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Creative Problem Solving as a Proposed Curriculum Addition for Primary Grades: A Stimulus Toward Development of Positive Self Concept

Joette T. Field
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CREATIVE PROBLEM SOLVING AS A PROPOSED CURRICULUM ADDITION FOR PRIMARY GRADES:
A STIMULUS TOWARD DEVELOPMENT OF POSITIVE SELF CONCEPT

1978

JOETTE TRUSSO FIELD
Creative Problem Solving As A Proposed Curriculum Addition For Primary Grades: A Stimulus Toward Development of Positive Self Concept

by

Joette Trusso Field

An Abstract of a Thesis in Creative Studies

Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Science

December 1973

State University of New York
College at Buffalo
Interdisciplinary Center for Creative Studies
ABSTRACT

This study was designed to create a curriculum in creative problem solving intended to promote greater fluency in decision-making techniques, thereby stimulating a more positive self-concept in elementary school children.

The investigator chose to base the curriculum on the Osborn-Farnes creative problem-solving process, adapting it to meet the needs of children in primary grades two through five. The Osborn-Farnes method was selected because the investigator's own self-concept was positively influenced as a direct result of a two-year study in creative problem solving, under the above method. Also, after continuing study of the process for six additional years, adapting various parts of it during three of those six years in elementary school and in teaching various workshops, the investigator found the process the most flexible and easily adaptable one in comparison with others studied.

Primary grades two through five were selected because the investigator worked with, and is therefore most familiar with, children of this age.

The experimental curriculum contains fourteen units which are a synthesis and adaptation of:

1. units found in the Guide to Creative Action (32)
2. the researcher's experience dealing with primary school children
3. exercises, techniques and experiences gleaned in teaching creative problem solving to several groups at various age levels (See Vita)
Each unit consists of cognitive material dealing with the creative problem-solving process, followed by affective material that reinforces the process and provides exercises to help develop a child's self concept. Units contain from two to five 45-minute periods. They are designed to have children work individually, in small groups, with the total group or as a part of a lecture situation. Student participation is required. Material is based on student experiences, to stimulate their participation. Interaction, self-awareness, decision-making and participation combine to help develop the child's self concept throughout the program.

The significance of such a program is to demonstrate how group interaction, self-awareness, decision-making and participation in creative problem solving help develop children's ability to solve problems both in and out of school situations. As they are better prepared to face society's challenges, the children are helped to gain and maintain a better self concept.

The investigator presented parts of the program to elementary school children over a one semester period, in order to see how children might accept and use such a curriculum. The pioneer efforts were helpful in determining the children's tolerance level and acceptance of the process, the extent to which they could utilize the process to solve group and individual problems and how the process altered their attitudes and self concepts.

Although the results were not statistically evaluated, the curriculum was found successful in helping children in decision-making, self concept
building, group interaction and organizational procedures. It is recom-
mended by the investigator that further studies be conducted to statis-
tically test the effects of the curriculum.
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CHAPTER I

INTRODUCTION

Teaching creatively seems to be a growing method of teaching. Unfortunately many educators misinterpret this term, seeing it anywhere from a license for children to do what they please, to coloring, to substituting audio-visual equipment. Often times, more emphasis is placed on materials and equipment than on children themselves. This research project deals specifically with a creative approach to curriculum through a method of problem-solving for children.

Creative Problem Solving (CPS) is a method which aids in decision-making and solving problems, as one might expect. However, it is such an eclectic process that it involves the person as a whole—his physical, emotional and intellectual self. With such an emphasis on the whole self, the person comes to know and learn more about himself and therefore accept himself—his qualities and his shortcomings. With this underway, learning can truly take place.

If one steps back and examines our present school systems, he might ask himself if a need for such a process as CPS exists in the curriculum: a whole process, an internalization and integration of both existing and newly acquired knowledge. Guilford states:

... teaching has been much too authoritative. It has not given the younger generation instruction in how to use information in creative ways, or even the opportunity to do so in many cases. Creative education, on the other hand, aims at a self-starting, resourceful, and confident person, ready to face personal, interpersonal, and other kinds of problems. Because he is confident he is also tolerant where there should be tolerance. (29:iii)
Confidence stimulates learning. CPS stimulates confidence. It is a unique process, in that it is a subtle approach to learning -- striving to create balance within the individual. Therefore, it does have a place in our curriculum today, along with being a key to more successful teaching.

The investigator, a participant in a two year experimental program at State University College at Buffalo (SUCB) under Dr. Sidney J. Parnes and Dr. Ruth B. Noller, experienced personal growth and change in the program. The effects of CPS on adults and college students are apparent to the researcher in working with Parnes and Noller at various workshops and Creative Problem-Solving Institutes. Students' responses to CPS include:

There are so many more things I have gained that I couldn't possibly evaluate at this point in my life. (33:21)

It was really great the way we learned to use our creative abilities in a wide variety of situations, fields and problems. (33:20)

CPS...opened me up to thinking, exploring, creating, discussing--brought me an overall enthusiasm for learning. (33:17)

The researcher also taught a pilot program to primary children. The results were positive, opening lines of communication between the individual and his environment, but most of all within himself, as mentioned in more detail below in the statement of the problem.

STATEMENT OF PROBLEM

As part of this study, the investigator is researching problem-solving processes, primarily the Osborn-Parnes method, and is proposing
a creative problem-solving curriculum for primary grades, designed to help stimulate self concept. The curriculum is an adaptation of the Osborn-Farnes five step Creative Problem-Solving Process.

The program's objective is to present the five steps on the creative problem-solving process integrated with complementary activities. The combination of the process and follow-up activities are stepping stones toward developing children's abilities in decision-making, group participation and interaction, and in solving problems both in and out of school. Such abilities help provide a foundation for a better self concept, with the children being better equipped to handle problems.

Therefore, a program was created, presenting the five steps of the Osborn-Farnes problem-solving process. Within the program many opportunities for self-awareness are included, in order to provide a basis for a deeper understanding of one's self and his own problems. Various techniques as lecture, role-playing, dance, exercise and small group activities, along with various media such as clay, films, music and papier mache are used to achieve the program objectives.

The program design is based on the prior knowledge of the investigator gained through teaching creative problem solving to adults, senior citizens, peers, students in college, high school and elementary school. The materials and activities used are a combination of those found most successful in teaching experiences. Although this program is designed for primary grades, intermediate through high school teachers should also find this information and methodology useful.

As a part of this study, the investigator piloted a one-semester program with five children in grades two through four, using the proposed
problem-solving and decision-making where children can integrate their own knowledge and common sense with the variables of our changing world. Children, therefore, are given tools to prepare themselves for dealing not only with educational problems but real life situations, therefore having more opportunities to reduce feelings of helplessness.

Toffler further states that,

... students will be taught to solve problems in order to discover their own answers to questions. They will be expected to proceed from the known to the unknown, to feel comfortable when faced with unresolved problems. (19:8)

The preceding describes CPS. Because the child learns to know himself, to gain self-confidence, to manipulate and adapt variables, he will not be as frightened or frustrated, better prepared to solve his own problems. One CPS student expressed:

CPS made me happier and a great deal less fearful of society. How can I tell you of my change to independency, of assurance in new fields, of ability to concentrate and solve a problem, of friends I have made. (33:20)

Jersild mentions time and again how a person becomes an individual. "The self is acquired. It is not ready made." (20:16) Thus, his origins are of society and cannot be divorced from it. There is an everpresent impact on the self and the experiences occurring in everyday living and learning. Schools are, therefore, a significant factor in the lives of children. They are places where social forces influence the child's attitude toward himself and others. The origins of self are in the hands of teachers, peers and the environment of their schools. The child's life in this atmosphere is definitely guided by success and failure, feelings of pride or shame. He perceives, accepts or rejects what he meets daily, in terms of how he sees himself.
CPS works from a positive point of view. It is a clearly defined process which is interdisciplinary by its very nature. Torrance found that:

The most popular approach to teaching children to think creatively has been through ... the use of modifications of the Osborn-Parnes CPS training program. (44:9)

The investigator's study is a modification of the Osborn-Parnes process, bringing it to the child's level of comprehension. It is not a panacea; it is a tool to help children help themselves. Jersild states that:

A large proportion of the young people now entering adulthood are burdened with anxiety, hostility, defensive attitudes toward themselves and others, feelings of guilt, inferiority, or other forms of self disparagement and self distrust. They struggle not only with the real dangers and thwartings in our troubled world but with unresolved childhood problems. (20:5)

Parnes, writing widely in literature about CPS states: "Although there is much emphasis on creative teaching ... relatively less emphasis is being placed on the development of creative behavior in the student." (29:10) The researcher's proposed curriculum is designed to provide the instructor with opportunities to strengthen and draw from his own creative resources while tapping the internal resources of the child. Therefore, CPS is mutually beneficial. Education then becomes a provoking, mutually enriching experience, applicable to today's world and the world of the future.

The primary responsibility lies with the educator, who plays a significant role in the child's feeling of self. Axline feels:

It is the obligation of the teacher to develop sufficient insight and understanding and interest in the human beings that come before her so that they will not only know the
subject matter, but themselves a little better. (1:152)

CPS is a tool for helping an educator execute this goal to provide opportunities for self-discovery, self-worth and self-respect.

STATEMENT OF HYPOTHESIS

It is possible to develop a creative problem-solving program based on the Osborn-Parnes method as a curriculum addition at the elementary school level. In conjunction with the program, it is possible to present evidence that such a curriculum addition will have a positive effect on the development of self concept.

ASSUMPTIONS

For the success of this study, the researcher assumed that:

1. Parnes, the promulgator of the Creative Problem-Solving Process (CPS), will verify the consistency, logic and design of the program presented.

2. The investigator will provide sufficient background of CPS to make the curriculum understandable and useful.

LIMITATIONS

Several limitations of the study are:

1. Lack of a thorough evaluation of the program designed.

2. Researcher bias, since the investigator is more familiar with the Osborn-Parnes method of creative problem solving than other programs considered.
DEFINITION OF TERMS

Although the reader will most likely be familiar with most of the terms defined, it is believed essential that they be repeated as reference. Such terms as "creative problem solving" and "creativity" may be standard, but for the purpose of this study are defined according to the Osborn-Farnes interpretation. Definitions such as "grasper experience" and "primary grades" are defined by the investigator also to suit the purposes of this study.

1. Brainstorming- (1) using the brain to storm a creative problem ... commando fashion, with each stormer attacking the same objective.

(5:182) (2) Osborn had four basic rules for brainstorming:

- Criticism is ruled out- adverse judgment of idea must be withheld. No one should criticize anyone else's idea.
- Free wheeling is welcome- the wilder, the better. It is easier to tame down than to think up ideas. Don't be afraid to say anything that comes into your mind- the father out the idea, the better. This complete freedom stimulates more and better ideas.
- Quantity is wanted- the greater the number of ideas, the more likelihood of winners. Come up with as many as you can.
- Try combination and improvement. In addition to contributing ideas of your own, suggest how ideas of others can be turned into better ideas, or how two or more ideas can be joined into still a better one.

(5:182)

2. Creative Problem Solving- an organized method of problem solving designed by Osborn and Farnes involving alternation between imagination and judgment in each of five steps toward creatively handling a situation or meeting an objective: The five steps include fact-finding, problem-finding, idea-finding, solution-finding and acceptance-finding. The process strives for balance in an individual,
opening doors for self-awareness and communication. (30:4)

3. Creativity - (1) a function of knowledge, imagination and evaluation. (29:6) (2) the human attribute of constructive originality; may include such factors as associative and ideational fluency, adaptive and spontaneous flexibility and ability to elaborate in detail; may be fostered or inhibited by teaching procedures. (12:152)

4. Criteria - (1) a standard norm or judgment selected as a basis for quantitative and qualitative comparison. (12:153) (2) objective standards by which to determine which ideas are most useful in solving a particular problem; yardsticks by which one can objectively measure the value of ideas; guides for mentally testing the worth of ideas that lead to solution. (29:168)

5. Curriculum - a plan for providing sets of learning opportunities to achieve broad goals and related specific objectives for an identifiable population served by a single school center. (31:6)

6. Curriculum Planning - (1) use expert judgment (based on various social and educational factors) to determine what subject to teach. (2) use some criterion to select subject matter for particular populations. (3) plan and implement appropriate methods of instruction to ensure mastery of the subject matter selected. (37:8)

7. Deferred-judgment - temporary withheld of evaluation; important to the development of a sufficient quantity of view points from which one can ultimately choose the alternatives with most promise. (29:149)

8. Grasping Experience - an experience dealing with the affective domain that is used to reinforce cognitive material presented; an internalizing experience.
9. **Primary Grades**— for the purposes of the curriculum designed in this research paper, primary grades are defined as grades two through five.

10. **Self**— a composite of thoughts and feelings which constitutes a person's awareness of his individual existence, his conception of who and what he is; the self includes... a system of ideas, attitudes, values and commitments; the self is a person's total subjective environment. (20:9)

11. **Self Concept**— the individual's perception of himself as a person, which includes his abilities, appearance, performance in his job and other phases of daily living. (12:524)
CHAPTER II

REVIEWS OF RELATED LITERATURE

INTRODUCTION

Studies of creativity have been recorded as having been as early as 1869. However, it was not until 1950 that J.P. Guilford initiated interest and support for the research of creativity, drawing attention to the "appalling neglect of the Study of Creativity." (35:57)

The literature presented will deal with several aspects of the continuing study of creativity from 1950 to the present. The topics reviewed are not clearly exclusive. They tend to overlap and blend into each other, further demonstrating the relevance of creativity today.

THE RELATIONSHIP OF CREATIVITY, SELF CONCEPT AND CURRICULUM

What do creativity and self concept have in common? Can they be synonymous? Do they have an effect on the learning ability of a person? Perkins feels that self concept, "appears to be a valuable tool in factors which influence learning and development." (34:203) This research project is an attempt to show the effect of creativity on self concept. The methodology for applying creativity to education will be Creative Problem Solving (CPS), a five step problem-solving process originally designed by Osborn and Parnes, which will be fully explained in Chapter four.

