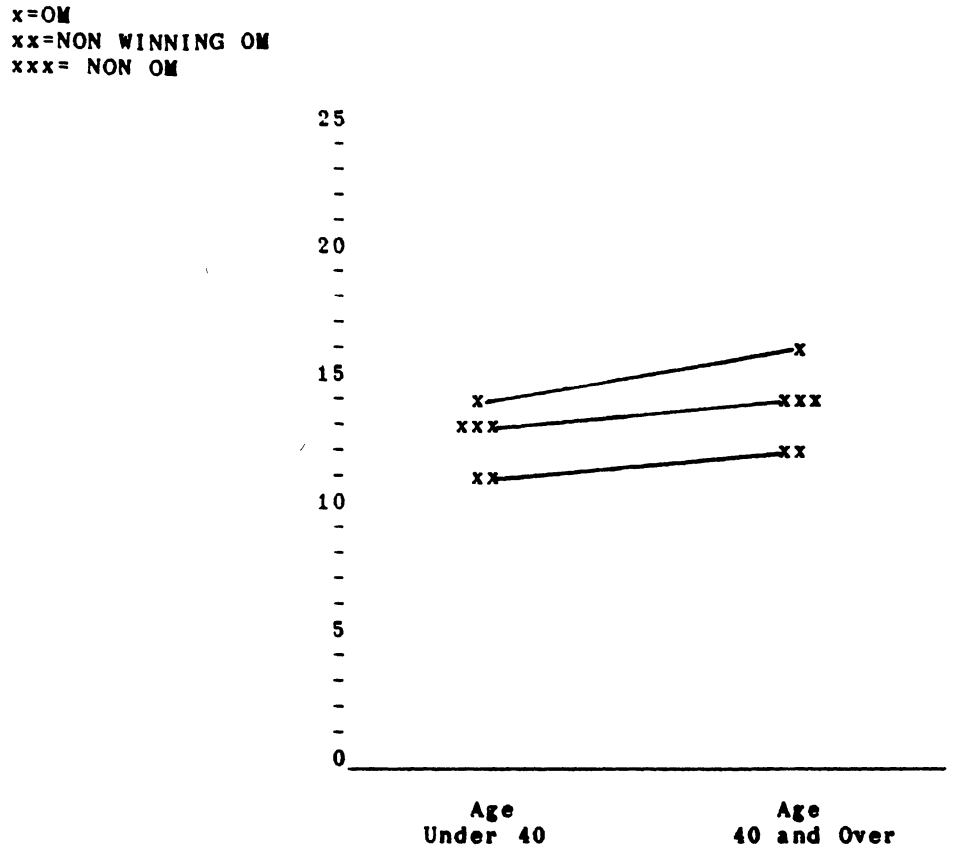

Figure 8. Graph for Interaction of Group x Age for Factor 2 Desirability of Creative Environment

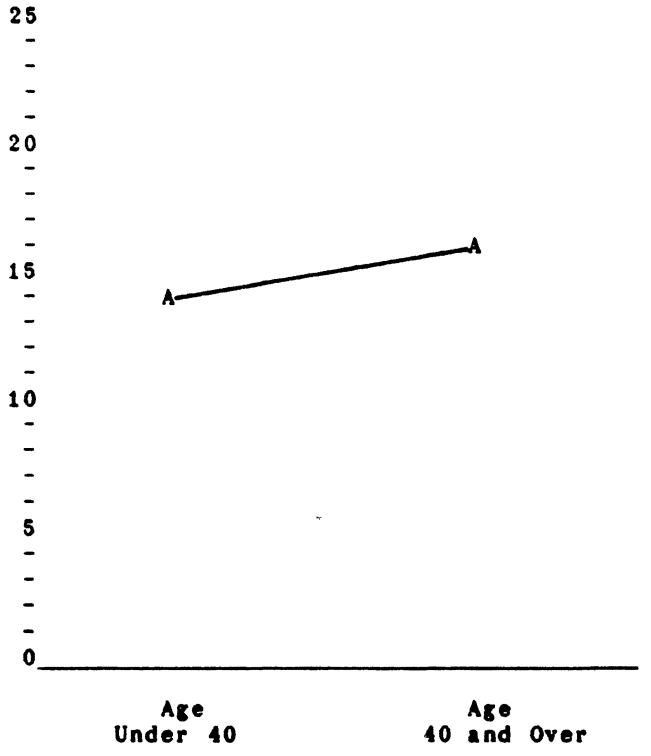

Figure 9. Graph for Main Effect Age for Factor 2 Desirability of Creative Environment

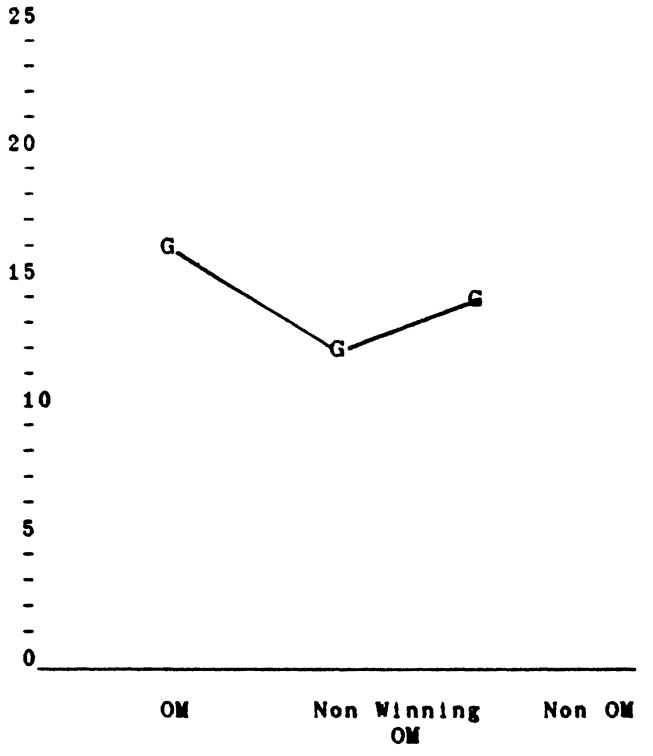

Figure 10. Graph for Main Effect Group for Factor 2 Desirability of Creative Environment

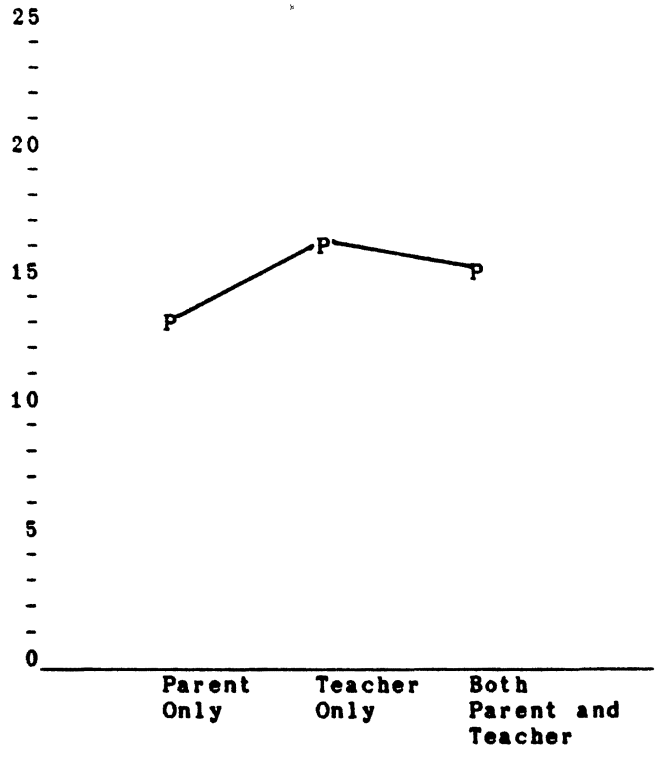

Figure 11. Graph for Main Effect for Parent Type for Factor 2 Desirability of Creative Environment

