Perceptions of the Persistence of Effects or Training in Creative Problem - Solving

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PERCEPTIONS OF
THE PERSISTENCE OF
EFFECTS OF TRAINING
IN CREATIVE
PROBLEM-SOLVING

DELORES E. YOUNG
PERCEPTIONS OF THE PERSISTENCE
OF EFFECTS OR TRAINING IN
CREATIVE PROBLEM-SOLVING

A Thesis
Presented to
the Faculty of Creative Studies
State University College at Buffalo
Buffalo, New York

In Partial Fulfillment
of the Requirements for the Degree of
Master of Science

by
Delores E. Young
December 1975
PERCEPTIONS OF THE PERSISTENCE OF EFFECTS OF TRAINING IN CREATIVE PROBLEM-SOLVING

A Thesis
by
Delores E. Young

Approved by

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Ruth D. Miller
Chairman of Thesis Committee

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[Signature and date]

[Signature and date]

Kimberly A. Lamar
Program Chairman

[Signature and date]
ABSTRACT

Delores E. Young

December 1975

PERCEPTIONS OF THE PERSISTENCE OF EFFECTS OF TRAINING IN CREATIVE PROBLEM-SOLVING

Directed By: 

Sidney J. Farnes

Ruth B. Noller

Program: Creative Studies

This study was designed to investigate the perceived persistence of effects of training in creative problem-solving over a period of one to three years. Research problems related to: (1) specific effects of the training, (2) problem areas which were helped by the training, (3) most influential and helpful training experiences, (4) least influential training experiences, and (5) differences in the persistence of effects among the three years investigated.

The study sample consisted of 105 individuals who completed the Beginning Program at an Annual Creative Problem-Solving Institute during 1972, 1973, and 1974. Thirty-five sample members were selected randomly for each of the three years and were sent the CPSI Alumni Questionnaire. Fifty-six questionnaires (53 percent) were completed and returned to the investigator.

The specific effects of training which ranked highest
for all three years are: (1) more likely to try different approaches, (2) tend to take more factors into consideration in making decisions, (3) able to apply program learnings to life activities in general, and (4) able to apply program learnings to future life activities.

The two areas which ranked among the lowest for all three years are: (1) more aware of problems and challenges, and (2) better able to develop ideas and put them to use.

All three years of the sample noted problems regarding (1) "Work" and (2) "Personal" as the two areas which were most helped by the training.

Responses regarding the most helpful and influential training experiences were primarily within the categories of (1) sessions based on the principles outlined in Parnes' Creative Behavior Guidebook, and (2) the overall CPSI experiences and atmosphere. Data regarding the least influential experiences were insufficient to draw conclusions. Results also were inconclusive regarding specific differences in persistence of effects among the three years.

The general question as to whether CPSI meets its stated goal, "to make a positive difference in an individual's life in five days," can be given a tentative affirmative answer, based on the findings in this study. Findings also yielded numerous hypotheses and recommendations for further study concerning the identification of specific differences and related variables.
PREFACE

In September 1975, an innovative and eagerly awaited new graduate program became officially available at the State University College at Buffalo. Offered in cooperation with the Creative Education Foundation, this interdisciplinary program leads to a Master of Science Degree in Creative Studies.

This research study represents the first Thesis to be completed as partial fulfillment of the requirements for the first Master of Science Degree to be awarded in Creative Studies. As such, this research has been conducted with a particular sense of achievement and satisfaction.

I wish to express my sincere appreciation to Sidney Parnes and Ruth Noller for their guidance and encouragement in helping me to complete this study. Also, I gratefully acknowledge the contributions of the CPSI Alumni who shared their perceptions and thoughts in order to make this research possible.
# TABLE OF CONTENTS

PREFACE .............................................. vi
LIST OF TABLES ........................................ 1x

I. THE RESEARCH PROBLEM ................................... 1
   Introduction ........................................ 1
   Purpose of the Study ................................ 3
   Statement of the Problem and Subproblems .......... 3
   Definition of Terms ................................ 4
   Description of the Sample ............................ 4
   Scope and Limitations ................................ 5

II. REVIEW OF THE LITERATURE .............................. 8
   Introduction ........................................ 8
   Early Creativity Training Programs ................ 9
   Early Research Studies ................................ 11
   The University of Buffalo Studies .................. 14
   Creativity Training Programs For Children ........ 15
   Continued Buffalo Research ........................ 19
   Nationwide Programs ................................ 20
   Related Concerns ..................................... 21