The study of self concept is growing ever more popular. The
investigator is aware that creativity is not the only factor influencing the concept of self. Other such variables as parents, teachers and general environment may also have a strong effect on the development of self concept. The investigators purpose, however, is not to demonstrate how these other variables affect self concept but to concentrate on how self-awareness, through creativity, affects the development of self concept. The child will, as a result of the program designed in this study, have the tools necessary to cope with concerns associated with the other variables mentioned above.

An abundance of studies concerning the intricacies of development of self concept remain to be explored. Creativity, however, will be the key in this study.

Hamachek states, "Psychologists and educators are becoming increasingly aware of the fact that a person's idea of himself or self concept, is closely connected to how he behaves and learns." (16:174) He goes on to state that research is telling us, more and more, how a student's performance not only depends on how intelligent he actually is, but, how intelligent he thinks he is.

Creativity, as defined in this study, will help a child realize his potential. Through exercises given, he will have the opportunities to open more doors to finding himself. He will realize, therefore, his potential for learning, for doing and for being. His chances for success, then, will be increased because his concept will take a more positive direction.

Many researchers in creativity believe creativity to be a function of self-actualization, corresponding with self concept: Goldstein,
equating creativity with change, believes, "normal behavior corresponds to continual change ... and implies the organism to actualize itself further in activities according to its nature." (42:197) Maslow also views creativity as characterized by self-actualizing individuals as "... an epiphenomenon of their greater wholeness and integration, which is what self-acceptance implies." (42:197)

Maslow also says there is within the human being, "a pressure toward unity of personality, toward spontaneous expressiveness, toward full individuality and identity, toward seeing the truth rather than being good." (23:132)

Holt feels strongly about the purpose of schools. He states that, "Schools foster bad strategies, raise children's fears ... and generally fail to meet the real needs of the children." (18:xiv)

Cole feels that many schools teach facts to impart knowledge rather than to elicit the knowledge from the child and build upon it. He states:

We must teach students both to process efficiently and to seek to possess large amounts of information and relationships and to master those more subtle skills which are required to use information wisely and well. We must not attempt to teach them all the facts that we, as teachers, know or can find. (6:6)

Goodale feels that if teachers persist in drumming bare facts into the minds of children, they can be considered receptacles for knowledge instead of seekers of it. He comments:

While schools have been busily evaluating achievement and potential of the 3 R's, the larger majority of less skilled learners have been quietly lowering their self-esteem, self-confidence and learning. If schools are really interested in encouraging creativity and salvaging the 40% who fail, then they are going to have to develop ways to give back these
children's self-confidence and feelings of personal warmth. (13:97)

How do we build and give back these children's self-concepts? Many prominent researchers agree that creativity is a key. Maslow (24) includes creativity as a way of expressing self-actualization which breeds a healthy self-concept. The two are interrelated. One nurtures the other. Shostrom defines creative behavior as "actualizing behavior." (6:40) Foster emphasizes the fact that: "self-actualization, like true psychological health, requires both creativity and human relatedness." (10:116) Rogers (36) concludes that the mainspring of creativity is man's tendency to work toward his full potentialities.

Jersild (20) feels that in a healthy course of self development, one must assimilate and integrate new experiences, new discoveries concerning his own resources, his limitations and his ability to relate with others. Schools can either create or destroy this course of development. "There is a continuous impact between the self and the flow of experiences involved in the process of living and learning at school." (20:14) He feels that far too often educators fail to realize this. They lose sight of the original purpose of teaching: to develop the individual's mind to cope with problems and society, not to fact-fill him because they are handed curriculum and deadlines. Holt points out that teachers "... so easily fall into the same trap: the means to an end becomes an end itself." (18:134) Teachers are oftentimes pressured for results and unfortunately often do not consider how the results are achieved.

Many educational professionals are misled too, about the definition
of creativity. Even Maslow himself mistook creativity: "Unconsciously I had assumed that creativeness was the prerogative solely of certain professionals." (24:136) In the emergence of creative teaching, several have looked only for the characteristic of originality. According to Parnes and Biondi, however, "While uniqueness seemed evident, what transpired often lacked relevance." (31:149) For the purpose of this study, creativity is the ability to relate and apply what is newly discovered to the subject at hand. It is not only creation, but application. Therefore, room for creativity in every subject area exists, from math and science to humanistic education.

According to CPS, creativity is not a free-for-all but a logical procedure with judgmental factors playing a significant role. While the child is encouraged to maintain imaginative play as he grows, he is encouraged to be responsible, analyzing the results in the CPS process. Therefore, the adult, the instructor in this case, can then be less fearful, less rigid, knowing the factor of relevance exists.

This process does not suggest that factual knowledge or already existing curricula should be discarded. It provides means to digest given facts and apply them to a present situation or aspect of society.

Gagne (6) conceptualized learning into eight different categories, ranging from the emotive pairing of particular stimuli and the resulting responses through simple verbal associations to the learning of complex concepts, rules and generation of problem solutions. Problem solving is the highest form of learning in the Gagne hierarchy.

The need for the creative problem-solving basis in curricula is supported by researchers who describe highly creative persons as having
an enthusiasm for, and knowledge of, a tremendous number of facts, connected through simple to complex associations. It is also noted that many subtle skills are required in the organizing, applying and transforming of that information toward useful applications. Cole agrees that "problem solving, the most complex and useful form of intellectual activity, is a creative and productive process." (6:2)

Jersild emphasizes that "many of the strongest social influences are brought to bear upon the child by way of his experience at school." (20:11) School is a place of social behavior, social pressures. Therefore, school can influence a child's attitudes toward himself and others.

According to Strom and Englebrecht (40), loss of creativity in older children is related to social pressures. These pressures exert a tremendous influence on their self concept. At mid-childhood, social standing must be earned. Around fourth grade, more and more competition exists, more failure, insensitive treatment by peers and a more firm hand by teachers. Children are encouraged to grow up—to be realistic—to stop fantasizing. Imaginative play is not considered a productive and worthwhile activity. Children become what society demands: "conforming, truthful, preoccupied with being correct." (40:94)

GPS can serve as a transition for these children if they are prepared in the primary grades. While it encourages those things that are stifled at this age—fantasy, imagination, play—it also encourages organization, decision and implementation. It once again provides a balance for children, rather than a rash plunge into a "realistic" world. This process of balance can be carried into adulthood.
Dealing with the positive influence of peer interaction at this level, peers can have a significantly good influence on each other. Strom and Englebrecht feel that during mid-childhood, "children begin to have a sense of community and a desire to direct personal powers toward fulfilling group purposes." (AC:195) Because CPS encourages group activity and acceptance of all ideas, children learn to accept and tolerate each other, not to destroy self concepts. Because it is flexible, it encourages such methods as peer-teaching, which may enhance a child's level of creativity while simultaneously improving his self concept.

In conclusion, researchers feel that creativity is a primary basis for education, breeding self-awareness, better self concept and desire for a child to learn more about himself and his environment. The individual's perception of himself is the central factor influencing his behavior. Munk comments that "... in the face of crises, man has no other recourse than his creativity. More power without the direction of creative ideas, in the bitter end, brings disaster." (25:196)

**IMPORTANCE OF TEACHER ROLE**

Jersild believes that "the earliest experiences which influence the development of the self are experiences with people." (20:12) He continues to say, "the origins of self are in the hands of 'significant' people." (20:2) This places a tremendous responsibility upon the teacher.

CPS may provide both teacher and student with self concept builders.
The teacher has a greater opportunity of maintaining the enthusiasm with which he began. Cook believes, "The warmth and enthusiasm of the teacher are greater factors in achieving a desired goal than any materials or curriculum innovations." (7:166) Spaulding’s study (38) indicated that a teacher behavior pattern which was cold, impersonal and dominating, had adverse effects on children’s self concept and to some extent, cognitive flexibility and originality.

Goodale emphasizes, "The important point is that the child or student not be penalized for being different or for exhibiting his independence and curiosity." (13:94) Oftentimes educators, without realizing they are doing so, view the creative child as a troublemaker because he may question or disagree with an issue.

Perkins (34) agrees with Jersild (20) that a teacher who accepts himself, that is, who is aware of himself, his successes and failures, is better suited to help his students to improve their self concept.

Biber states that:

... education traditionally has imposed a structure of didactic instruction, right-wrong criteria, dominances of the logical-objective over the intuitive-subjective, on the learning child, so early in the course emergent awareness of his world, and of himself, that, except for unusual individuals, creative potential is inhibited or at least, diminished. (3:281)

A question to be answered now is: Can creativity be taught? Many researchers believe and have proven that it can be and that awareness and balance are essential ingredients of learning. Torrance believes:

... it does indeed seem possible to teach creative thinking. The most successful approaches seem to be those that involve both cognitive and emotional functioning, provide adequate structure and motiva-
tion and give opportunity for involvement, practice and interaction with teachers and other students. Motivating and facilitating conditions certainly make a difference in creative functioning but differences seem greatest and most predictable when deliberate teaching is involved. (44:46)

The criteria for the successful teaching of creativity mentioned by Torrance, are the bases for CFS. Many of Torrance's (44) and Farnes' (33) studies have shown CFS to be a very effective process for achieving those ends.

In further documenting his beliefs, Torrance (44) feels that creative abilities are inherited to the same extent that anyone inherits his sense organs or brain. How these abilities develop and function is the crucial point. They are strongly influenced by the way the environment (family, schools, society) responds to a person's curiosity and creativity. Therefore, the school environment can provide the necessary stimulants.

It seems almost overly simplistic to say the child's need is to discover himself and his potential. However, it is just as simply forgotten by those around him.

Rogers (36) feels that creativity cannot be imposed upon a person. He declares that it must be allowed to emerge just as the seed which a farmer plants. It is the job of the educator to establish external conditions to foster internal conditions. "The nature of the creative act, the conditions under which it occurs and the manner ... may constructively be fostered." (36:34)

Another question to consider concerns: Who can teach CFS? Torrance (44) provides an answer by saying that almost any regular practitioner with an approach to teaching children to think creatively could furnish
dozens of unpublished studies with impressive, positive results on the success of CPS. Background of the process is necessary and can be attained in a number of ways. Annual Creative Problem-Solving Institutes are held in Buffalo, New York and several regional extensions are held across the country. Information about this activity can be acquired from the Creative Education Foundation at the State University College at Buffalo. Also, the Guide to Creative Action (Farnes, Moller, Biondi 1977) and Creative Actionbook (Moller, Farnes, Biondi 1976) are two excellent sources, presenting an adaptable curriculum for adults.

Of course, there are as many ways to teach creativity as there are teachers. Several basics, however, serve as a foundation from which any person may build. Goodale states that: "... a major step of encouraging creativity in the classroom is the support of activities which increase the student's self-confidence and persistence." (13:94) He strongly relates self with creativity and the important role the teacher plays. He feels that self-worth and self-esteem increase creative production and that of all approaches, the approach of discovery of self is most important.

Of all the recent approaches to encouraging creativity in the classroom, this one seems to me to be far and away the best solution since it calls for change in the teacher from an authority figure to a 'helping person,' a change in the classroom from competition to mutual support, and a change in learner's self concept that leads him from fearing failure, to contributing what he can. (13:97)

Toffler (19), other futurists and Torrance (43) believe curriculum should be directed in a creative fashion toward solving problems of the future. Toffler feels that teachers, instead of spoon-feeding knowledge
to students, should devote far more attention to planning individual learning programs, then guide and direct students through their prescribed programs. Torrance feels that too much traditional lecture and discussion exist. He suggests, "other methods are emerging and almost all of them call for some type of creative problem solving." (43:118)

In his creative methodology, Khatena feels instructors should teach children wonders and mysteries. Referring to teachers, he states, "You can make such a difference to children. Do you not recall the pain and boredom of school with its busy work ...? ... it is your privilege to unlock their creative potential to its fullest realization." (21:96)

Following the same line of thinking, Schachtel states, "Only when man is free to play in thought, feeling, sensing, experiments, imagination and so forth, is he likely to have creative experiences." (42:198)

Anderson feels that for creativity to exist there must be spontaneity and interaction with one's environment: "social learnings, social intervention, progressive and developing wholeness, harmony and integration." (42:196)

Taylor captures Osborn's feelings:

Osborn indicates that most of us can better work creatively when teamed up with the right partner because collaboration tends to induce effort and also to spur our automatic power of association. (42:196)

**HOW CPS RELATES TO CURRICULUM**

Theorists and curriculum experts have many ideas and set criteria for what curriculum should be. Throughout this investigator's research, it was found that CPS meets the definitions of many curriculum require-
ments. A brief overview of CPS will enable the reader to draw comparisons between the five-step process and curriculum definitions.

CPS is an organized approach to problem-solving, involving interaction between imagination and judgment at each of five steps. The five steps include: 1. fact-finding 2. problem-finding 3. idea-finding 4. solution-finding 5. acceptance-finding. In these steps, the problem-solver constantly fluctuates between divergent and convergent thinking, always allowing freedom of thought but always insuring a judgmental factor to keep control. The process does not end with the fifth step, but at that point strives to suggest new challenges presented by the solution. (Appendix I)

Within its organizational structure, license is provided to express, discover and relate. The process is a flexible one where the problem-solver can deviate from the given structure when he finds it necessary or advantageous. It is highly recommended, however, that when initially introducing the process, it should be followed as structured, even if confining at times. This will provide a solid foundation for the learner who can build on, or take away, any part he wishes.

There are several "insurance policies" built into the process, any of which the solver may take full advantage of, anytime. Fact-finding provides the prime source of insurance. When one finds himself in a quagmire of dilemmas, the process escorts him to objective, unbiased facts, rather than subjective or emotional thought. New viewpoints gained through varied fact sources are his vantage points. He has not escaped the problem, but sees it in a different light.
From fact-finding, the process turns to problem-finding, where the original problem or "challenge", as it is called in a more positive light, is restated in many ways from the most inclusive, general statement possible to more specific sub-problems of the general statement. 