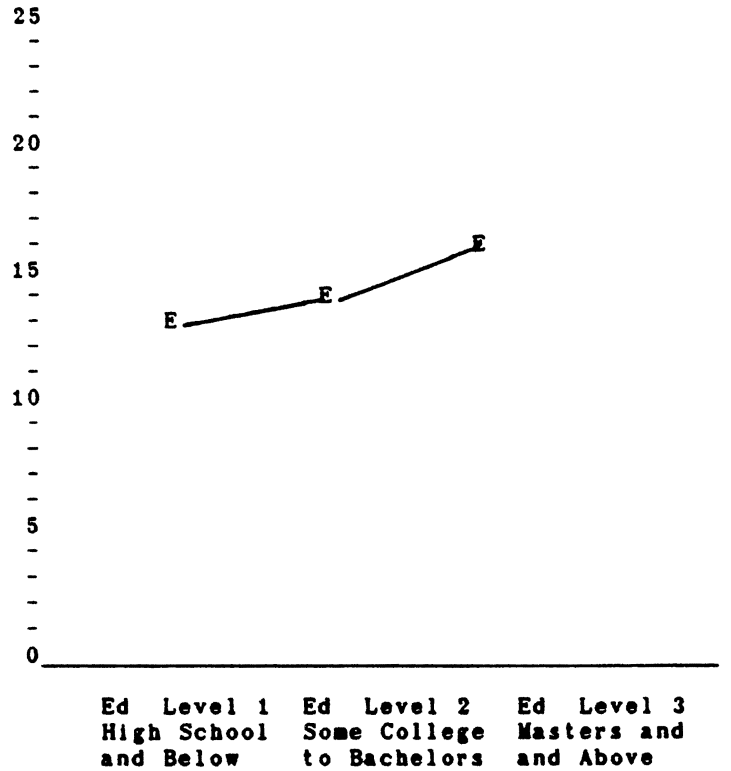

Figure 12. Graph of Main Effect for Education Level for Factor 2 Desirability of Creative Environment

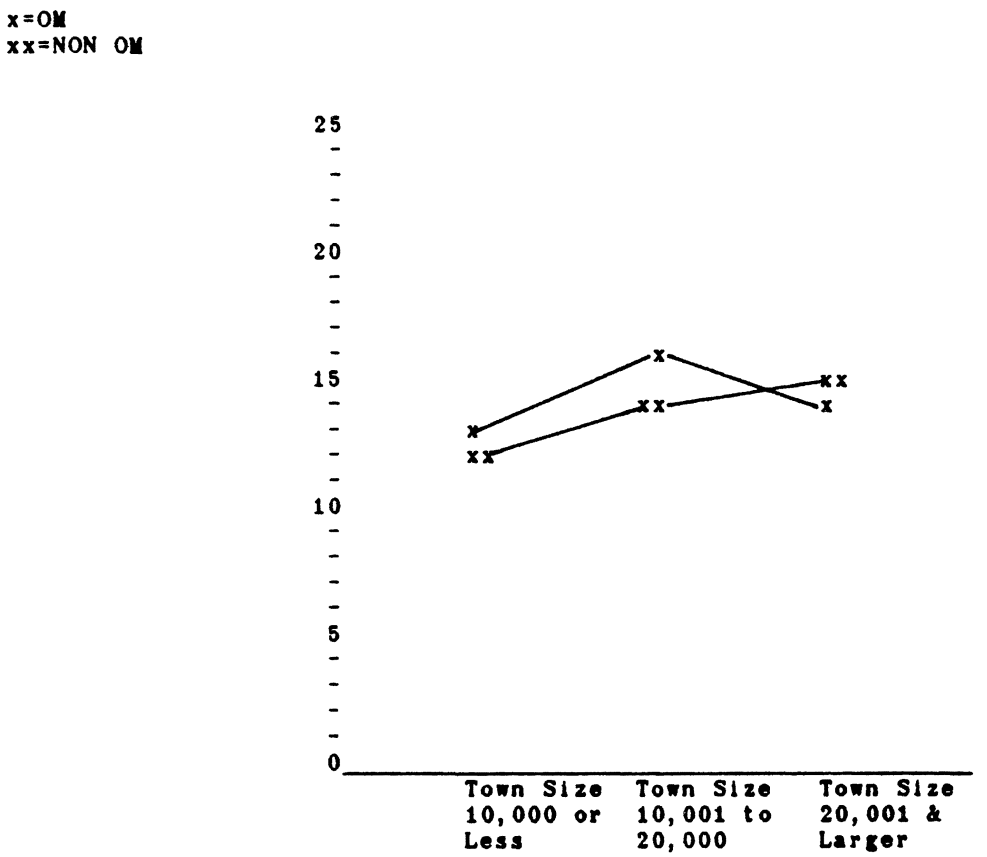

Figure 13. Graph for Interaction of Group x Town Size for Factor 2 Desirability of Creative Environment

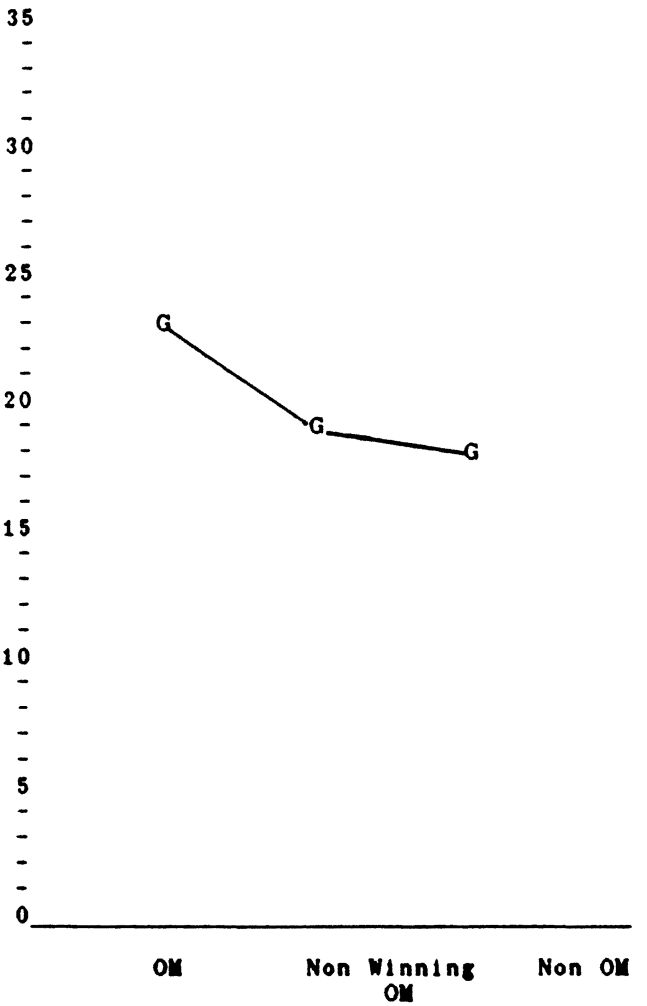

Figure 14. Graph for Main Effect Group for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