III. METHODOLOGY ......................................... 24
   Time and Place of Study .............................. 24
   Selection of the Sample ............................. 24
   Method of Obtaining Data ............................ 26
   Description of the Tool ............................. 26

IV. FINDINGS .............................................. 28
   Introduction to Presentation of Findings .......... 28
   Items Concerned with Perceived Gain ............... 33
   Items Concerned with Present Application .......... 39
   Item Concerned with Future Application .......... 42
   Items Concerned with Aspects of Time ............... 42
   Items Concerned with the Most Helpful and
   Influential Program Experiences and
   Aspects .............................................. 44
   Item Concerned with the Least Influential
   Program Aspects ................................... 47
   Item for Additional Comments ....................... 49
   Additional Relevant DATA: Returnees to CPSI ....... 50
LIST OF TABLES

1. Item Comparisons, by Year, of Sum of Percentages for Top Two Categories of Gain .......................... 30
2. Rank Order of Items 1-16 by Year of Attendance and for Total Sample ........................................ 32
3. Comparison of Returnees to CPSI by Year of Attendance ................................................................ 51
4. Items with Sum of Top Two Categories of Response over 50% for Each Year and for Total Sample, in Rank Order ................................................................. 57
5. Comparison of Four Highest Ranking Items by Year ................................................................. 64
6. Comparison of Four Lowest Ranking Items by Year ............................................................... 65
1. THE RESEARCH PROBLEM

Introduction

Each year in June, the Annual Creative Problem-Solving Institute (CPSI) is held at the State University College at Buffalo. CPSI and its co-sponsoring organization, the Creative Education Foundation, have provided the principles and techniques of creative problem-solving to thousands of people since its inception in 1955. Basing its program sessions upon the principles outlined in Alex Osborn's *Applied Imagination*¹ and utilizing Sidney J. Parnes' *Creative Behavior Guidebook* and *Creative Behavior Workbook*²,³ as texts, CPSI's stated purpose is to "make a positive difference in an individual's life in five days."⁴,⁵

The Beginning Program at CPSI is a condensed version of the semester courses which are offered at the State University College at Buffalo and which have undergone extensive research through the Creative Studies Project.\(^6,7\) Developed for those who have had little or no experience with creative problem-solving, basically, the Beginning Program assists participants to develop skills in the areas of problem awareness, problem identification, idea production, idea evaluation, and solution implementation. In addition to the Beginning Program, CPSI at Buffalo also offers an extensive Advanced Program which provides a wide variety of sessions for those who are already familiar with the principles and techniques of the Beginning Program.

Although a great deal of useful feedback has been collected during CPSI (first day, mid-week, and final day questionnaires) related to individuals' personal reactions to CPSI experiences and suggestions for improvement, no known studies have been conducted to determine whether CPSI actually achieves its stated purpose of making "a positive difference in an individual's life in five days."

\(^6\)Sidney J. Parnes and Ruth B. Noller, Toward Super-

\(^7\)Sidney J. Parnes and Ruth B. Noller, Toward Super-
Purpose of the Study

The purpose of this study is to conduct a preliminary investigation regarding the perceived persistence of effects of training in creative problem-solving, by individuals who have completed the Beginning Program in creative problem-solving at the Creative Problem-Solving Institute. As an exploratory field study, the data collected will be useful in the development of hypotheses which can later be tested by more systematic and rigorous research methods, with implications for providing optimal training in creative problem-solving in the future.

Statement of the Problem and Subproblems

The problem being investigated is:

What is the persistence of the effects of training in creative problem-solving, as perceived by individuals who have completed the Beginning Program in creative problem-solving at an Annual Creative Problem-Solving Institute?

Related subproblems are:

1) What specific effects has training in creative problem-solving had upon his/her life, as perceived by the individual?

2) What specific problem areas do individuals perceive as having been helped by training in creative problem-solving?
3) What specific training experiences do individuals perceive as having been most influential upon their lives?

4) What specific training experiences do individuals perceive as having been least influential upon their lives?

5) Do preliminary data indicate a difference in the persistence of effects of training in creative problem-solving, as perceived by individuals who have completed a beginning program in creative problem-solving with varying intervals of time since completion of the program and collection of the data?

**Definition of Terms**

Persistence of effects: indication on written questionnaire that individuals who have completed training in creative problem-solving, within approximately one to three years prior to the collection of data, perceive an enduring positive difference in their lives as a result of that training.

Training in creative problem-solving: completion of the Beginning Program, based on the principles and methods presented in Parnes' *Creative Behavior Guidebook*, at an Annual Creative Problem-Solving Institute at State University College at Buffalo, during the years 1972-1974.