(32) Problem-finding also provides opportunities to surface details which one has forgotten or of which he was unaware.

When a desirable problem statement, whether general or specifically "on-target" is found, idea-finding is pursued. The problem-solver temporarily leaves his challenge and enters into a world of "seemingly" superfluous ideas. It is at this phase where people sometimes misinterpret the reason for deferring judgment. Some feel that deferring judgment is chaotic, with no purpose or control. This may even present a fear factor. However, as one repeatedly works through the process, he realizes he has the opportunity to gain full control when the convergent aspect of idea-finding is presented. He further realizes that a seemingly wild idea can often stimulate a very useful one. Hamby comments furthermore, "The principle of deferred judgment appears to have merits, in that personality traits, such as confidence, initiative, and learner potential are reported to be fostered." (17:44)

Although CPS involves self, self choice and liberty of idea expression, it is not laissez faire. It does not reject judgment but has built into it a method of evaluation that is based on an exhaustive consideration of criteria.

Thus in the fourth, solution-finding phase, the evaluation is paradoxical because the brainstorming of criteria opens the process anew, once again allowing for various points of view. Here is where the
divergent-convergent theory of the process so graciously lends itself to balance, an element every curriculum needs. This is one way in which CPS follows the themes of "responsible freedom" and "channelled freedom." (33)

In acceptance-finding, the final phase, results are carried through a sophisticated implementation process—a refined, natural one—bringing a solution to one's awareness. Since it is natural, children can follow it when it is presented in their terms, meeting their needs.

It is difficult to categorize CPS or slot it into a particular subject area because it applies to every subject, every age level and can be considered a guided approach, used when and where an instructor sees fit. To complete the basis for comparison of CPS and curriculum, definitions of curriculum will be provided.

Cook and Doll reveal that, "Curriculum is not a capricious, unplanned, incidental aggregate of experiences." (7:4). They also stress that learning experiences must have continuity, an intelligent sequence and must relate closely to our times. Experiences must be systematized, individualized, and deliberately organized to improve the individual and society.

Because CPS satisfies all the criteria presented by Cook (7), it can be considered a method or process by which to teach a set of skills across content. CPS also creates a desire or need for an individual to learn. It is designed to give a deliberately organized but widely generalized outline which the problem-solver or instructor can maneuver to fit his own needs. Experiences serve as guides rather than mandatory
procedure. This leads to other considerations: Is curriculum content only? Is education teaching only?

Curriculum cannot be readily defined. It is affected by historical precedents ... by prevailing philosophical beliefs ... Curriculum is what is learned rather than what is taught. (7:4)

In much the same way, CPS cannot be defined exactly and is affected by historical precedents: the problem-solver’s life and society, present and past. Each person employing the process expresses his philosophical beliefs, relating the challenge to himself and his awareness. Curriculum becomes a two way street between instructor and student. Teacher/student interchange creates a learning atmosphere rather than a teaching one.

The "complex problem of determining the relative worth of attitudes, abilities and selection of content and materials and the organization of that content and those experiences," (7:182) which Cook feels to be such demanding criteria, are inherent in the structure of CPS. The varying needs Cook mentions are satisfied not only from individual to individual but from teacher to teacher because the process initially deals with factual background. Curriculum then becomes relevant to the individual and his society.

Cook further emphasizes:

Selection of curriculum content involves decision on what is of permanent value, while not neglecting accommodation for any item needed to help a child or group hurdle a temporary barrier. (7:183)

Axline (1) feels strongly about involving the whole child, stating that learning cannot be divorced from life and the child should be given opportunities to function as the dynamic individual he is. He should also be given freedom, responsibility and a feeling of success--factors
which are rarely fostered in a busy school day. Axline continues:

A school curriculum that is worthy of a place in our educational system provides an opportunity to enrich the child's life far beyond the academic requirements. True education does not turn its back to the critical needs of the individual. (1:151)

Berman (2) follows along the same lines in dealing with curriculum. She feels that curriculum has two major characteristics:

First, its major concern is with 'ongoingness' rather than staticism in life and second, the substance of the curriculum is related to the human process such as perceiving, knowing, organizing; and ... the stimulus for construction should invite serious thought but also playfulness with ideas. (2:v)

Berman's first concern is remedied because of the nature of CPS. It is a problem-solving method, a way. Therefore, "ongoingness" is a result. Her second concern dealing with human process and playfulness is met in the fact-finding and idea-finding stages, respectively.

Other curriculum experts follow similar patterns in curriculum design to those mentioned. Less formal definitions of curriculum too, explain CPS as seen in the previous overview. Davis (9), for example, feels a learning system design that will maximize student performance in specific criteria at a minimum cost in time, effort, and money, is necessary. Lovenfeld states that "Our educational system must be modified in many ways if that little child ... is to realize his highest potential." (22:16) He suggests there be an investigation for what changes must be made in school curriculum and teacher education in light of creative studies, how teaching methods must be revised to develop thoughtful and creative persons as well as fact-filled ones. He states,

I would like to see one of the greatest foundations ... set up an institute to further investigate the creative process.
Such an institute would bring together the best minds in education ... (22:17)

Such an institute does now exist, the Creative Problem-Solving Institute held at State University College at Buffalo.

The need for CPS is captured by Fromme (18) as he explains how children fail. He feels that schools are failing children at an alarming rate. "Even children who achieve enviable grades are failing to learn much of what we hope to teach them: abstraction, curiosity and most of all, appreciation." (18:xii) He suggests that only specific, concrete examples can be the means for teachers to really evaluate their pupils.

Holt follows Fromme's thinking, stating that children fail to develop more than a minute part of their overwhelming capacity for learning, understanding or creating. "They fail because they are afraid, bored and confused." (18:xiii) Another cause of failure is fear children have of disappointing or displeasing the adults who have "limitless hopes and expectations for them." (18:xiii)

Halpin (15) feels that motivation is a source for learning, which stimulates not only children's imaginations, but logical, organized thinking processes, ways to seek alternative solutions, and implementation of those solutions. Again, teachers lose their purpose for teaching and CPS is a device for preventing that loss, promoting stimulation.

Saylor and Alexander (37) feel with today's changing society, that it is futile to expect children to glean, in twelve to sixteen years of schooling, enough information to solve future problems of adjustment. Therefore, there should be a type of schooling which develops "lifelong learners, individuals who are motivated to continue learning and who
have the basic skills to do so." (37:39) This is the mission of CPS.

Finally, why use CPS, as opposed to other creativity programs? Torrance reveals that:

In many ways, the methodology of Creative Problem Solving as formulated by Osborn (1963) and Parnes (1967) is ideal for use in future studies. It is flexible and can be applied to almost any problem or subject matter. It is teachable at almost any age from Kindergarten through graduate and professional school, and it is effective in developing the abilities which seem to be required in solving future problems. (43:116)

RESULTS OF VARIOUS CREATIVE TEACHING METHODS

Although programs dealing with creative problem solving are beneficial, it is difficult to measure a child's creativity. Treffinger feels that, "Most measures of creative problem solving have serious limitations." (45:21) He feels, first of all, that rigid time limits are a drawback; secondly, that test procedures rely on arbitrary, confined or artificial problems which have little resemblance to materials that creative individuals might choose. Third, the highly formalized tests do measure specific skills separately while not measuring the degrees to which a person coordinates and manages those skills. (45)

In spite of the limitations Treffinger suggests, many studies have dealt with the problem of measuring improvements in creativity as a result of educational programs.

General results of the Purdue Creativity Training Program (PCTP; Feldhusen) and the Productive Thinking Program (PTP; Covington, Crutchfield, Davis and Olton) have been positive:

1. Both the PCTP and PTP have been shown to effect enhancement of fifth grade children's divergent thinking abilities, particularly verbal abilities.
2. Both programs have shown to be associated with superior performance by fifth grade pupils, in comparison with controls, on several criteria of creative problem solving.

3. When the programs are utilized in as short a period of time as four weeks, superior performance seemed to be associated more frequently with non-discussion and with teachers rated low in divergent thinking. (45:27)

In using CGS with college students over a two year period in experimental research, Farnes and Hollar concluded that the experimental group:

1. ... showed significant difference over comparable controls in ability to cope with real-life situation tests, including not only the production of ideas, but also their evaluation and development.

2. ... showed significant difference over controls in applying their creative ability in special tests given in English courses.

3. ... performed significantly better than the comparable controls on the semantic and behavioral half of Guilford's Structure of the Intellect (S-O-I) model, including three of five mental operations--cognition, divergent production and convergent production.

4. ... reported large gains in their own productive, creative behavior; they rate the program as quite helpful in their other college courses and their everyday lives. (33:14)

Franklin and Richards (11), in testing the effects of directed teaching for production on children's divergent thinking abilities, found that experimental classes improved their divergent performances of every variable, showing significant gains on nine of fourteen measures.

Williams (47), in working with fourth graders who experienced a "slump" and a low "school" self concept found that no fourth grade slump recurred in school self concept or motivation among experimental pupils after treatment (referring to a method to stimulate divergent thinking.) T-tests indicated a significant growth of fourth grade post, over pre-tests. He also found that treatment not only held off slump, but improved pupils' feelings about school at all grade levels.
CHAPTER III

INTRODUCTION

This chapter is designed to describe various creativity programs, to give an overall view of existing curricula with creativity development and to explain the author's rationale for selecting Creative Problem Solving as the process for the curriculum proposed in this study.

DESCRIPTION OF EXISTING CREATIVITY PROGRAMS

CREATIVE PROBLEM SOLVING

Creative Problem Solving (CPS) is a method of problem solving originally designed by Osborn and Parnes. (26) Although the five-step process remains basically the same (fact-finding, problem-finding, idea-finding, solution-finding and acceptance-finding), changes and revisions have been made concerning the techniques of presentation of the process.

Holler, Parnes and Biondi (27) state that the objective of the program is to help a participant ...

... develop attitudes and abilities that will help to meet any future challenge creatively ... One learns to associate knowledge and experience already possessed, as well as new knowledge and experience acquired throughout formal education and everyday living. (27:1)

The authors feel a "learning by doing" atmosphere should prevail for the most part. Self-demonstration is a method they choose for learning the internal and external factors that cripple imagination.

Age Level:

CPS was designed originally for college students; adults, and high
school students, but has been adapted to many other levels.

Program Explanation:

As explained in Chapter 2, CPS is an organized approach to problem solving, involving interaction between imaginative (divergent) thinking and judicial (convergent) thinking at each of five steps.

The five steps include:

1. Fact-finding: gathering and analyzing data in preparation for defining the problem.
2. Problem-finding: analyzing problematic areas in order to pick out and point up the problem to be attacked.
3. Idea-finding: idea production - thinking up, processing, and developing numerous possible leads to solution.
4. Solution-finding: evaluating potential solutions against defined criteria.
5. Acceptance-finding: adoption - developing a plan of action and implementing the chosen solution. (27:1)

In essence, the authors feel that the purpose of the program is twofold: "... first, to nurture your personal creativity; second, to enable you to reach and implement creative decisions." (27:1)

THE PRODUCTIVE THINKING PROGRAM

The Productive Thinking Program (PTP) is a method of problem solving designed by Covington, Crutchfield, Davis and Olton (8), based on motivation and attitudes of the student. The authors feel that productive thinking is using one's own mind in an effective, intelligent and creative way directed toward the solution of a problem.

"Educators have always recognized that thinking is central to the education process. Despite this recognition of its importance, however, very little actual time and effort go into direct instruction in thinking." (8:2)

However, skill in thinking is not adequate, the authors affirm. Positive attitudes and motivation which prompt the occurrence of pro-
ducative thinking are necessary. Also, to have the necessary skills is not enough. The student should learn to apply them.

**Age Level:**

PTP is designed for upper elementary grades to develop their potential for effective thinking and problem-solving. This involves basic skills in thinking, extensive practice in developing these skills, application of them to educational and socially relevant problems, enjoyment and the nourishment of intellectual growth.

**Program Explanation:**

The Productive Thinking Program consists of six components: 1. Basic Lessons 2. Problem Sets 3. Teacher's Guide 4. Spirit Duplicating Masters 5. Chart of Thinking Guides 6. Class Record Card. There are fifteen Basic Lessons which explain various thinking skills and provide extensive practice of these skills in actual problem-solving situations. The lesson is structured in a loosely programmed form so that the student is led systematically through the entire problem-solving process as he works. At any point he may be required to state the problem in his own words, formulate questions, analyze information, generate new ideas, test hypotheses and evaluate possible courses of action. Also, after a student's response, informative feedback is provided, enabling him to judge his progress up to that point and to take the next step. Through such feedback and planned cues, he is eventually brought to discover the solution for himself. Each of the lessons is self-administering and therefore permits the student to progress through the problem at his own pace and in accord with his own particular reading level and intellectual capacity.
Each Basic Lesson is followed by a Problem Set which extends and strengthens skills taught in the Basic Lessons and shows a variety of educationally and socially relevant problems. For example:

... think of economic activities suitable for a small developing country (given certain facts about its natural resources, possible markets, customs and way of life);
to decide a course of action for an early American explorer (given information about the men in his party, the challenge he confronts and the resources available.)

These Problem Sets are taken from topics in the social sciences, history, the natural sciences, and human relations to try to promote the transfer of thinking skills to regular classroom work.

The authors of this program feel it applies to students of all abilities: high abilities through underachievers and slow learners. Special units are provided for these types of learners.

**WILLIAMS PROBLEM SOLVING METHODS AND IDEAS**

The contents of Williams' program (46) is for teachers who want to help children uncover their creative potential which has been stifled. The idea lessons call for processes of inquiry, discovery and creative situations for purposes which allow them to think for themselves and to respond with their own feelings. Therefore, both cognitive (thinking) and affective (feeling) processes are encouraged.

Williams feels that research on creativity indicates that there are four predominant advantages for children involved in creative learning:

1. Children have more fun actively producing on their own rather than passively soaking up facts from the teacher or book.
2. Children are provided opportunities to collect data on
their own, organize and classify such data, make guesses and predict from that data and test and verify according to their own individual criteria.