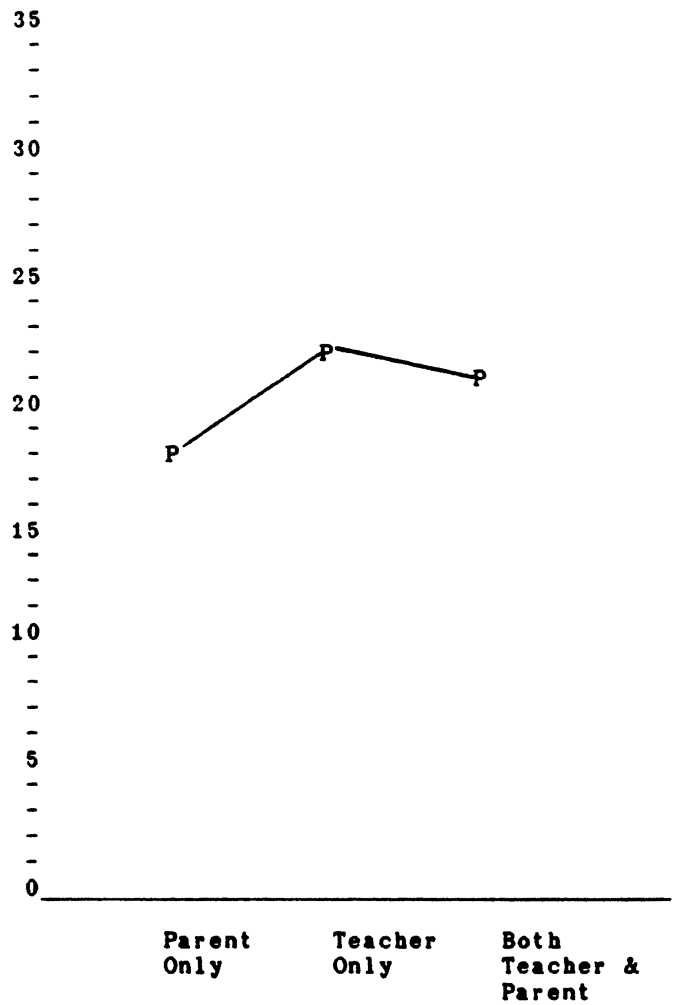

Figure 15. Graph for Main Effect Parent Type For Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

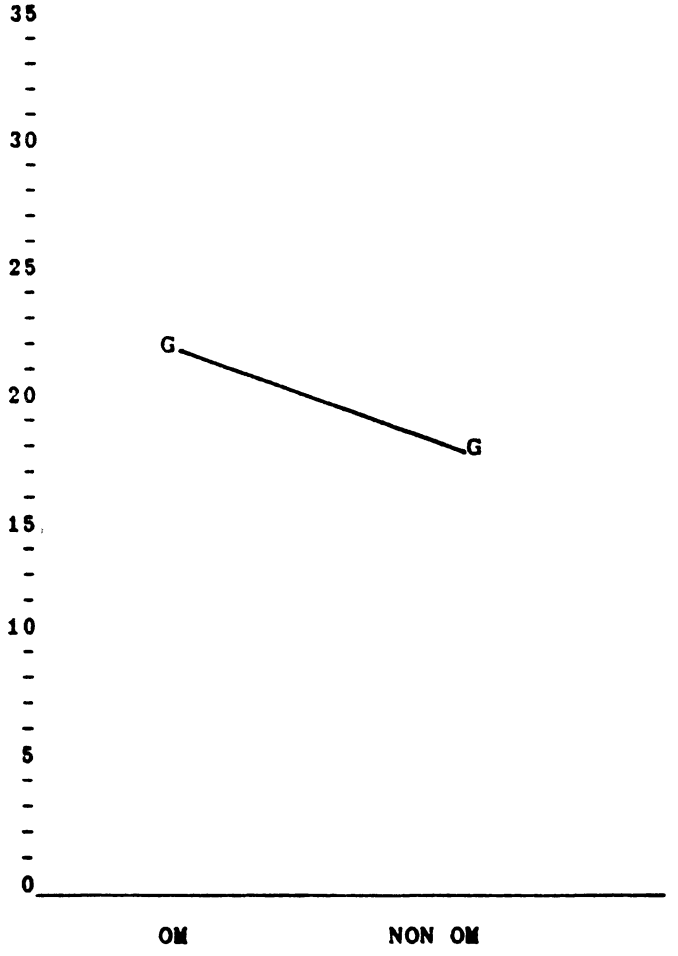

Figure 16. Graph for Main Effect Group Type for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

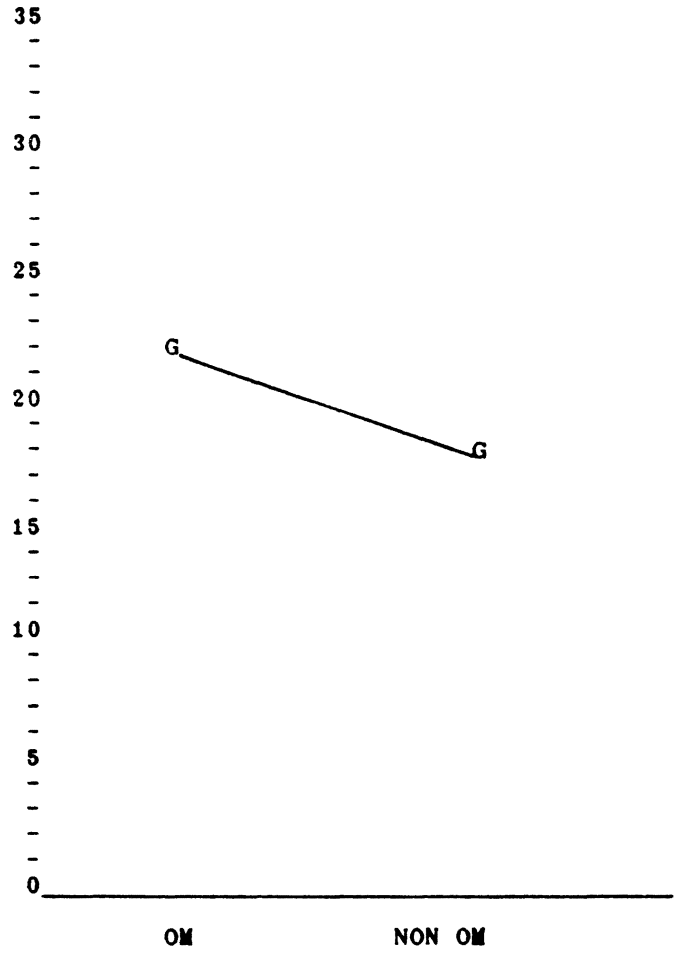

Figure 17. Graph for Main Effect Group Type for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