**Description of the Sample**

The study sample consists of individuals who have completed the Beginning Program in creative problem-solving
at an Annual Creative Problem-Solving Institute, co-
sponsored by the State University College at Buffalo and
the Creative Education Foundation. These individuals
include both female and male adults of various ages, with
a wide variety of personal and professional backgrounds.
Although there are differences in their past experiences
which relate to aspects of creative problem-solving, none
had completed a Beginning Program at CPSI prior to the
year for which they were selected as sample members. Sam-
ple members were selected from those who took the Begin-
nning Program at the 18th, 19th, and 20th Annual CPSI at
were selected for each year, making a total of 105 sample
members.

Scope and Limitations

Data were collected from only one given program in
creative problem-solving, the Beginning Program of CPSI
at Buffalo; however, CPSI is internationally known and has
reached thousands of people from many fields of endeavor
over the past twenty-one years of its existence. In this
investigation, data collection was restricted to a sample
of individuals who have completed only the Beginning Pro-
gram at CPSI during a three-year period of time. An
Advanced Program is also available, and since many indi-
viduals who have first attended the Beginning Program and
then returned for the Advanced Program are not included in
the sample, the study sample is not representative of all who have attended the Beginning Program, with the exception of those who attended in 1974. It was later determined that a number of individuals in the 1974 sample did return to CPSI in 1975; however, they had not yet had the opportunity to do so at the time of selection of the sample and collection of the data. Therefore, all individuals who completed the Beginning Program in 1974 were included in the group from which sample members were randomly selected for that year. For the years 1972 and 1973, sample members were randomly selected only from those individuals who completed the Beginning Program alone. Those who had returned for the Advanced Program in 1973 and/or 1974 were excluded from the sample.

Because sample members are widely distributed geographically and are not available for carefully controlled testing situations, data collection was restricted to the limitations of a mailed questionnaire. Findings yield data regarding individuals' perceptions of their gains from training in creative problem-solving. The questionnaire is subjective in nature, and the assumption must be made that individuals are adequately able to evaluate themselves in the areas considered.

The validity of applying tests of statistical significance to the research findings is highly doubtful due
to the nature of the study and the numerous uncontrolled variables. Therefore, interpretation of the findings in terms of statistically significant differences has not been attempted.

It is expected that the information provided by the data from this study can be directed toward more controlled studies in the future. Hypotheses developed from the data can be tested in future studies and the findings then utilized to provide optimal training in creative problem-solving directed toward long-term goals which will indeed "make a positive difference in an individual's life."
II. REVIEW OF THE LITERATURE

Introduction

The following review will focus primarily on the literature which deals with the development of programs designed to enhance creative abilities and the research related to the effectiveness of these programs. It is beyond the scope of this paper to discuss the multiple definitions of creativity; however, Guilford\(^1\) and others\(^2,3\) have noted some of the research problems inherent in the lack of a single, widely accepted definition.

Recognizing also the concerns regarding the validity of tests used to measure creativity, this review begins with accepting the statement that "creative output is tremendously facilitated with training in the use of various idea-stimulating techniques, although as with any other ability or behavior, limits may very well be set by

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The review then proceeds to trace the programs and research efforts which have evolved during the past twenty-five years, giving support to the above statement.

**Early Creativity Training Programs**

The first edition of Hughes Mearnes' *Creative Power*, published in 1929, describes the five-year experimental program which Mearnes conducted as an English teacher at the Lincoln School of Columbia University. In his classes, he purposefully encouraged students to use their creative ability. Other publications followed in which he further discussed his belief that creative potential can be developed.

Robert Platt Crawford began teaching classes in creative thinking at the University of Nebraska in 1931.

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By 1937, in his preface to Think For Yourself, he noted the meager attention being given to the area of creativity and further stated his conviction that successful gains had been achieved by the students in his creative thinking classes.9

Some of the more widely known early programs in creativity training were introduced in the field of industry. Dating back to 1937, the General Electric Company was among the first to conduct a course in creativity training and to demonstrate the positive results of that program.10

In 1938, Alex Osborn introduced his company to brainstorming,11 a technique which remains an important part of the Beginning Program at the Annual Creative Problem-Solving Institutes.

Another full decade passed before the more widely known college course in creative problem-solving was offered at the University of Buffalo (now the State University of New York at Buffalo) in 1949.12 The early years


of those courses involved preliminary experimentation which led to the more extensive research later.