3. By the use of idea lessons, teachers are able to direct the pupils' thinking and feeling processes across the regular substantive areas of an elementary school curriculum. (No expensive or additional materials or equipment are needed.)

4. Everyone benefits: the gifted, talented, the underachiever and the slow learner. (46:1)

**Age Level:**

Williams feels that, "pupils who should be jarred loose from the habit of recall of facts and the calculation of single, right answers," should engage in his curriculum. (46:1)

His book is divided into three sections. The first section contains ideas for primary grade classroom teachers, Kindergarten through second grade. The second section contains ideas from middle grades, third and fourth. The third section contains ideas for upper grades, fifth and sixth.

**Program Explanation:**

Williams deals with a three-dimensional structure (46:3) which demonstrates the interrelationship between strategies employed by the teacher, the various subject matters of the elementary school curriculum and pupil behavior. He emphasizes that, in order to bring about these ideal cognitive and affective pupil behaviors in the classroom, the teacher must be very flexible and use such a wide variety of contrasting approaches in search for that "right mix" most appropriate for each group of children. The three dimensions include:

Dimension 1, listing the subject matter areas of a conventional
elementary school curriculum.

Dimension 2, listing eighteen styles or strategies which teachers can employ in their classroom teaching. These have been devised empirically from many studies of how all good teachers operate in the classroom.

Dimension 3, consisting of eight, divergent production processes deduced from theoretical studies of how children can think and feel. Four of these processes involve the cognitive domain: fluent thinking, flexible thinking, original thinking and elaborate thinking. Four involve the affective domain: curiosity (willingness), risk-taking (courage), complexity (challenge), and imagination (intuition).

Williams' book reports the results of what happened when the idea was used in actual classroom situations. Therefore, ideas have been tested and the results found to be positive. The idea format is simple, explicit and direct. Each idea is classified to indicate a cognitive, thinking process with an affective, feeling process. Certain teacher techniques are listed for developing pupil behavior within the content areas of the curriculum. For example:

TO ENCOURAGE: Flexible thinking and curiosity
THROUGH: Social Studies
USING: Strategies No. 5 Provocative questions
No. 11 Intuitive questions
No. 18 Visualization skills

The procedure is to get children to switch their thinking mode into various categories by suggesting a variety of responses (Flexible Thinking) while being inquisitive (Curiosity.)

Williams provides meanings of terms for all pupil processes and
teaching strategies along with related definitions to enable the teacher to fully understand this material.

PROJECT IMPOLODE: TAYLOR MULTITALENT APPROACH

Project Implode is based on the research findings of Taylor, Guilford, Torrance and Williams. It is designed to produce teaching materials which will stimulate the learner, his productive thinking and multiple talent areas of the intellect. Exercises are used to stimulate and develop talent areas, giving the student a wider range of options and intellectual abilities with which to cope with the changing future. The goal of the project has been to collect and create materials, techniques and strategies that will "systematically develop the creative intellectual talent areas of each student." (41:1) The basic premises of Project Implode are:

... that each child has a vast reservoir of intellectual talent which the present system is not tapping and that these talents can be recognized and developed and that their application will help each student become a more complete, productive individual. (40:1)

Age Level:

Elementary school children of all ages can be exposed to Project Implode.

Program Explanation:

The talent areas include:

Creativity: fluency, flexibility, originality
Planning: elaboration, sensitivity to problems, organizing abilities
Communication: expressional fluency, associational fluency, word fluency
Forecasting: conceptual foresight, penetration, social awareness
Decision Making: experimental evaluation, logical evaluation, judgment
Academic: general school curriculum as measured by achievement tests (41:6)

The productive thinking abilities to be stimulated by the project include: divergent thinking, convergent thinking, and evaluation. Powers to be developed are: the power to express, to respond, to interact, to question, to create and to be.

The program follows an organized procedure with lessons and activities first stimulating the productive thinking abilities previously mentioned. It then continues with lessons and activities for each of the talent areas, all of which are designed to develop the desire and ability to think and solve current problems. To help learners develop a unique set of talents and skills of inquiry and finally to help learners become disciplined and responsible for their own learning and behavior.

SYNECTICS

Synectics is a form of creative problem solving which is considered "operational" rather than "inspirational" by the authors of the process. It is felt that, "... the most important element in learning and understanding is making the Strange Familiar because understanding requires bringing a strange or new concept into a familiar context." (14:11)

The Synectics hypothesis about creative thought applies directly to learning:

1. Learning efficiency in people can be increased markedly if they understand the psychological process by which they operate.
2. In the learning process, the emotional component is as important as the intellectual, the non-rational as important as the rational.

3. These emotional and non-rational elements can and must be engaged in order to increase the probability of successful learning. (14:2)

Age Level:

Synectics can be applied to all age levels since it is adaptable in its original form.

Program Explanation:

The Synectics Program emphasizes that Making the Strange Familiar is crucial in learning, and they have identified three Operational Mechanisms with which to accomplish the tasks at hand: 1. Direct Analogy 2. Personal Analogy and 3. Compressed Conflict. (14:6)

They also use these three mechanisms in another technique called Making the Familiar Strange, which helps a person see his problem from another, more objective, point of view.

Direct Analogy is a simple comparison of two objects or concepts: "A crab walks sideways like a sneaky burglar." (14:12) It is a natural mechanism for hypothesis formation. The usefulness of the Direct Analysis is proportional to the constructive strain implied by the comparison.

Personal Analogy is a description of how it feels to identify with a person, a concept, a plant or animal or a non-living thing. Personal Analogy is an excellent device for elementary school children in the development of imagination because the emphasis is on a student's developing empathic involvement. For example: "Imagine that you are a fiddler crab." (14:24)
Compressed Conflict is a poetic, two-word description where the two words don't seem to fit and they actually contradict each other. For example, "imprisoned freedom." It can be considered a Direct Analogy with a conceptual strain built in.

Elements of the Synectics Problem Solving technique include:

1. Problem as Given (PAG) is the problem to be attacked.
2. Short analysis of PAG: This analysis should be as brief as possible.
3. Purge: immediate solutions which occur to the members of the group solving the problem.
4. Problem as Understood (PAU) is the critical part of PAG: it is the isolation of the major element of PAG.
5. Excursion: the process of proceeding from PAU through a series of analogies back to the final analogical response. (14:243)

During the excursion phase, a student uses the three Operational Mechanisms defined above, in an organized and provocative fashion. One is led to find a direct analogy, move to personal analogy, to compressed conflict, on to the final direct analogy which is then analyzed, fantasized and made practical—thus producing a new viewpoint or solution.

CONCLUSION

In conclusion, although all processes differ in many aspects, they all have one thing in common: The importance of emotions in learning, the importance of considering the person, his worth, and his potential as against fact-filling him with materials which he does not consider relevant to him.

SELECTION PROCESS

All of the mentioned programs do have their advantages. For
example, Synectics is a versatile, idea-stimulating process. The Pro-
ductive Thinking Program is comprehensive, affirming that positive atti-
tudes and motivation prompt productive thinking. Williams' program
stimulates potential in cognitive and affective areas. Project Implode
strives to tap a student's talents, giving him a wider range of options
and intellectual abilities to cope with the changing future.

The investigator selected CPS for the proposed curriculum, rather
than other existing creativity programs, based on the following criteria:

1. a greater flexibility
2. most easily adaptable into elementary level without extensive
   vocabulary presentation and program specifics
3. uses fewer concrete, specific materials, allowing the instructor
   more creativity in presentation
4. easily adaptable into specific subject areas
5. less complicated than, but as comprehensive as, other processes
   mentioned
6. CPS is a natural-thinking process; therefore, children won't
   have to learn additional complicated skills and techniques to
   execute it
7. the investigator is most familiar with this process, being a
   student of the State University College at Buffalo in a two-year
   experimental program in CPS and also continuing in the program
   for six additional years
CHAPTER IV

NATURE OF THE PROPOSED CURRICULUM

According to Parnes, Koller, and Biondi (1977), creative problem solving has two primary purposes. "The first is to help fulfill need for self concept. "To provide for an individual the means to attain the greatest satisfaction in his/her work-a-day life is, to us, the prime 'why' of nurturing creative talent." (32:14) The second is to nurture one's capability for making creative decisions: "... the overall purpose ... is to provide for more effective decision-making including intelligent action on decisions." (32:14)

The process which has been adapted in this proposed curriculum works to achieve the same goals but is directed toward the primary, rather than adult level. Self concept, an abstract concept for the primary child to understand, is directly related to a child's level of skill or competence in a particular area. CPS strives to develop each child's skills along with nurturing his self-awareness. Decision-making is encouraged throughout the entire program through structured exercises. As a result, the development of self concept is initiated in the child through competence development, decision-making, self-awareness, emotional support from teacher and peers and freedom from failure or ridicule.

The units of the proposed curriculum are sequentially designed to stimulate one's imagination while at the same time encouraging an ability for critical judgment. While this may appear contradictory, the nature of the process itself allows such dynamics to take place.
EXPLANATION OF CURRICULUM DESIGN

The proposed curriculum, designed for elementary school children, contains fourteen units. These units are composed of two to five parts, each designed for a 40-50 minute session. The entire curriculum is comprised of 40 parts or sessions. It is recommended that unit parts be given at least three times per week, preferably daily, utilizing the full 40-50 minute period.

The primary reason for scheduling the sessions at least three times per week is to provide continuity and reinforcement. Continuity is essential in order to build trust and confidence in the students, the instructor and the program. Since a major part of the program is self concept building, it is extremely important that a child be exposed daily, even though briefly, to the process. Unit sections may be shifted to suit the need of the children at any particular time. For example, if children are fatigued due to testing or demanding curricula, Grasper Experiences, which are affective experiences allowing children to express themselves in a variety of ways, may be a preferable choice for that day.

The size of the class should be limited to 10-15 children because of the need for close contact and interaction among children and instructor. The class may be made up of grade levels two through five, including children of different interests and backgrounds or of homogeneous grouping.

The sessions are specifically designed in order to integrate the cognitive aspects of the process while also reinforcing affective aspects.
The purpose for such a design is to allow the child not only to grasp the process at an intellectual level, but also to internalize it through experiential involvement. For example, the child may use clay, role-playing, dance or a variety of media as a means of more fully understanding a concept which has been presented through a primarily cognitive means. Therefore, if an instructor chooses to alter any unit for a particular reason, it is advised that a cognitive-affective balance be maintained within the unit.

It is also recommended that vocabulary used in each unit be reinforced in other subject areas throughout the day. For example, fact-finding is a term that can be applied in Math to finding factors, in Science to finding data, and so forth. The term criteria can be used as a general term for "rules." For example, the criteria for notebooks might be neatness, completeness and using pencil only.

The tasks and exercises within the proposed curriculum were developed from Parnes, Noller and Biondi's ideas in the Guide to Creative Action (32). The sessions are an adaptation of the sessions in this guide, modified for a primary level of understanding.

The particular sessions were selected by the investigator as a result of teaching the program to primary children and perceiving their needs and level of acceptance of units presented.

The purpose of each lesson/activity in the overall curriculum is to develop an understanding of the Osborn-Parnes five-step problem-solving process and be able to apply it in everyday life situations both in and out of the school situation. This application is designed to aid the child in gaining a better self concept through decision-making
techniques, competence development in cognitive areas, self-awareness building, emotional support from teacher and peers and freedom from failure and ridicule.

OVERALL OBJECTIVES OF THE PROGRAM

The major objectives are to aid children in developing:

1. Sensitivity to the problems of their environment, in school, and at home.
2. Self-confidence in their ability to think creatively.
4. Greater enjoyment from and curiosity in school situations.
5. Open-mindedness toward and acceptance of others' ideas.
6. Motivation to discover, develop and utilize their creative potential.

REASONS FOR SEQUENCE

It is recommended that units be presented as they appear in the proposed curriculum, because of the structure of the process itself. Although it becomes more flexible and adaptive upon use, when first presented, it is usually easier for a child to grasp if presented in order. When the process is established and reinforced, more flexibility can occur according to the individual's needs.

Repetition of certain concepts is important and should be done at the beginning of each period or unit to insure a better understanding of the flow of the process.
FEEDBACK

It is difficult to measure a child's growth in creativity. A perceptive teacher, however, is usually able to observe a child's growth through use of an objective behavioral procedure or schedule.

Each child is required to keep a journal. This is his private thought journal, not to be shared with anyone, not even the instructor, unless the child chooses to do so. Five minutes may be allowed at the beginning or end of each period, for journal entry time. The participant has the option to write, draw or do nothing at all in his journal on a particular day. This provides for one's own individual feedback system.

A feedback system intended to aid the teacher, might be described as a simple feeling chart. Each child is asked to draw or write four feelings on a slip of paper provided him at the end of every unit, or more frequently if the instructor feels it necessary. The paper, which may be of any size, is folded into quarters. In each quarter, children express a feeling they have at that particular moment. A collage of four feelings is listed or drawn. These may or may not be shared by the group. The teacher, however, collects and keeps them in the individual's work file.

The work file, containing feeling charts as well as several other papers mentioned throughout the curriculum, is to be kept in some type of individual folder by the teacher as a record of the child's work.

A questionnaire is to be completed by each child at the end of the program to determine his growth and attitudes toward the process. (See Appendix XIII)
SUGGESTIONS FOR EVALUATION

Because of the nature of the creative problem-solving process, it is difficult to test children's creativity in order to determine the extent to which they perform creatively. The following suggestions may help on a day to day basis:

1. anecdotal records on the child, noting specific growth or exemplification of creative behavior.
2. collection of feedback sheets which will contain the simple feeling chart. (See Appendix)
3. record of participation of the student.
4. a folder of his worksheets and material completed in each unit.

It is highly recommended that a child be accepted for whatever work he produces, especially in the initial stages of the program. Such acceptance will more likely encourage the child to ideate, than will a strict, non-accepting atmosphere. As he is accepted more, his confidence level may tend to rise more and his productive behavior will also rise. Development of such an atmosphere is essential for charting growth patterns accurately.