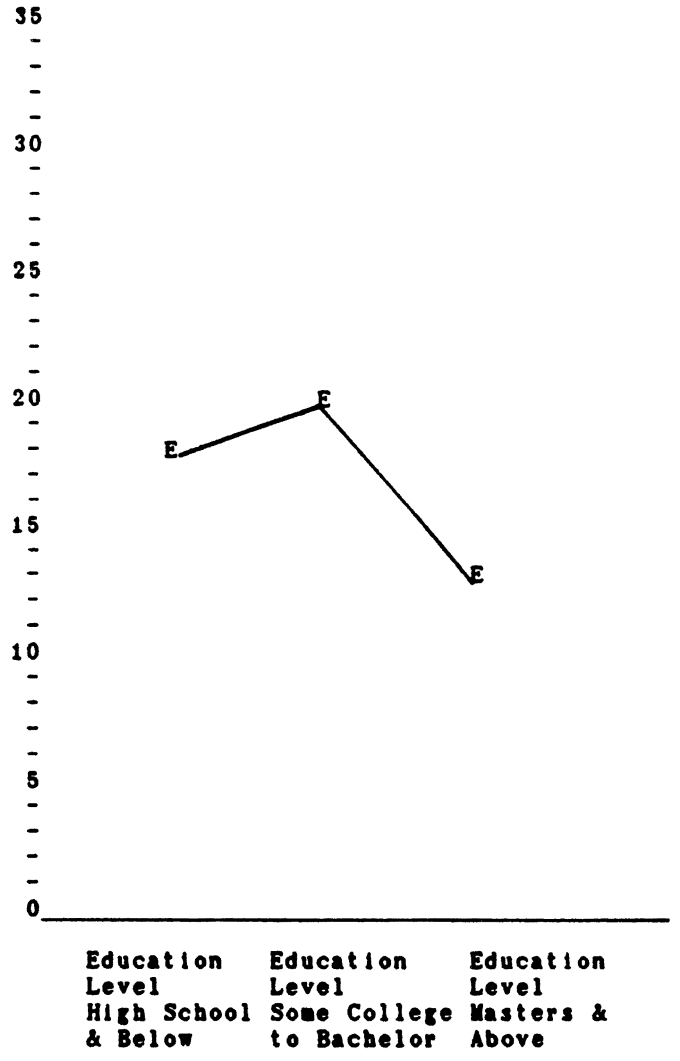

Figure 18. Graph for Main Effect Education Level for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

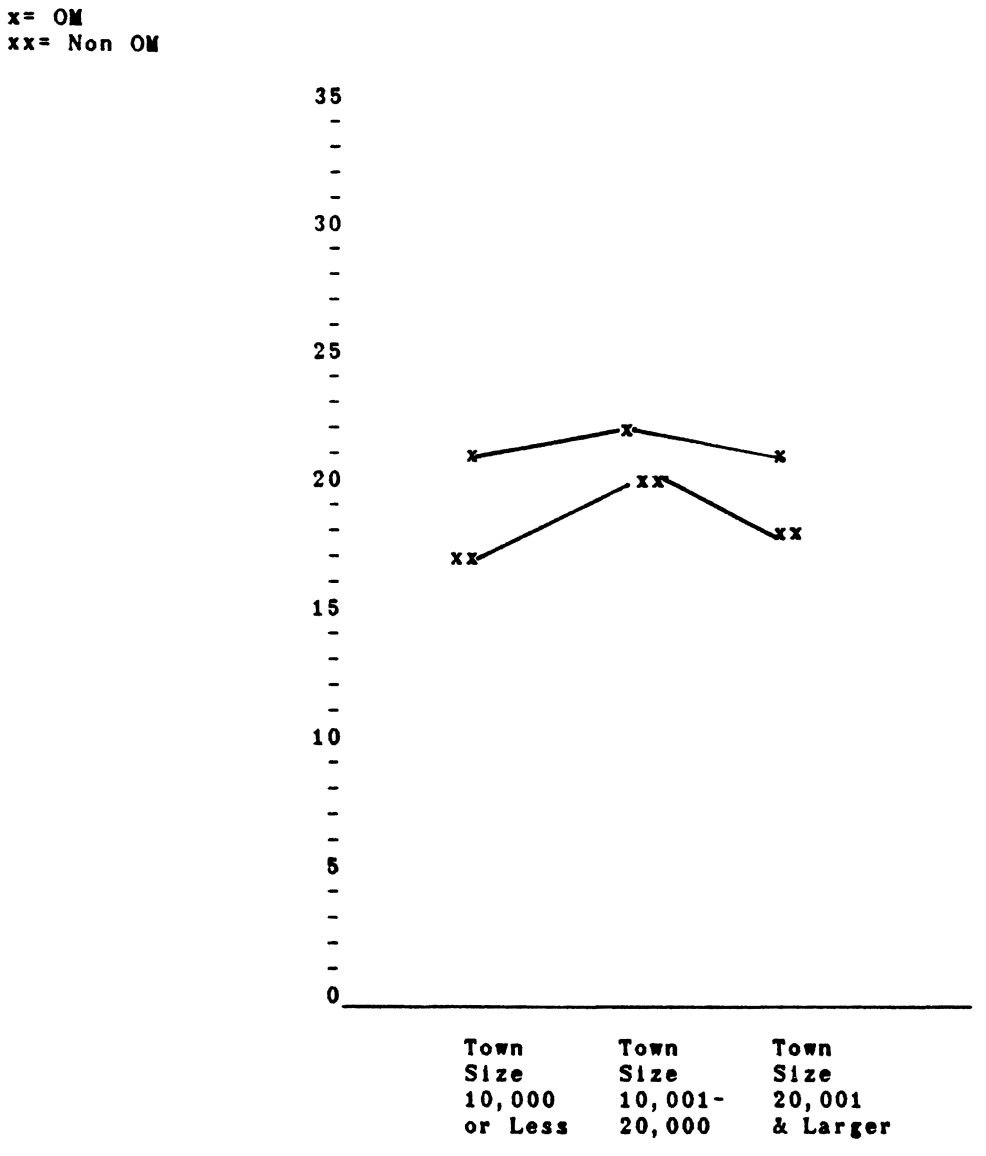

Figure 19. Graph for Interaction of Group and Town Size for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