National attention in the area of creativity was drawn to Buffalo, New York in the mid 1950's with the first Annual Creative Problem-Solving Institute, founded by Alex Osborn's Creative Education Foundation in 1955. During CPSI's early years, the majority of participants continued to be from the field of business and industry, with only an estimated 10 percent from the field of education. However, over a twenty year period of time, creativity training has been incorporated into education to the extent that by 1975 participants from the field of education represented more than 50 percent of the CPSI enrollment.\textsuperscript{13} A capsulized account of the development of CPSI during the past twenty years has recently been authored by Sidney J. Parnes, the present CPSI Chairman of Program/Faculty Development and Research, and President of the Creative Education Foundation.\textsuperscript{14}

**Early Research Studies**

Although creativity training courses were being offered during the 1930's, no evidence was found in the literature that research regarding the deliberate devel-

\textsuperscript{13} Ibid., pp. 13-14.

opment of creative ability had been conducted prior to 1955. Earlier than this, Guilford had written in 1952:

Like most behavior, creative activity probably represents to some extent many learned skills. There may be limitations set on these skills by heredity; but I am convinced that through learning one can extend the skill within those limitations.\(^\text{15}\)

Two of the earlier studies in this area, both published in 1957, indicated that improvements might result from training in creativity.\(^\text{16,17}\) Parnes' preliminary studies at the University of Buffalo also suggested improvement in creative ability through training in creative problem-solving; however, this had not been tested by scientific research at that time.\(^\text{18}\)

In 1958, the first Compendium of Research on Creative Imagination was published by the Creative Education Foundation. This document included a total of thirty research studies which were concerned with the development of:


and identification of creative ability. All of them were recent studies in the field at that time, and the Compendium included all that were then available in the literature. Only two of these studies, as noted above, involved the deliberate development of creative ability. A second Compendium was published in 1960, reporting thirty new studies in addition to another twenty-eight research projects which were just beginning. Of these new studies, approximately half were concerned with the development of creative ability. 19

Such analysis of the studies being done at that time indicates the rapid proliferation of research in the area of creative development during the 1950's. However, the research conducted by Parnes and Meadow at the University of Buffalo represented the first full-scale attempt to study ways of improving creative ability, rather than identifying it. 20

As interest in creativity increased, research conferences were established at the University of Utah, beginning in 1955, for the stated purpose of identifying creative scientific talent. By 1959, as investigation became more focused on developing creative ability, the Third Utah


20 Osborn, Applied Imagination, p. xiii.
Conference had established a committee to report on the role of education in developing creative talent. The committee reported that at least six research projects at that time indicated the development of creative productivity by deliberate procedures. The committee also reported the need for further research investigation on a longitudinal basis. 21

Also at the Utah Conference in 1959, was a report of the University of Buffalo research regarding the development of creative thinking. The studies of Parnes and his associates indicated the significant effectiveness of a semester course in creative problem-solving. 22

The University of Buffalo Studies

The first ten years of intensive research effort began in Buffalo in 1957. Courses in creative problem-solving were found to produce a significant increase in certain behaviors related to creativity. 23 They found that significantly more good ideas were generated by using the brainstorming principle of deferred judgment than by


22 Ibid., pp. 187-201.

concurrent judgment of ideas.24

One of the very few studies which dealt with the persistence of effects of training in creative problem-solving also took place in Buffalo. The study involved subjects who had completed the training from eight months to four years previously. The findings indicated that increases in creativity measurements persist for at least eight months or longer, following termination of the course.25

A related study into the effects of extended effort in creative problem-solving demonstrated a trend toward a larger proportion of good ideas among the later ideas to be listed.26

Creativity Training Programs For Children

One of the more extensive on-going research projects regarding the identification and development of creative thinking among children was initiated by E. Paul Torrance in 1958. This project, originally labeled the Minnesota Studies of Creative Behavior, was re-titled the Georgia


Studies of Creative Behavior in 1966.  

The Torrance Tests of Creative Thinking, the major instruments developed through the Minnesota Studies, involve a battery of tests which are applicable from kindergarten through graduate school. Torrance's work was based on the assumption that creative abilities can be increased through deliberate education and that schools are responsible for providing children with such training. These tests have been widely used, and a great deal of material is available in the literature regarding them and the concerns as to their validity.

The Torrance Tests have been involved in one of the first longitudinal studies of creative behavior. Results of these studies indicate the predictability of creative achievement over a period of twelve years. Further follow-up studies have been continuing.

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28 Ibid., p. 139.


31 Ibid., p. 236.

32 Ibid., pp. 250-251.
The Productive Thinking Program, directed by Crutchfield and Covington, is based on the assumption that creative abilities can be increased through programmed instruction. Early studies with programmed instruction materials indicated superior problem-solving performances of instructed fifth- and sixth-grade students over control groups. Tests conducted five months later demonstrated persistence of the training effects.