PRE-REQUISITES FOR INSTRUCTORS

Instructors of the proposed curriculum must be familiar with the creative process formulated by Osborn and Parnes. The Guide to Creative Action (1977) and the Creative Actionbook (1976) are excellent resources for attaining such an understanding.

Perception and sensitivity toward children's ideas, feelings, inter-
ests and interpersonal regards are desired qualities of the instructor since so much of the child's creative growth is fostered during the program. A high acceptance level of children is also extremely important. However, the purpose is not to create a free-for-all atmosphere, but rather one which is controlled yet relaxed.

Flexibility and adaptability are desired attributes of the instructor. Children will need reinforcement of concepts during various phases of the program.

PRE-REQUISITES FOR STUDENTS

Students need no specific pre-requisites to become participants in the proposed program, which is designed especially for children in grades two through five. Kindergarten and first grade children may be exposed to the program, but may have difficulty dealing with some of the concepts and vocabulary presented.

COURSE REQUIREMENTS

Each child will be responsible for:
1. a private journal to be kept daily
2. a folder containing completed worksheets and papers provided by the instructor
3. participation in all units and activities presented

GRADING PROCEDURES

It is difficult to assign a numerical or letter grade to pupils who complete the proposed curriculum. Therefore, a Mastery grading
system is recommended. For example, if a child feels he has not yet grasped or understood a particular area, or the instructor discovers this through worksheets or other student activities, the instructor will provide a means of assisting the student in attaining this understanding. It is essential that the instructor be supportive, explaining that not achieving mastery is not failure.

The process of mastering a particular concept may be peer-teaching, cassette review, additional worksheets or individual aid by the instructor.

Criteria for performance will be established and the child is expected to master each concept with a particular accuracy, as determined by the instructor.

Individual discussions between the pupil and instructor to assess progress should occur a minimum of three to four times throughout the program or more frequently if necessary. During these discussions, children should be encouraged to evaluate their own work. For example, they should be encouraged to evaluate their progress in mastering sessions assigned, their efforts in journal entries and their feelings of success in the five-step process. An overall self-evaluation in the program should be given by each student.

Note that, if a particular grade (e.g. pass, fail, excellent, etc.) is needed by a particular school system, it should be based on the willingness and efforts of the child to attain mastery of any particular session.
THE PROPOSED CREATIVE PROBLEM SOLVING CURRICULUM

Unit 1 GETTING TO KNOW US

Timing: Approximately 2½ hours or three 45-50 minute sessions

Rationale: Three experiential exercises serve as an introduction to the adapted creative problem-solving process. These are intended to put children at ease, increase their trust level, and initiate communication within the group. The instructor should also participate in the activities and share his interests. This communication is an essential step in building trust and confidence which helps to build the problem-solving process and encourage positive self concept development. For additional information or related ideas, refer to Unit 1 in the Guide to Creative Action. (32)

Objectives:
Session 1: to provide an interest inventory
Session 2: to learn more about each other via art experience and discussion
Session 3: to introduce journal idea, using a trust walk as the first experience to be recorded

Session 1

Material:
1. Interest Inventory (see Appendix II)

Instructional Procedure:
A. Distribute Interest Inventory to each child, to be completed in a fifteen minute period.

B. Upon completion, each child will be encouraged to share his interests with the total group.

C. Collect inventories and place in each child's folder for future reference.

Session 2

Materials:
1. a Legal sized envelope containing:
   a.) a paper clip
   b.) a band-aid
   c.) a rubber band
   d.) five paper reinforcements
2. Four pieces of construction paper:
   a.) an equilateral triangle with two inch sides
   b.) a two inch square
   c.) a rectangle, two inches by four inches
   d.) a nine by twelve inch piece for mounting

**Instructional Procedure:**

A. Give each child his materials to construct, in a 20 minute period, one thing he likes best and which he must title. The creation may be anything—with no restrictions placed on the child.

B. Upon completion, each child will tell at least one thing about his work.

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**Session 2**

**Material:**

1. journal (any size spiral notebook or composition tablet.)

**Instructional Procedure:**

A. Introduce journal, to be written in daily for a five minute period either at the beginning or close of the session. Each journal is the private property of the child and he is encouraged to write: "Private property of _______" or "Keep Out!" to further insure privacy. Collect journals daily, keeping them in a locked desk drawer or similar secure place to prevent loss. The instructor is encouraged to write in his journal along with the children. The journal provides an opportunity for the child to express a feeling he may have about an issue on a given day. He may express a happy feeling, or a problem, or he may compose a poem, a picture, or a drawing.

B. To initiate writing in the journal, the children participate in a trust walk which should first be demonstrated with the instructor and a volunteer. The children walk in pairs, with one person blindfolded and the other person leading the way. Then the students change roles. Allow ten minutes for each walk.

C. At the end of the experience, each child remains silent and writes how he felt in both situations, when blinded and as a leader. Time should be allowed for children to express feelings verbally, if they feel a need. If there is an uneven number of children for the experience, the extra child waits and participates with another child when he is finished. It is essential to watch the children at every moment to prevent accidents. Establish boundaries before beginning the experience.
After this experience, a feeling chart, previously described in this chapter, is completed.
Unit 2 JUST WHAT IS A PROBLEM?

Timing: Approximately 1½ hours or two 45-50 minute sessions

(JOURNAL REMINDER!)

Rationale: Many times a problem is viewed negatively. This negative connotation may serve as a block to a person, making it more difficult to begin to solve a problem. Therefore, this session looks at a problem more positively. First, an introduction to the five-step creative problem-solving process will be given. Second, opportunities to state problems positively will be provided. Third, a child will be taught to anticipate possible future problems. If additional information is needed, see Unit 2 in the Guide to Creative Action. (32)

Objectives:

Session 1: to gain a broader viewpoint of what a problem is, seeing it as a challenge and, therefore, approaching it from a positive point of view

Session 2: to become more aware of problems in everyday living by projecting personal goals for the future

Session 1

Materials:

1. chart paper or chalkboard
2. a list of the five steps in the creative problem-solving process (see Appendix I)
3. writing paper

Instructional Procedure:

A. Discuss the definition of a problem asking each child to give his own interpretation. Write definitions on chart paper.

B. Help children to view a problem positively, explaining that creative problem solving views problems as challenges. Briefly show how the five-step process works by referring to the five steps, naming each one and giving a brief explanation of each.

C. Have children tell of any problems that come to mind and discuss how these problems can be viewed more positively. Discuss the feelings children have when first confronted with a problem. (Example: scared, stunned, helpless, hopeful) Keep a list of these feelings in view.

D. Ask children to list as many challenges as they can think of.
Have them work individually, setting a goal of at least five challenges. (Example: How might I help around the house more? How might I keep my desk neater?)

Session 2

Material:
1. an outline for future goal setting (see Appendix III)

Instructional Procedure:
A. Using the given outline, have children write about their future. Allow 30 minutes for completion. Such an experience serves as goal setting. Ask children to share goals, but for those who wish, they may keep them in their journals. Circulate, dealing with any problems children may encounter.

After this experience, a feeling chart, previously described in this chapter, is completed.
Unit 3 FINDING FACTS

Timing: Approximately 3 hours or four 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: In order to get a better view of any situation or challenge, the first thing the creative problem-solving process deals with is the collection of facts or data. These data provide a basis for the problem-solver, giving him a variety of directions to pursue. During this session, encourage the participants to look for facts concretely, from every possible source. This will prepare them, when dealing with a personal challenge, to realize that other viewpoints, besides their own, do exist. A supplementary exercise to help children become more aware of their five senses may be given. For additional information, refer to Unit 6 in the Guide to Creative Action. (32)

Objectives:
Session 1: to provide concrete means for fact-finding, via dyadic interview
Session 2: to reinforce fact-finding on a silent, individual level
Session 3: to help participants see one particular situation from various points of view
Session 4: to provide an experience to help children become more fully aware of how they use their senses in everyday living

Session 1

Materials:
1. an outlined ditto containing fact-finding questions to be asked of a partner (see Appendix IV)
2. a microphone or facsimile that children may use when introducing or telling about their partner

Instructional Procedure:
A. Have children count off in two's and separate respectively into two equal groups. If an odd number occurs, the instructor may participate. If he does not participate, he oversees dyads to answer questions or help with the students' difficulties.

B. Distribute the outlined sheet to each child containing questions he will ask of his partner. The dyad will decide who will be the first interviewer to ask his partner all about himself, following the outlined sheet and recording his answers on that sheet. Allow ten minutes for this. Emphasize that this illus-
trates fact-finding.

C. Ask each person to tell briefly about his partner, using the fact sheet for reference. To make the commenting more interesting, ask the children to use the microphone when giving their description.

Session 2

Materials:
1. an outlined sheet containing rules for a silent experience in fact-finding, plus spaces for children's fact-finding information (see Appendix V)
2. a prize or reward for each person's accomplishments

Instructional Procedure:
A. Prepare children for the experience in fact-finding by taking them for a walk through school corridors, the cafeteria or outdoors, for 20 minutes, helping them become aware of things appealing to their senses. Have them feel free to verbally express what they see, taste, smell, feel and hear.

B. Each child will work individually and silently on this project. Give him a set of specific rules to follow, including room boundaries. Twenty minutes will be allowed for each child to find as many facts as possible about the room he is in. Encourage children to fill the entire page. Give an example. (Example: The color of this room is yellow. I see 15 children.)

Session 3

Materials:
1. a situation created and written out with at least four copies. The situation will involve two or more of the following: a child, a parent, a teacher or a principal
2. volunteers who may play the parts

Instructional Procedure:
A. Describe a particular situation to the participants that involve the characters. Any situation may be created. (Example: a problem on a school bus; a child not doing his homework)

B. Encourage children to ask as many fact-finding questions as they can about the situation. The instructor will be responsible for answering these questions.

C. Distribute the playscript to volunteers who will enact the situation.

D. Call upon each actor individually (with the remaining two actors sent out of the room) to tell his point of view. Have each
A child in the class choose the point of view of one of the actors.

E. Have actors re-assemble. As a total group, discuss how differently every person "sees" a situation.

Session 4 (Optional experience)

Materials:
1. a 12 inch by 16 inch piece of construction paper or tag board for each child
2. several old magazines
3. scissors
4. paste

Instructional Procedure:
A. This exercise may be given outdoors or in a stimulating atmosphere if possible. Give children a sheet of construction paper or tag board, magazines, scissors and paste and tell them to cut out as many things as they can find that deal with their sense of smell. Urge children to be aware of all smells. (Example: lunches that may be in the room.) Repeat this activity using all five senses. Allow 30 minutes for this experience.

B. Have children arrange their pictures into a collage. If time allows, collages may be shared. Display the collages, referring to them, often, as a reminder to use all of our senses when looking for facts. The instructor may participate in making a collage or he may circulate, helping children with their needs.

After this experience, a feeling chart is completed.
Unit 4 LET'S HUNT DOWN THAT PROBLEM

Timing: Approximately 1.5 hours or two 45-50 minute sessions

(JOURNAL REMINDER!)

Rationale: At this point in the process, it is necessary to state a problem or challenge several times and in such a way that will encourage a search for alternative solutions. The creative problem-solving process uses the phrase, "In What Ways Might I..." since it is a positive statement and encourages a variety of solutions. In order to get to the essence of the problem, restatements oftentimes help a person reach the real problem, narrowing down what seems an initial mess to a workable challenge. Refer to Unit 2 in the Guide to Creative Action (32) for further information.

Objectives:
Session 1: to practice stating problems in, "In What Ways Might I..." form.
Session 2: to practice re-stating problems in order to come up with the best problem statement.

Session 1

Materials:
1. chart paper or chalkboard
2. writing paper
3. reward for neatest paper

Instructional Procedure:
A. Explain that this phase of the process is the problem-finding phase where the real problem is being sought. Have each child briefly describe a situation or challenge. Using the children to describe situations will keep them more interested and give them something to relate to. Have others ask brief fact-finding questions of the child to reinforce fact-finding. Ask several children to tell in the "In What Ways Might I..." form, what the problem is. (Example: In What Ways Might I get my sister to stay out of my room?) Write down the different problem statements that the children give, demonstrating how to put the problem into the correct form.

B. Encourage children to copy the problem statements exactly from the chart paper in order to concretely reinforce this part of the process, which is often difficult to comprehend. A reward may be offered for the neatest and most accurate paper.
Session 2

Materials:
1. chart paper
2. an outlined sheet for problem statements and restatements (see Appendix VI)

Instructional Procedure:
A. Choose a particular problem and have a volunteer give an initial problem statement. Demonstrate that, by asking "why?" of that first statement, another statement may be derived. (Example: In what ways might I get my sister out of my room? "Why?" So I can have peace and quiet. Restatement: In what ways might I have peace and quiet?) Repeat this process asking "why?" at least five times. Write the answer to each problem statement on chart paper. Ask the child to restate it in the proper form, stressing how this helps hunt down the real problem.

B. If time allows, a follow-up activity may be given. Children are given an outlined ditto with spaces for a problem statement and at least three blanks for restatements. Have them use the instructor's chart for reference, emphasizing that restatements must be written in proper form.

After this experience, a feeling chart is completed.
Unit 5 FROM BLOCKS TO BRAINSTORMING

Timing: Approximately 2½ hours or three 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: This entire unit is designed to have children more consciously accept their own, as well as other children's ideas. No idea is rejected, no matter how "far-out", because it can be made relevant. Therefore, in this unit, as in all divergent phases of the entire creative problem-solving process, there are no right or wrong ideas. This provides confidence building. It is important for the instructor to keep in mind that all ideas are accepted, even if the idea makes no sense to the instructor or even if an idea is repeated. The purpose is to generate as many ideas as possible. The quality of the ideas will be dealt with in another part of the process. This unit also helps children become aware of why they may not be working to their fullest potential. It is important for them to realize this. For further information, see Unit 3 in the Guide to Creative Action. (32)

Objectives:

Session 1: to provide a pre-test for each child, asking him how to improve an object; to help children become aware of the blocks they have to functioning creatively

Session 2: to introduce the concept of brainstorming and to experience some related exercises

Session 3: to relate the concept of brainstorming to a personal problem; to give a post-test for improving an object

Materials:

1. blank paper
2. one large piece of construction paper for each child
3. approximately six, two inch squares of construction paper for each child
4. paste

Instructional Procedures:

A. With no explanation, have children take a blank sheet of paper and list, in three minutes time, how they can improve a bathtub. Ask children to count the number of ideas, placing the number at the top of the page. Collect these papers in order to compare them with the post-test to be given later in this unit.