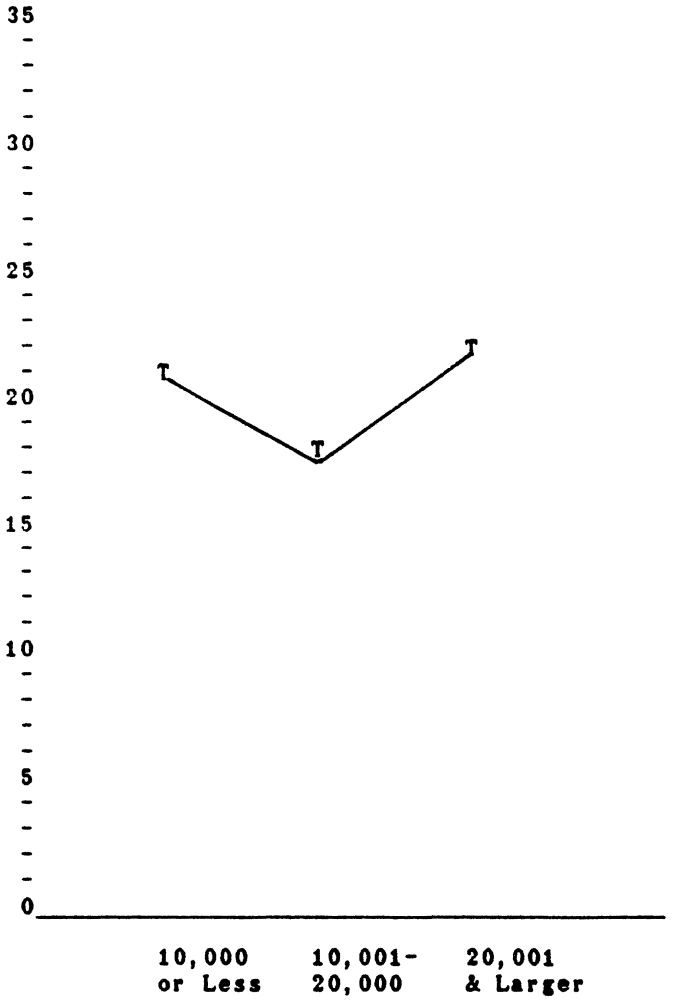

Figure 20. Graph for Main Effect Town Size for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

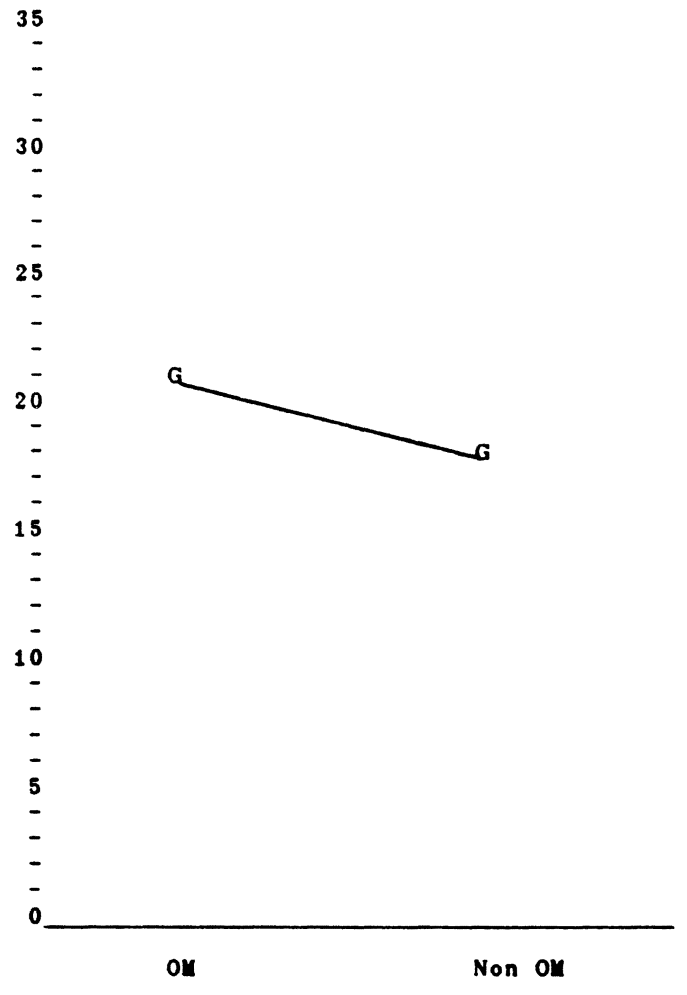

Figure 21. Graph for Main Effect Group for Factor 3 Acceptance of Behaviors Considered Non Conforming by Society

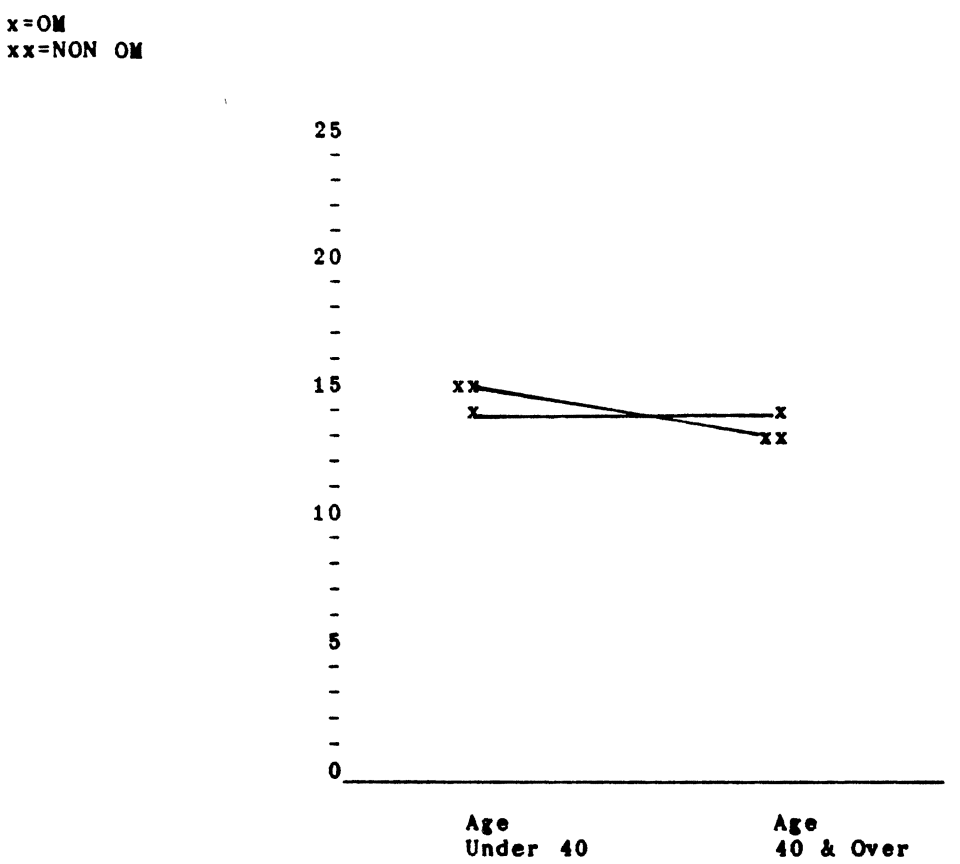

Figure 22. Graph for Interaction of Group & Age for Factor 4 Acceptance of Creativity by Schools

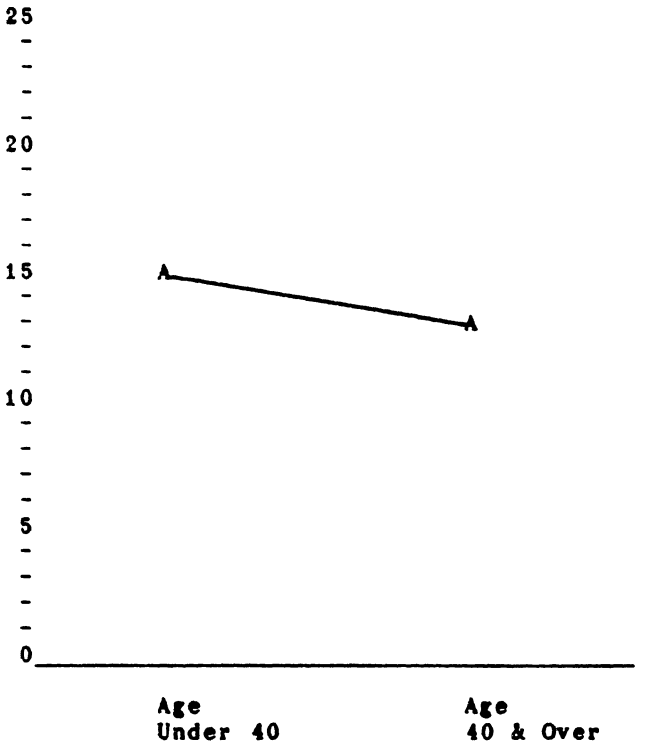

Figure 23. Graph for Main Effect Age for Factor 4 Acceptance of Creativity by Schools

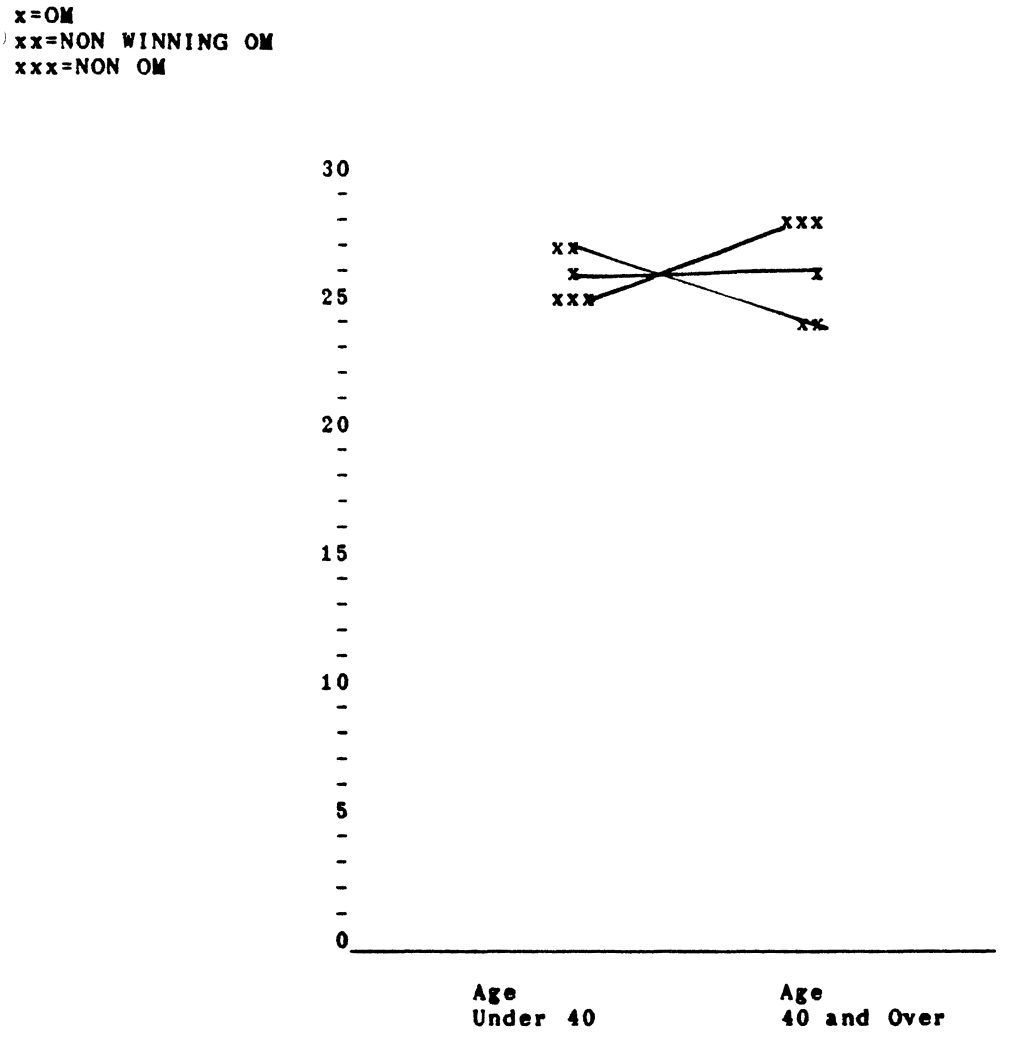

Figure 24. Graph of Interaction of Group and Age for Factor 5 Desirability/Value of the Creative Process

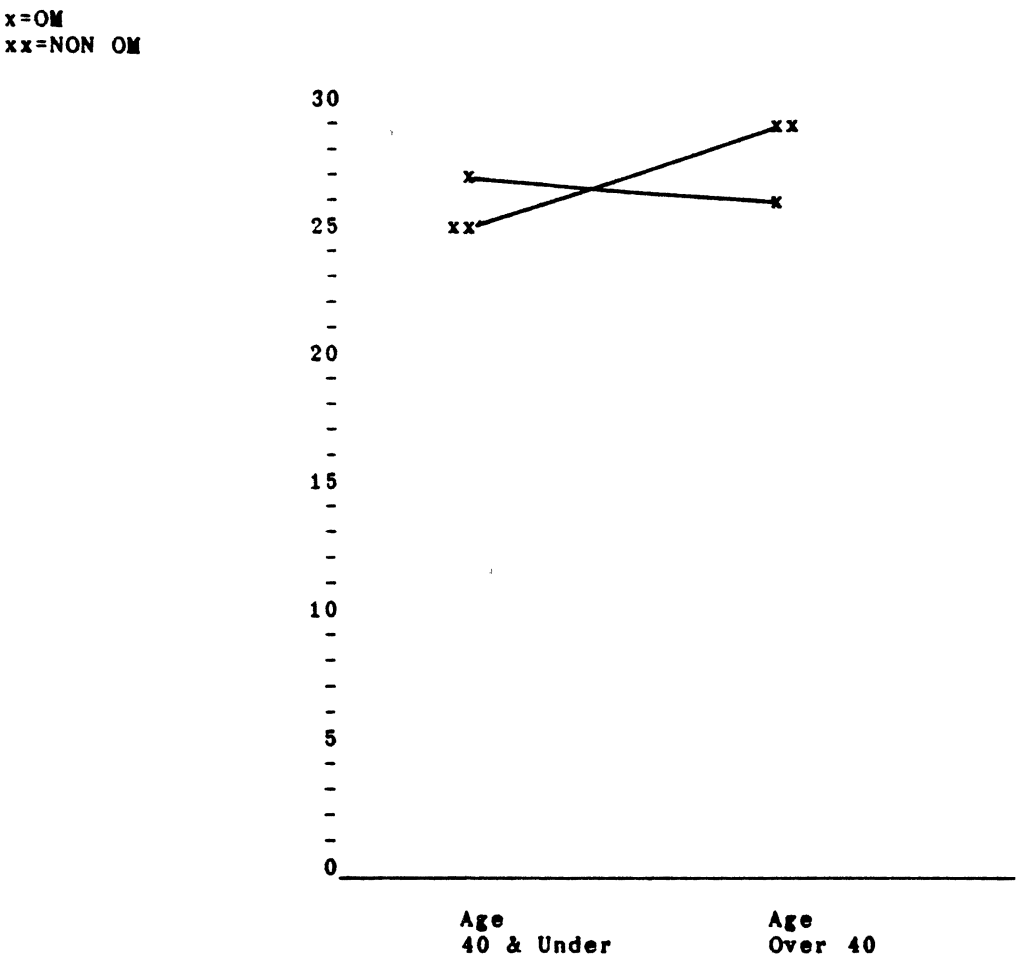

Figure 25. Graph for Interaction of Group and Age for Factor 5 Desirability/Value of the Creative Process