B. Forty minutes will be given for this experience. Place a stack
of construction paper squares (resembling blocks) on a work table. Give each child a large piece of construction paper. Instruct them to take as many squares as needed to draw a picture or write the name of someone or something that prevents them from "being themselves and working as they think they really can work". Since this exercise is a sensitive one, it is necessary to remind children not to hurt others when expressing their feelings. For example, instead of mentioning a particular teacher's or fellow-classmate's name, they can draw a picture of that person. Another, more concrete example which might be used is: Homework makes me feel uptight. When all squares are completed, they may mount them in pyramid form, as if they were building an actual block creation, on a larger sheet of construction paper. During this exercise, the instructor may create a "Blocks to Creativity" chart with the children or he may circulate to make sure they understand the project.

Session 2

Materials:
1. chart paper
2. a chart containing the five steps of the process
3. dittoed sheets related to brainstorming (see Appendix VII)
4. a prize for each person's accomplishments

Instructional Procedure:
A. Referring to the chart containing the five-step process, explain that this is the third phase or idea-finding phase. Introduce the definition of brainstorming, explaining that brainstorming helps us gather ideas. Encourage children to give as many ideas they can think of to two previously chosen problem statements. (Example: In what ways might I remember to feed the dog? Ideas: tie a string on my finger, set an alarm clock, ask the dog to bark five times when he is hungry.) Have children strive for the most wild and imaginative ideas. It is very important for the instructor to give "crazy" ideas, himself, to encourage children or "give them permission" to verbalize the imaginative ideas they do have. The instructor or volunteer will record ideas on chart paper and display them around the room as stimulators.

B. Give students a dittoed sheet with a problem statement already given. Divide children into groups of three or four, having them find as many ideas as possible for this statement. A prize such as free-time, a piece of construction paper or something similar, may be awarded for the greatest number of answers.

Session 3

Materials:
1. blank paper
**Instructional Procedure:**

A. Encourage children to state problems in the proper "In What Ways Might I ..." form. Have them write a problem they have at the moment. If they have "no problems" that day, which may often occur, have other children brainstorm problems.

B. Each child must work individually on his personal problem, trying to generate as many ideas as possible in 20 minutes. A goal of at least 25 ideas should be set for each person. The instructor acts as an overseer in this situation, helping with any problems that may arise.

C. Ask children to circle two or three of their favorite ideas, share them with the class and tell how they actually intend to use the ideas. This will serve as a preparation for the implementation of their final solutions.

D. During the final minutes of the class period, have children take a blank sheet of paper and in three minutes, list as many ways as they can to improve a bed. Encourage the children to brainstorm and to write as many wild ideas as possible. Have them count their ideas and write the number at the top of the page. This post-test serves as a comparison with the pre-test given in Session 1 of this unit.

E. Return the pre-tests and have children compare the number of ideas between the first and second tests. Keep these pre- and post-tests in the children's personal folders.

After this unit a feeling chart is completed by children.
Unit 6 FORCED RELATIONSHIPS

Timing: Approximately 1½ hours or two 45-50 minute sessions

Rationale: To further develop stretching the imagination, a technique referred to as "forcing relationships" will be introduced. This technique helps relate seemingly unrelated objects, producing new ideas. (Example: Force a relationship between a wheel and a chair. The result can be a wheel chair, a chair with wheels, a swivel chair; etc.) Although this example is an obvious one, other not so obvious relationships will be introduced and children will be encouraged to literally force a relationship between the two. For further information, refer to Unit 4 in the Guide to Creative Action. (32)

Objectives:
Session 1: to discover as many attributes of a certain object as possible and to write a poem or story about that object
Session 2: to become inventors by forcing relationships between several pairs of items, producing new products

Session 1

Materials:
1. chart paper
2. writing paper
3. a pen
4. a textbook
5. a desk chair

Instructional Procedure:
A. Hold a pen up before the children, asking them to tell all the facts they can about it. (Example: it is thin, blue, it writes, it makes noise when dropped, etc.) Explain that these facts are called characteristics or attributes. List these characteristics on chart paper.

B. Give another example using a text book. Follow the same procedure, recording characteristics.

C. Display a desk chair in the center of the room with all students gathered around it in a circle. Instruct them to bring paper and pencil with them. Their task is to write, in silence, as many characteristics or facts as they can about that chair in 15 minutes time. Encourage children to tip the chair over, examine it, use their senses to become more aware of it, to get the
greatest number of characteristics about the chair as possible.

D. When children are finished, they should return to their seats and write a short story or poem about that chair. The following titles may be put in view for idea stimulators: "Wow! What a Chair; I Never Knew That About You Chair; Three Cheers for the Chair!" Poems or stories may be displayed or kept by children, but are to be shared at a later date.

Session 2

Material:
1. dittoed sheets with examples of forced relationships, a problem statement, and spaces for forced relationships to be completed (see Appendix VIII)

Instructional Procedure:

A. Give each child a dittoed sheet on forced relationships. Review what this concept means, giving some examples to complete together. If any child needs reinforcement with the concept, have children choose an item in the room and together, force relationships with that.

B. Have children complete the dittoed sheet individually. Circulate, helping any child with difficulties.

After this exercise, a feeling chart is completed by the children.
Unit 7 HERE COMES THE JUDGE!

Timing: Approximately 2 1/4 hours or three 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: Since the students have become acquainted with a divergent part of the process via imagination stretchers, it is now essential to enter a convergent phase, using criteria to judge their ideas. It is important that they understand what the term criteria means. It is possible for children to understand this if criteria are equated with rules. With this established, the actual judging can take place. This unit is designed for three class periods. However, if more reinforcement is needed, it is essential to take the time needed to do so. For further information, see the Guide to Creative Action, Unit 5. (32)

Objectives:
Session 1: to help children understand the definition of criteria; to provide practice in listing criteria
Session 2: to provide an exercise using a chart to evaluate ideas, via good, fair, poor concept
Session 3: to provide a grasper experience using a role-playing court situation to reinforce the importance of judgment in the process

Session 1

Materials:
1. one large sheet of construction paper for each child
2. a marker or crayon for each child
3. chart paper
4. notebook paper

Instructional Procedure:
A. Inform children that this is the solution-finding phase of the process. Repeat this term often throughout the entire unit to reinforce what phase the children are now dealing with. Instruct each child to fold the construction paper he receives in half lengthwise, to resemble a name plate. On one side of the paper have them write "RULES"; on the reverse side, "CRITERIA".

B. Give an explanation of the definition of criteria as being rules. Provide related examples. (Example: What are the criteria we use for our notebook in this class? They are neatness, completeness and always use pencil.) Have children volunteer several related examples to help them understand the
meaning of the term. Instruct students to copy from the chalkboard or chart paper the examples that are given. Emphasize the criteria for the paper they are now doing are neatness and completeness. A reward may be offered to the children who are employing the criteria.

Session 2

Materials:
1. a dittoed sheet containing a chart for evaluation of ideas
   (see Appendix IX)
2. chart paper

Instructional Procedure:
A. Give each child a dittoed sheet containing a chart for idea evaluation. This sheet will have blanks for ideas for solving a particular problem and blanks for the criteria with which to judge those ideas. It is important that this exercise be done as a total group with the instructor guiding the experience step by step. Briefly state a problem, a problem statement in the proper form, and ask children for ideas to solve the problem. Place five of the ideas on the chart.

B. Ask children to list what kind of criteria or rules they can think of to judge the ideas. Encourage them to brainstorm as many criteria as possible. Record all criteria and quickly choose four or five for the chart. Students will have the opportunity to choose ideas and criteria at a later date when they understand the process in more detail.

C. Use a "good, fair, poor" system for evaluation. Evaluate ideas, asking children to join in. After the chart is complete, choose the best ideas by looking at the ideas with the greatest number of "goods". If children need more reinforcement, repeat this session using another problem.

Session 3

Materials:
1. the instructor's desk and chair
2. a chart for criteria evaluation (see Appendix IX)
3. a judge
4. a jury

Instructional Procedure:
A. The instructor serves as the judge during the role-playing and the children serve on the jury. The judge explains a problem concerning a misbehaved child. Facts may be asked of him. The jury is to arrive at a problem statement and list several ideas. The judge or capable juror then records these ideas on chart paper.
B. The jury is asked to brainstorm criteria. Once again, the judge or capable juror records criteria. The judge chooses five to seven ideas and four to five criteria.

C. Each juror copies the ideas and criteria onto his chart and evaluates them using the "good, fair, poor" system. The judge asks each member of the jury to circle the one idea that he thinks is best. Solutions may be shared if time allows.

After this experience, a feeling chart is completed.
Unit 8 LET'S PUT IT INTO ACTION

Timing: Approximately 1½ hours or two 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: During this unit, children will be encouraged to put solutions into action. A specifically detailed solution will be derived and the instructor will help children to execute their plans of action. For further explanation, see the Guide to Creative Action, Unit 6. (32)

Objectives:
Session 1: to provide exercises in executing solutions to a problem; to anticipate other challenges or problems that may arise
Session 2: to provide an experience for self-expression by creating a dance, exercise or art project

Session 1

Material:
1. a dittoed sheet with outlined questions to help children create a specific plan of action (see Appendix X)

Instructional Procedure:
A. Divide children into groups of two's. Give each child a dittoed question sheet. Ask pairs to decide who, in the dyad, will begin by asking questions of his partner. The instructor may participate if an odd number occurs, or a group of three may be formed if the instructor chooses to oversee the process. Explain that this is the acceptance-finding phase of the process, meaning a solution must be accepted and then put into action. This action may mean more challenges but acceptance-finding will help anticipate and deal with those challenges.

B. Demonstrate how this exercise is to be completed with the aid of a volunteer. Stress the importance of word emphasis. (Example: WHO might be involved? Who MIGHT be involved? Who might be INVOLVED?) Each word in capitals is stressed in order to elicit more information. Follow the same procedure for each question on the sheet. The entire experience is to be done verbally in dyads, in 20 minutes, using a solution derived in Unit 7, Session 2 role-playing. Have each child question his partner for ten minutes.
C. Again verbally, tell the dyads to prepare a specific plan of action. Each dyad must report specific details. If group size is too large, not every dyad need report. Instructors may choose to have the dyads write their plans of action, to be reviewed by the instructor.

Session 2

Materials:
1. an art group: children who wish to work with art media, finger paints and art paper
2. an exercise group: children who choose to exercise, a floor mat and background music
3. a dance group: children who enjoy dancing, ample floor space and music for dancing

Instructional Procedure:
A. Let children have the option of choosing an art group, exercise group or dance group. After the groups are assembled, and materials distributed, ask each group to create something: an art project, a collage of exercises or a dance. This exercise may be done individually, in pairs or in groups up to four. Allow 25 minutes for completion.

B. Ask each person or group to demonstrate or display his (their) project.

After this experience, a feeling chart is completed.
Unit 9 NOW WHAT CAN WE SOLVE?

Timing: Approximately 4 hours or five 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: The five basic steps of the creative problem-solving process have been presented to the students and unity or demonstration of the flow of these steps is now needed. Although the instructor has frequently referred to the chart listing the five steps of the process, it is now necessary for children to concretize and internalize them. Children should create their own model of the five steps along with interacting with the entire group in fully solving a problem. For further information, see Unit 7 in the Guide to Creative Action. (32)

Objectives:
Session 1: to create a concrete model of the five-step process
Session 2-5: to work through the entire five-step process as a group solving a problem in order to grasp the continuity and flow of the process

Session 1

Materials:
1. chart paper
2. colored roll paper or construction paper
3. crayons and markers

Instructional Procedure:
A. Display a model of the five-step process. (see Appendix I)
   This model may be cut out paper doll fashion where all entities are connected. Instruct each child to create a model similar to the one displayed. Their models might be in the shape of a football, Christmas tree, egg or whatever seasonal event may occur at the time.
   Each model must contain five connected figures. The first figure is labeled fact-finding; the second, problem-finding; the third, idea-finding; the fourth, solution-finding; and the final, acceptance-finding. The words "new challenges" may be written along the end of the model to show that new challenges may result. The students may decorate their models in any fashion. Display these models.

Sessions 2-5

Materials:
1. dittoes containing guidelines for each phase of the five-step
process (see Appendix XI)
2. blank paper
3. chart paper

Instructional Procedure:
A. Work together as an entire group on a problem chosen, and voted on, by the group. Carefully guide the group through all five steps of the process. Give students the opportunity to add ideas and thoughts of their own in the blanks provided. Close guidance in these periods helps provide a semi-structured experience in the process, allowing children to more fully understand how it functions. When this is accomplished, children will have the opportunity to be more flexible with the process to suit their individual needs.

After the process is completed, children complete the feeling chart.
Unit 10 LAND OF MAKE BELIEVE

Timing: Approximately 2½ hours or three 45-50 minute sessions

(JOURNAL REMINDER!)

Rationale: A series of cognitive "experiences" have been given to children, using each step of the process to fully solve a problem. Therefore, children will experience a less structured type of activity in this unit, in order to further insure idea-production. Added idea-spurred will be introduced to stimulate the imagination. For further information, see Unit 10 in the Guide to Creative Action. (32)

Objectives:
Session 1: to provide experiences using verbs for increased production of ideas
Session 2: to use clay or play-doh as a medium to express the techniques given in Session 1
Session 3: (Optional) to create a "Land of Make Believe" as an idea-spurred and use it as a basis for a creative writing experience

Materials:
1. chart paper
2. blank paper

Instructional Procedure:
A. Place an object in full view of the children. (Example: a chalkboard eraser) Ask them to improve the object orally.

B. Write idea-spurred verbs on chart paper. (Example: magnify, minify, rearrange, reverse, substitute, polish up, add to, etc.) Ask children to close their eyes because they are now going to a land of make believe. Tell them to picture a box of any size. Ask them to make it smaller, change its color, make it bigger, add something to it, put legs on it, turn it into anything they would like. Allow sufficient time for them to make these changes imaginatively. Have the children open their eyes and briefly draw or sketch what their new item looks like. Briefly share drawings. Emphasize that all of our imaginations are different and we will all have many different ideas.

C. Direct children to divide into groups of three to five. Use the same object dealt with initially and ask children to improve
that object again, keeping the verb-changers in mind. Approximately 20 minutes will be given. Instruct children to choose a secretary to record ideas. Other children in the group may close their eyes to create or improve the object. Ask each group to circle three of their best improvements and share them with the entire class.

Session 2

Material:
1. a small portion of clay or play-doh for each child

Instructional Procedure:
A. Give each child a piece of clay or play-doh. He will feel its texture and manipulate it for about five minutes. Tell children to make something that represents the five-step creative problem-solving process. Allow approximately 10 minutes for this. When each child has finished, ask him to explain his creation, telling how he displayed the five steps. Allow as much time as needed for each child, since this can be a built-in evaluative tool for the instructor as he listens to the child explain how he is displaying the five steps. If time allows at the end of the period, have children trace their hands on paper and label each finger and thumb with one step of the process. This will be another reminder of the five steps. A review of terms is also beneficial. (Example: criteria=rules; brainstorming=making as many ideas as you can, wild or otherwise.)

Session 3

Materials:
1. writing paper
2. construction paper
3. crayons and markers

Instructional Procedure:
A. Provide a "guided fantasy tour" for children, helping them create a land of make believe in their imaginations. Ask children to really use their imaginations and create a really different kind of make believe land. In this land, the children can either be giants, about 30 feet tall, or teeny-tiny people, about three inches tall. They must look at their new world from their new perspective and describe how everything looks and how they feel being that size in such a strange land. (Example: You are walking through your land of make believe. Picture yourself. What color is your skin, hair, eyes? Are you a pretty creature? What do your hands and feet look like? What are you going to do if you see a rattlesnake?) The instructor will ask these questions, giving the children their guided tour. Direct each child to take paper and write his experience in the make believe world! Ask them to be as
descriptive as possible, as in painting a picture. If time allows or as they finish, give them construction paper to draw themselves or a scene from their land. Stories and posters may be shared during free time.

After this experience, a feeling chart is completed.
Unit 11 SILLY IDEAS? THEY WORK!

Timing: Approximately 1½ hours or two 45-50 minute sessions

(JOURNAL REMINDER!)

Rationale: Up to this point, children have been encouraged to create silly ideas and to stretch their imaginations to their limits without being offered a real explanation. They were told their ideas would be judged through criteria. Now, they will have the opportunity to transform a silly idea into a useful and effective one. Children will also be introduced to personal analogy. This technique provides the opportunity for the child to assume another role. In this role, a child's real, sometimes suppressed feelings may surface since they are less afraid to communicate true feelings because they are role-playing, describing another thing, not themselves. See the Guide to Creative Action. (32) Unit 11 for further information.

Objectives:
Session 1: to prove that silly ideas can really be made into useful ones
Session 2: to provide an experience with personal analogy to increase children's awareness of themselves

Session 1

Materials:
1. a water fountain
2. blank paper

Instructional Procedure:
A. Ask the children to tell a silly experience that they have had, asking how it made them feel, what kinds of things were involved, what people, etc. Ask the other children of the group to use their imaginations, turning the child's experience into a helpful one. Ask at least two or three to volunteer a silly story and have several other volunteers change each story into a helpful one. Allow 15 minutes for this experience.

B. Take an object, for example, a water fountain, and ask each child to take five minutes to make a list of ideas to improve the water fountain. Emphasize the importance of coming up with the silliest of ideas. Put verb-changers in view to help children take turns going out into a corridor to look at, and examine, the water fountain.
0. Have children form small groups (two to four), taking five minutes to share their ideas and add any new ones. Their task then, is to use the remaining time to put at least three of those silly ideas into good use. Give several examples of how to do this before children begin. Ask children also to express some of their ideas orally before beginning group work. Let children share their best ideas with the entire group. If time allows have the students make a list of the improvements and send the list to the principal.

Session 2

Materials:
1. blank paper for each child
2. a suggested outline for an animal story (see Appendix XII)

Instructional Procedure:
1. Oftentimes when one removes himself personally from a situation, he is better able to view it, better able to think clearly. For this experience, ask each child to actually become his favorite animal and identify with that animal. Describe the animal as being a sad one, which has a problem that no one knows about. The animal has to tell, by writing a story, how he feels with this problem, describing one actual day from waking time to bed time. Provide a suggested outline mentioning what types of things he, the animal, may tell about. Animals are asked to be as descriptive as possible with their feelings. Circulate, helping children with challenges that may occur. As usual, the instructor may also participate in the experience.

After this exercise, the feeling chart is completed.
Unit 12 IT'S UP TO YOU!

Timing: Approximately 3 hours or four 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: Children have been guided through many phases of this curriculum and through a problem-solving experience involving the entire process. It is now time for the child to work independently, using the resources gathered up to this time. More time may be allowed if children need it. For further details, see Unit 12 in the Guide to Creative Action. (32)

Objectives:

Sessions 1-4: to provide practice in using the five-step process by having each child concentrate on solving his own problem with no specific guidance

Sessions 1-4:

Materials:
1. outlined dittoes containing the five steps of the process (see Appendix XI)
2. at least ten sheets of blank paper for each child

Instructional Procedure:
A. It is extremely important, during this unit, for the instructor to leave the student in privacy if he is working on a problem he does not wish to tell about. The instructor tells the children that he will not read these papers if requested not to, so the child can be as open as he wishes. Inform children that they have four class periods to complete the assignment and more time if necessary. Explain that at the end of the exercises, they will be given questions to answer which ask about the process, not about their problems.

B. Distribute a series of outlined dittoes, containing each step of the process and blank spaces for the child to write. Ask each child to think of a challenge or problem that is facing him at the present time, something that is really bothering him. If the child cannot think of one, help him to identify a problem after all instructions have been given. Ask children to complete the sheets given then, using the five steps to solve their problems. The instructor will be free to help children with any problems they may encounter. Guide children throughout the experience, telling only which phase they might
be working on at that particular time. They need not, however, conform to a time schedule if they feel the need for more time at a particular phase. Children are responsible for the completion of these papers and they may keep them for themselves.

C. At the end of the exercise, hand out a sheet to be completed by each student, answering questions, such as: What did you learn during this exercise? Do you feel that you solved your problem? Did you come up with a real plan of action? If so, when do you begin? If not, why not? Who else are you going to tell about the five-step process? Why? Review these sheets for evaluation, saving them for the student's personal file.

After this exercise, a feeling chart is completed.
Unit 13 YOU'LL BE SURPRISED AT WHAT YOU'LL COME UP WITH!

Timing: Approximately 2½ hours or three 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: A final push to stimulate children's imaginations is a morphological approach, where children will be asked to force relationships between different categories to develop a new idea or event. The term morphology need not be introduced to children since they already have considerable vocabulary with which to deal. The understanding of the process, not the term, is of greater importance. For more information, see Unit 13 in the Guide to Creative Action. (32)

Objectives:

Session 1: to show students how to force relationships with more than two things, in order to derive a new idea or event
Session 2-3: to have children write a story using the morphological forced relationship approach, and to nonverbally act out stories, having group members trying to decipher the actor's story

Session 1

Materials:
1. chart paper
2. blank paper

Instructional Procedure:
A. Place chart paper in full view of all students. Write the categories, "Who, What, Where, When, Why and How" horizontally across the top of the sheet. Ask children to name five "Who's", five "What's", meaning any event that happened or could happen, five "Where's", or places, five "When's", five "Why's", (Example: because he didn't do his homework; because it snowed so hard), and five "How's". (Example: by using a hammer; with his hands)

B. When the chart is complete, ask a volunteer to choose one item from each of the six categories. Using these six items, create a story by forcing relationships among them. Children are then asked to volunteer to do the same.

C. With the remaining time, ask children to improve their desk by forcing relationships with at least three items they see in the classroom. (Example: a window, a book, a door). This exercise may be done in groups of three to four, having one person tally,
not record, the number of ideas. Have each group report the
number of ideas they created.

**Sessions 2-3**

**Materials:**
1. blank paper
2. a lot of imagination!

**Instructional Procedure:**
A. As a total group, construct another chart similar to the chart
used in Session 1, involving who, what, where, etc. This time
have ten items placed in each category, giving the children an
amazingly large number (ten to the 5th power or 100,000) of
story ideas.

B. The task of the child is to choose one item from each category,
write these on his paper and create a story. Stress the use of
imagination, brainstorming, humor or whatever resources they
would like to use. Each child will work individually. Allow
the entire period.

C. During Session 3 of this unit, have children silently reread
their own stories and decide how they are going to tell their
stories, using no words, whatsoever. They must act out their
stories for the group and have the group tell the person's
story back to him.

After this experience, the children complete the feeling chart.
Unit 14 HOT SPOT!

Timing: Approximately 1½ hours or two 45-50 minute sessions

(JOURNAL REMINDER)

Rationale: Considerable time was allowed for applying the total creative problem-solving process. It is now necessary to give children practice in making rapid decisions, using the five-step process. Ask them to recall, as they are making their decisions, each phase of the process, and how they can apply it. For further information, refer to Unit 15 in the Guide to Creative Action. (32)

Objectives:

Session 1: to provide practice in making snap decisions by giving each child a series of problems and having him devise a solution over a five-minute period.

Session 2: to provide an experience in Haiku (Japanese poetry) and encourage children to freely express their ideas; to solve a problem in ten minutes.

Session 1

Materials:

1. Eight to ten different problems, pre-planned by the instructor, that children solve individually. Pre-planned problems include:

   a. Your parents are working on very important papers on the kitchen table and have asked you to stay away. You decided, when they took a break, to fix yourself some chocolate milk, being careful not to spill it. Boom! You knocked it over! It went all over the papers. What will you do?

   b. Your brother (or sister) asked you not to use his (her) stereo-record player. However, you were in the house alone one day and decided to try it. After a few records, the stereo just stopped working. What will you do?

   c. The principal warned you that if you forgot your homework one more time, he'd have to call your parents into school. Your parents know nothing about this. You're already on the school bus when you discover that your homework is on the kitchen table inside your lunch box. What will you do?

   d. You're taking a very important test. You are very nervous. The boy next to you has his paper in full view. What will you do?

   e. You are on a class picnic and teachers ask you to stay close together and in the area. You and a friend decide to explore the picnic grounds because you are sure you can find your way back. All of a sudden, you discover you're really lost and
don't know which way to go. No one is around. What will you do?

Other examples of this type may be created or the instructor may ask children to volunteer a problem they had to solve very quickly.

**Instructional Procedure:**

A. Write each problem on a separate sheet of chart paper. Explain that oftentimes, we must make decisions quickly. Many times we don't have time to write down each phase of the process, but when a problem needs a quick solution, we can use the entire process or pull out any part which will help us solve our problem. Refer to a pre-planned problem, read it aloud and ask each member of the group to take five minutes, working individually, to solve that problem.

B. Have children tell what they felt like, having to solve the problem immediately. Ask for some solutions and ask children what part of the process they employed most.

C. Explain that several problems will follow and the children will be given a certain amount of time to solve each problem. Ask them to do the best they can and not to worry since this is only a practice exercise. For the first and second problems, allow five minutes. For the third, allow four minutes; for the fourth, allow three minutes; for the fifth, allow two minutes. Ask children to share some solutions and their feelings.

**Session 2**

**Materials:**

1. a Haiku record and filmstrip or 16mm Haiku film or any nature film, with soothing musical background
2. blank paper

**Instructional Procedure:**

A. Ask children to make themselves comfortable and to relax as much as possible. Have children close their eyes or put their heads down and turn off the lights. Speak softly, asking the children to imagine they are on a small island, with no one around. They are safe. They hear the waves splashing on shore, the trees swaying and birds singing. It is a very peaceful island. Ask them to clear all thoughts, all worries and lie back, on this island, and relax. Allow two to four minutes for children to think and relax in silence.

B. Show the film or filmstrip, being careful to choose a very relaxing one. After the viewing, ask children to write a poem about nature, using as few words as possible. Allow ten minutes for this. At the end of the ten minute period, children may be allowed to share their poems if they wish.
C. As a finale, children will be asked, in groups of three to five, to help the instructor make a snap decision on a problem he has. Ask children to get into their groups and to choose a secretary. Inform the children they have no longer than ten minutes to solve this problem and they must have a definite plan of action, deciding all whos, whats, wheres, whens, whys and hows involved. Advise them that each group’s decision will be collected. The instructor’s problem is this: He has one afternoon, in school, where three hours are free. He doesn’t know what to do with the children. What will he do in those three hours? The instructor will answer fact-finding questions.

D. At the end of ten minutes, collect papers and read the solutions to the children, having them select the one they like best. Execute it!

E. After their afternoon of pleasure, ask each child to complete a questionnaire (see Appendix XIII) concerning his feelings about the entire program, and to answer brief questions about the creative problem-solving process.
CHAPTER V

SUMMARY OF THE STUDY, ITS DESIGN AND RECOMMENDATIONS

Summary of the Study and Its Design

This study was designed to create a curriculum in creative problem solving and decision-making for elementary school children so as to aid in the development of self concept. The researcher proposed a curriculum for grades two through five, basing it on the Osborn-Farnes method of creative problem solving. This method, because of its very nature, stimulates and develops a child's self concept.