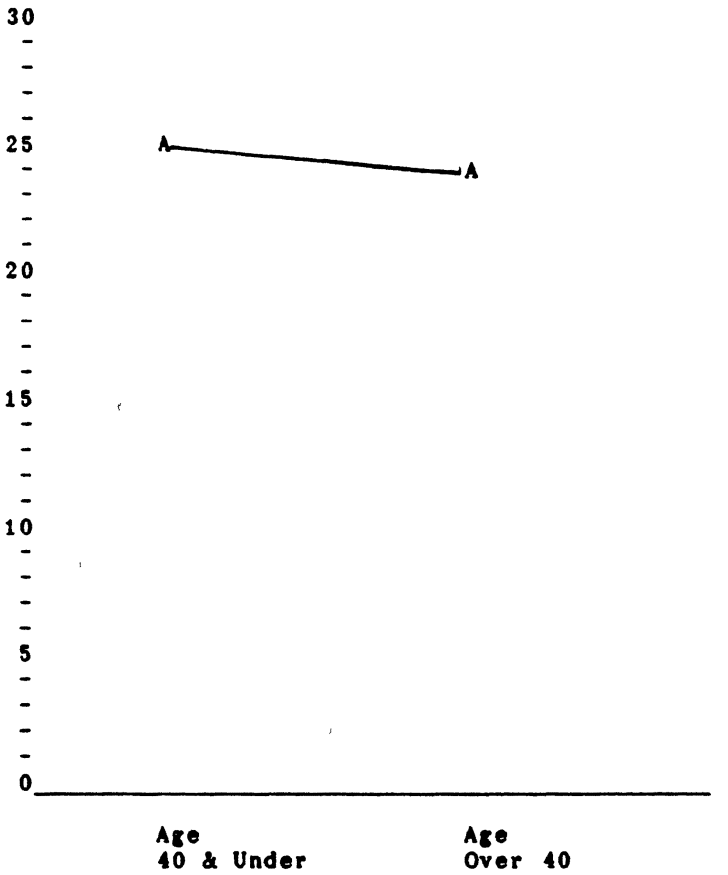

Figure 26. Graph for Main Effect Age for Factor 5 Desirability/Value of the Creative Process

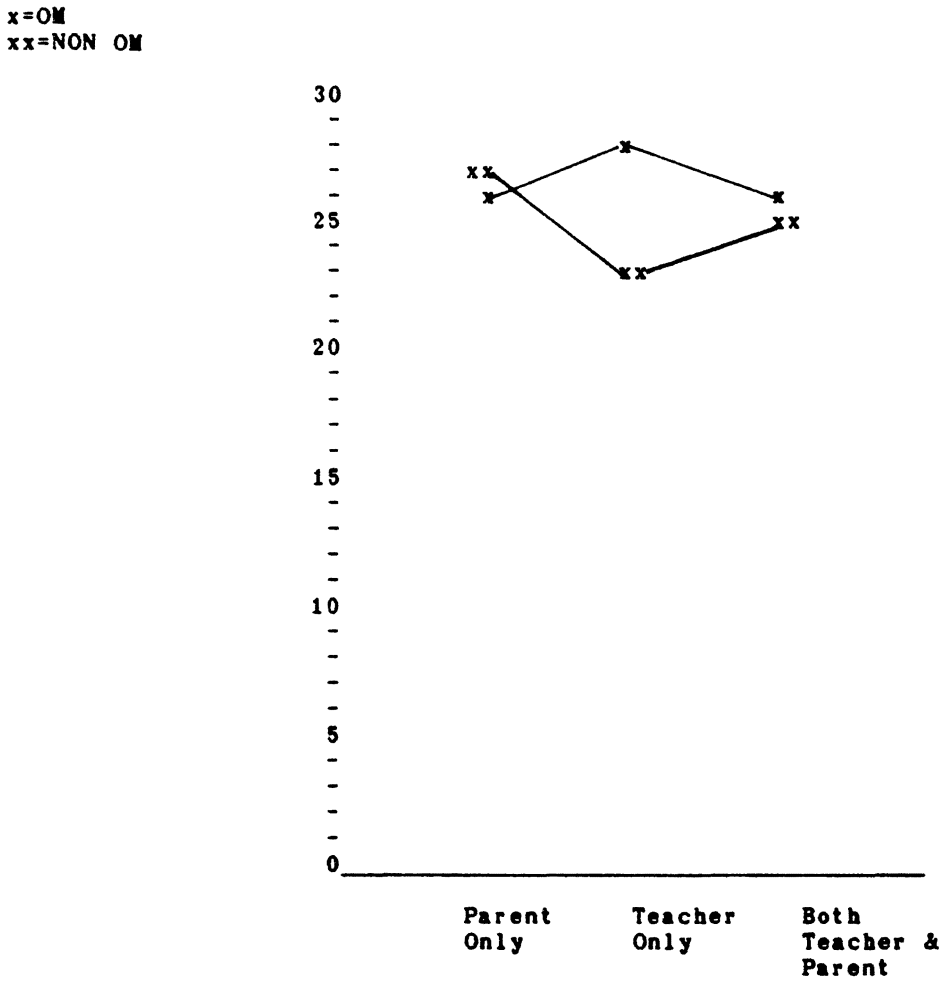

Figure 27. Graph of Interaction of Parent Type and Group for Factor 5 Desirability/Value of the Creative Process

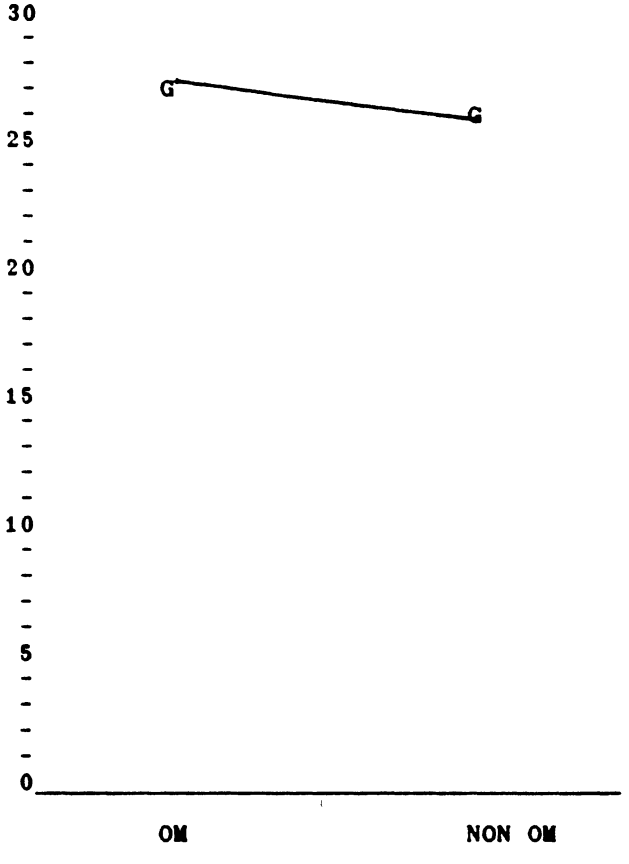

Figure 28. Graph of Main Effect Group for Factor 5 Desirability/Value of the Creative Process

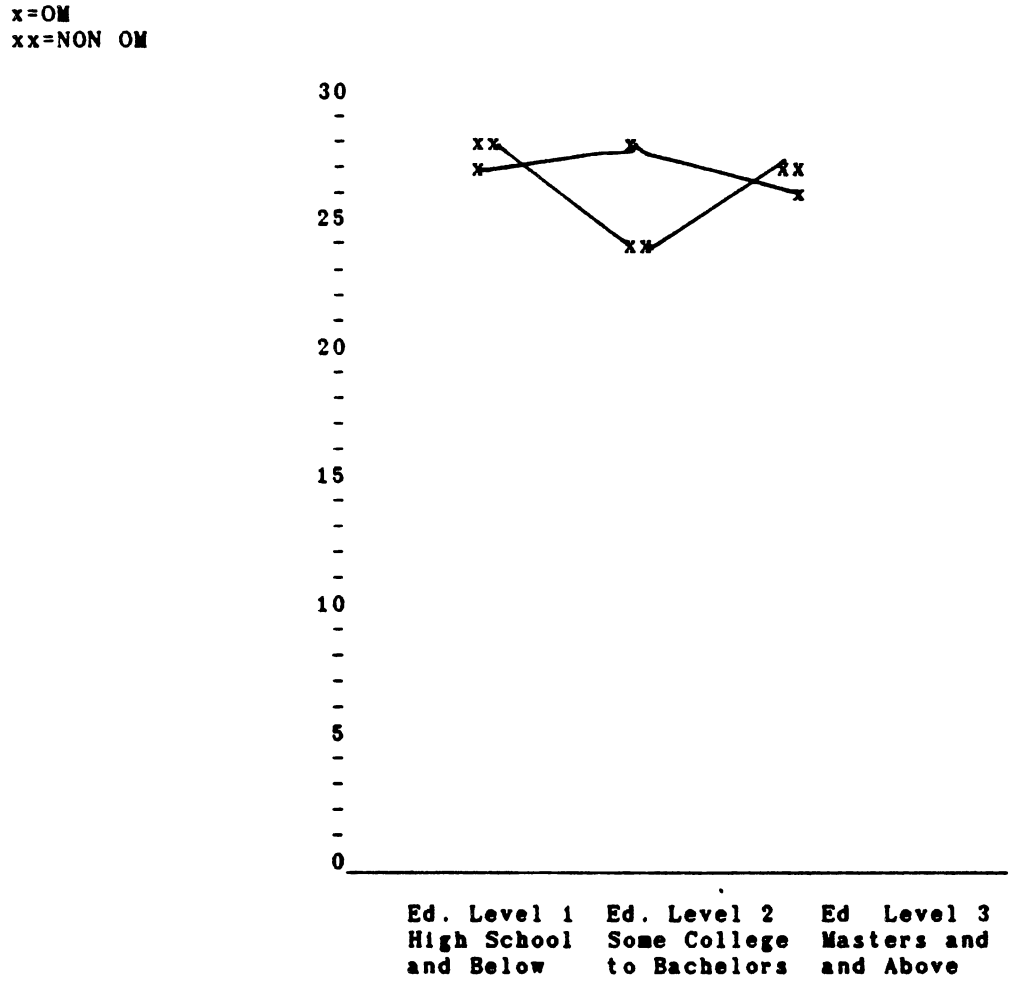

Figure 29. Graph of Interaction of Education Level and Group for Factor 5 Desirability/Value of the Creative Process

x=OM
xx=NON-OM

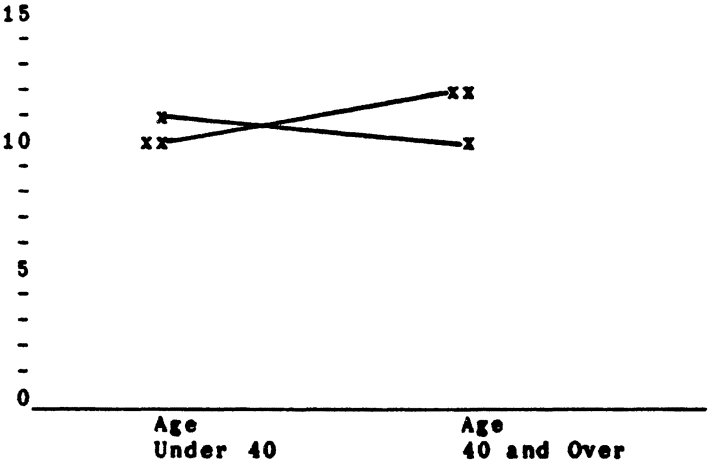

Figure 30. Graph of Interaction of Age and Group for Factor 6 Attitude Toward Personality Traits Commonly Associated with Creativity which Give a Negative View of Creativity

x=OM
xx=NON WINNING OM
xxx=NON OM

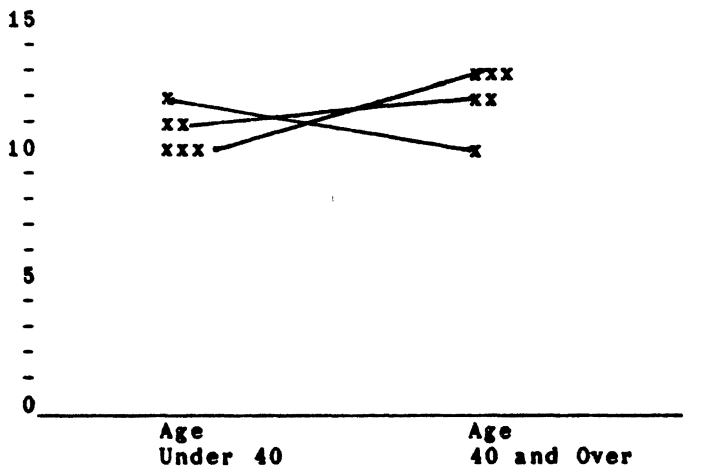

Figure 31. Graph of Interaction of Age and Group for Factor 6 Attitude Toward Personality Traits Commonly Associated with Creativity which Give a Negative View of Creativity

VITA

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Candidate for the Degree of

Master of Science

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National Education Association
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