In reviewing related literature, the investigator discovered that, because of our transient society, children need problem-solving and decision-making techniques more and more in order to cope with rapid change. With such techniques upon which to rely, children's self concepts will be stronger because they will be better equipped to face the challenges of every day life.

Creative problem solving, based on the Osborn-Farnes process, includes problem-solving and decision-making techniques, and self-confidence builders that can be effectively integrated into any existing curricula. For these reasons, the investigator adapted this particular problem-solving process rather than other existing ones.

The proposed curriculum is composed of fourteen units or forty 45-50 minute sessions. Each unit contains from two to five sessions, depending on the intensity of material presented. The investigator integrated cognitive with affective experiences to achieve a balance
for the individual, insuring a positive self concept development.

Cognitive material is presented first, for the most part, and the affective experiences called "Grasper Experiences" follow, allowing the child to integrate the material with his own world.

The actual creative problem-solving process deals with the five phases designed by Osborn and Parnes. The five steps include: fact-finding, problem-finding, idea-finding, solution-finding and acceptance-finding. Children have various experiences with individual phases of the process as well as dealing with it as a whole. The Grasper Experiences, most of which were designed by the investigator, stimulate the self concept, helping the child become more aware of his environment and how he may deal with it.

This study was in no sense to integrate CPS with other curricula, although it can be done. It is a day by day unit in creative problem-solving and decision-making.

The proposed curriculum, in totality, was not formally tested. However, various segments were presented by the investigator to a small group of elementary children over a one semester period.

Five children were part of the study. They ranged from grades two through four. One boy was in grade two coming into the program because, as his homeroom teacher indicated, he had very good intellectual ability but would not communicate in any way with teacher or peers. Two girls from grade three (different homerooms) joined the program because both refused to communicate in any way with teachers or peers and both had difficulties academically. Two boys from grade four were assigned to the program. One boy had severe home problems and was believed to be an
above average learner but was not working to his potential. He showed signs of emotional distress. The other fourth grade boy was believed to have learning difficulties, having repeated grade four, and also did not communicate with classmates or instructor.

The investigator of this study had no choice in selection of these students. They were assigned to her by teachers who believed these children had trouble in "communication".

These children of varied backgrounds received exposure to the five-step process, dealing with each step individually. They were able to apply the process as a whole at the end of the one semester period and did have practical application in solving both personal and academic problems. For example, one child found it difficult to be attentive and organized in grade four. He discovered through the process that music put him at ease, helped him to think and pay more attention. This was discussed with his homeroom teacher who cooperated with the project, allowing him to periodically go to a quiet study corner and listen to music through earphones while completing his assignments. This method proved successful.

Along with receiving the five-step process, "Grasper Experiences", defined in Chapter 1, helped them with self-awareness and discovery of potential while reinforcing the process. (Example: see Appendices II, III, IV, VIII, XIII)

The papers of these children are available from the investigator. Growth can be measured graphically through this information.

Recommendations For Further Study

Although no formal attempt was made to test the curriculum, it would
be useful to further investigators to pursue such issues as follows:

1. further research in scientific evaluation

2. further exploration of self concept related to creative growth

3. investigation of conditions necessary for success:
   a. parental attitudes (execution of techniques at home)
   b. teacher attitudes, capabilities and methods of presentation of the Osborn-Farnes process
   c. detailed records of children's perceptions, growth in creativity and self concept. For example, charts of growth indicating fluency, more detailed record keeping for data needed, keeping papers and worksheets of children, noting progress at various intervals, graphically throughout the program
   d. experimental research to be conducted over a one-year period with experimental and control groups
   e. careful consideration of the background of children (Examples: gifted vs slow learners, grade level, sex)

4. investigation of how one might apply and integrate CPS in existing primary level curricula. (Example: In What Ways Might CPS fit in or be fruitfully applied to the design of existing curricula?)

5. formal testing to determine progress. For example, assessment of personality growth or change might be measured.

These notions are intriguing to the researcher and perhaps to others willing to test curriculum development, and may be interesting to others pursuing such a study. Further activity in this area of curriculum development would be helpful to the nurturance of creativity and self
a key to unlocking human potential, giving a child the opportunity to know what he is capable of, take full advantage of his capabilities and therefore positively develop his self concept.
This diagram shows the divergent convergent thinking pattern occurring within each of the five steps of the Creative Problem-Solving process.
Interest Inventory

All About Me

My name is ____________________________

My nickname is __________________________

I like ________________________________

My birthday is _________________________

The two best things about me are 1. _______________________

2. _______________________

Here is a picture of what I look like

I feel really great when ____________________________

I love ____________________________
Usually I feel (happy, sad, worried) ____________________________
When I grow up, I want to _________________________________
School is _____________________________________________
I feel bad when _________________________________________
My family _____________________________________________
Here is a picture of my family:

[sketch of a family]

I wish I could __________________________________________
My best friend is _________________________________________
I am afraid when _________________________________________
I usually get blamed when _________________________________
If I had 3 wishes __________________________________________

Answer these questions about yourself.

What subject do you like best? ____________________________ least? __________________________
Do you like to read? _________________________________
What sports do you like? _________________________________
What is your favorite T.V. program? _________________________________
What is your favorite movie? _________________________________
Do you have a hobby? ______ If so, what? ________________
Do you collect things? ______ If so, what? ________________
Do you have pets? ______ What kinds? ________________
APPENDIX III

It's time to LOOK into the future-- what will it be like when you grow up??
TRY TO IMAGINE!!

Go Into Your Time Machine

When I am 10, I

When I am 15, I

When I am 20, I

At 30, I will

At 40, 

When I am 50,
APPENDIX IV

FACT INTERVIEW

Reporters, ask away...

Reporter's Name ____________________________

Person's Name ____________________________

Address ____________________________

Phone number ____________________________

Do you have any sisters or brothers? ________ How many? ________

How tall are you? ____________________________

What color is your hair? ______________________

What color are your eyes? ____________________

How much do you weigh? ______________________

What is your shoe size? ______________________

How long is your nose? L ______________________

How long is your arm? _______________________

Can you dance? ✔ ____________________________

Can you sing? ✔ _____________________________

Are you good at sports? ✔ ______________________

What is your favorite subject? __________________

REPORTERS: BE READY TO TELL ABOUT YOUR PERSON!
Fact-Finding

Rules: 1. You have 20 minutes to look around this room — or down the hall — for facts.
       2. If you leave this room, go only as far as the cafeteria or nurses office.
       3. You must be silent!

Examples: 1. This room has yellow walls.
           2. This room has four windows.

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 
14. 
15. 
16. 
17. 
18. 
19. 
20. 
21. 
22. 
23. 
24. 
25. 
26.
PROBLEM-FINDING → PROBLEM-FINDING

→ PLEASE REFER TO TEACHER’S CHART FOR HELP ←

Choose a problem and state it in proper form.
In what ways might I ____________________________

☆ WHY?
Restatement 1: In what ways might I ____________________________

☆☆ WHY?
Restatement 2: In what ways might I ____________________________

In what ways might I ____________________________

☆ WHY?
Restatement 1: In what ways might I ____________________________

☆☆ WHY?
Restatement 2: In what ways might I ____________________________

☆☆☆ WHY?
Restatement 3: In what ways might I ____________________________
APPENDIX VII

**BRAINSTORMING!!**

**REVIEW** — Print carefully the names of the first 3 steps of CPS.

- Step 1: (F-F)
- Step 2: (P-F)
- Step 3: (I-F)

**PROBLEM STATEMENT:** In what ways might we make our classroom more homey?

**Ideas -- BRAINSTORM!!**

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 

*USE THE BACK*
APPENDIX VIII

FORCED RELATIONSHIPS

To help us BRAINSTORM, we can use FORCED RELATIONSHIPS. Let's see how it works:
Here's an example:

**In What Ways Might We get rid of winter's snow?**

To get 25 ideas, use these ideas to **FORCE RELATIONSHIPS**:

<table>
<thead>
<tr>
<th>Force with a pen!</th>
<th>Force with a book!</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>5.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Force with a desk chair!</th>
<th>Force with a ruler!</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>5.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Force with a garbage can!</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
</tbody>
</table>
Step 4: Solution-Finding
Rules are called:

CRITERIA ---

IDEAS ↓
APPENDIX X

Let's Put It Into Action!!

* Write your SOLUTION here:  

* Find a buddy and wait for directions

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
</tr>
</thead>
</table>
| **WHO** might help you do this?  
Who ELSE? Who else **MIGHT**?  
Who might **HELP**? | **WHAT** might help do this?  
What **MIGHT** help? What **ELSE**?  
What can you do to make your idea better?  
What **KINDS** of things might help? |
| III | IV |
| **WHERE** are you going to do this?  
**Exactly where?** **WHERE** are you going to take the first step?  
What special place are you **SURE** you can do it? | **WHEN** are you going to begin?  
**Exactly what day?** **What** time?  
Who will you talk to on that day? **WHEN**?  
What might stop you from starting when you want to? |
| V | VI |
| **WHY** will you do this? **WHY** will someone not help you?  
Why might you have difficulties? | **HOW** will you do this? Tell 3 steps describing **HOW**.  
How are you going to prevent someone or something from stopping you? **HOW** are you sure you'll succeed? |
APPENDIX XI

USING THE WHOLE CPS PROCESS?

We've made it! Yeah! It's time to put all 5 steps together.

REMINDER: Five steps: F F P F S F N C

STEP I: FACT-FINDING
(list all the facts you want to know.)

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

Use the back if you have more fact-finding questions.
STEP II: PROBLEM-FINDING

(List all problem statements in the proper: 
"In What Ways Might I..." form. Try to 
get as many problem statements as you can. 
Remember: Ask, "Why?")

1. In What Ways Might I

2. I WWMI

3. 

4. 

5. 

(Put two together or change a word in one.)

6. 

7. 

Circle the one problem statement you 
like best.
STEP III: IDEA-FINDING

Yeah! It's time to BRAINSTORM

Put your best problem statement here:

Put your ideas below -- REMEMBER -- they can be crazy!!

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 
12. 
13. 

Use the back if you have more ideas → → →
Now, go back and circle 4 or 5 of your best ideas.
**STEP IV - SOLUTION-FINDING**

→ It's time to be a **JUDGE**!

You have to make your own **RULES or CRITERIA to judge**.

First go back to I-F and copy down the 4 or 5 ideas you circled, below. Then list your criteria and compare!

<table>
<thead>
<tr>
<th>IDEAS</th>
<th>CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
</tbody>
</table>

Circle your best idea.
STEP V: ACCEPTANCE-FINDING

Now we have to do something about that solution. We have to "PUT IT INTO ACTION!!"

Write your solution here:

Go through the checklist. Make sure you have a detailed Plan of Action?

<table>
<thead>
<tr>
<th>WHO?</th>
<th>WHAT?</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHERE?</td>
<td>WHEN?</td>
</tr>
<tr>
<td>WHY?</td>
<td>HOW?</td>
</tr>
</tbody>
</table>

Write your plan of action on the back.
APPENDIX XII

Animals, Animals, Animals

Write a story actually being your favorite animal. You will describe one whole day, during which you'll deal with a problem. Tell everything you can about that problem. Remember: you be an animal!

I am an ______________. I feel sad because

Don't tell anyone, but my problem is

______________________________

______________________________

______________________________

______________________________

______________________________

______________________________

______________________________

______________________________
APPENDIX XIII

CPS Review!

1. How do you feel about Creative Problem Solving?
   a. ____________________________
   b. ____________________________
   c. ____________________________

2. CPS makes me ____________________________

3. CPS helps me ____________________________

4. I learned: ____________________________ 5. I hope: ____________________________
   a. ____________________________ a. ____________________________
   b. ____________________________ b. ____________________________
   c. ____________________________ c. ____________________________

6. I can use CPS to: ____________________________

7. The 5 steps of CPS are:
   Step 1: ____________________________  Step 4: ____________________________
   Step 2: ____________________________  Step 5: ____________________________
   Step 3: ____________________________
BIBLIOGRAPHY


51-53. (Winter 1973)


VITA

Educational Data

1966 Graduate, Annunciation Elementary School, Buffalo, New York, with honors
1970 Graduate, Cheektowaga Central High School, Cheektowaga, New York, with honors
1974 Graduate, State University College at Buffalo, (SUCB), Elementary Education, English Extension, (7-9) Magna cum Laude

Background in Creative Problem Solving

1970-1972 -Participated in a two year experimental program in Creative Studies, under the supervision of Dr. Sidney J. Parnes and Dr. Ruth B. Holler, SUCB
1973 -Creative Problem-Solving Institute (CPSI), Administrative Assistant, SUCB
- Guest lecturer, Educational Psychology Graduate Class, SUCB
- Facilitator, Creative Problem-Solving (CPS) Course, Senior Citizens, Wendy Nursing Home
- Facilitator, Regional Extension, CPSI, Southern Connecticut State College, New Haven, Connecticut
1974 - Guest lecturer, Ed. Psychology Graduate Class, SUCB
- Co-director, six week CPS Course, American Institute of Banking
- Administrative Intern, CPSI, SUCB
- Facilitator, Regional Extensions, CPSI at: Macalester College, St. Paul, Minnesota; University of California at Davis, Davis, California; Southern Connecticut State College, New Haven, Connecticut
1975 - Present - Volunteer Leader, CPSI, SUCB
1976 - Guest lecturer, Principles of Curriculum Design Graduate Class, SUCB
1977 - Guest speaker, Delta Kappa Gamma Sorority, Alpha Lambda Chapter, SUCB

Background in Elementary Education

1974-1976 Third grade teacher, Union East Elementary School, Cheektowaga, New York
1976-1977 Reading and Math remediation and Creative Problem-Solving teacher to slow learners, Union East School

Personal Interests

Reading and writing poetry and prose, taking courses and dealing in Human Relations, teaching CPS, sewing, cooking, playing guitar and traveling (Europe, 1969, 1972, 1976; California, Minnesota, Connecticut, 1974; New England, 1975; Texas, 1966)