Later studies of the Productive Thinking Program found less significant data and also indicated the importance of active teacher involvement for developing creative problem-solving skills, in addition to the programmed instruction.

By 1969, a new set of instructional material was being prepared. The developers had identified important conditions regarding the way in which the program is used.

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including the influence of teacher and class participation and the timing of lessons. Later publications regarding the Productive Thinking Program have reported "substantial and enduring gains" in the productive thinking skills of fifth- and sixth-grade students.

During the mid 1960's, a great deal of research in creativity development was continuing in various areas of the country. The Purdue Creativity Training Program directed its efforts toward the development of creative thinking skills in elementary school students. Using the Torrance Tests of Creative Thinking, among others, researchers concluded that creative thinking could be influenced by instruction.

Continued research showed that both the Purdue Creativity Training Program and the Productive Thinking Program significantly enhanced fifth-grade students' divergent thinking and problem-solving abilities.

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In 1962, Torrance prepared a survey of 142 studies dealing with ways of teaching children to think creatively. His comprehensive summary has been published in the Journal of Creative Behavior, and provides an overview of the research which substantiates the conclusion that children can be taught to think creatively.  

Continued Buffalo Research

By 1965, the research efforts in Buffalo had been extended into the public high schools. It was found that students who received creativity training were significantly superior to control groups in gains on a series of creativity tests, again supporting the conviction that creative ability can be deliberately developed.  

Twenty years of experience, including ten years of extensive research, led investigators in Buffalo to the conclusion that:

Deliberate educational programs in creative problem-solving improve both the quantity and the quality of ideas of those students who participate in the programs. Their leadership ability, their dominance, and their social initiative show a marked increase in effectiveness.  

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41 E. Paul Torrance, "Can We Teach Children to Think Creatively?", Journal of Creative Behavior 6 (1972):114-143.


Based on these conclusions, and supported by the Crutchfield and Covington findings, a comprehensive longitudinal study was initiated at the State University College at Buffalo in 1969. Known as the Creative Studies Project, the study provides a four-semester sequence of undergraduate courses which are designed to increase participants' creative abilities. In brief, the experimental group of students showed significant gains over the control group in a variety of tests of creative abilities, including a number of measures from Guilford's Structure-of-Intellect Tests. Developed as a longitudinal experimental program in creativity training, the courses have now become a regular part of the general-liberal electives offered in the undergraduate curriculum.

Nationwide Programs

A survey prepared by M. O. Edwards in 1967 provides a representative list of courses which were available at that time, including the areas of industry, consultation firms, and universities. Although not an exhaustive or a current listing, it shows the range of programs which


developed during the 1950's and 1960's. By 1968, a summary of eighteen varieties of problem-solving methods had been published, including an attempt to integrate the methods by relating them to various ways of thinking.

Another summary list of programs and methods for enhancing creative thinking was published in 1971, representing a wide range of available resources without attempting to be completely comprehensive.

Nationwide interest in the principles and techniques of the Annual Creative Problem-Solving Institute has furthered the expansion of its Beginning Program offerings. There are six Regional Extensions throughout the United States planned for 1976, in addition to the widely attended Buffalo programs.

Related Concerns

This review has attempted to demonstrate that research findings support the statement that creative abilities can be developed through deliberate methods and procedures. Basically there have been three areas of training


which have appeared in the studies: (1) creative attitudes, (2) cognitive abilities, and (3) idea-producing techniques.\textsuperscript{49}

A number of writers have noted the difficulties encountered in attempting to assess creativity. Two interrelated problems involve the need for an accepted theory of creativity and the need to identify adequate criteria for evaluating the validity of creativity tests.\textsuperscript{50}

Treffinger and Poggio further discuss the problem of assessing creativity, particularly in terms of validity, reliability, and usability of creativity tests.\textsuperscript{51}

A more optimistic view of identifying creative individuals by the use of personality and biographical information has recently been published,\textsuperscript{52} with interesting implications for the deliberate development of creative behavior.

Many research attempts relate to the identification of creative talent. Again and again, there is evidence in the literature that creativity can be developed. Far less


\textsuperscript{52}Gary A. Davis, "In Frurious Pursuit of the Creative Person," \textit{Journal of Creative Behavior} 9 (1975): 75-87.
is the evidence that such development persists for any length of time which might be considered as making an **enduring** positive difference in an individual's life.

Initial criteria for the sample selection included participation of both the parent and subject on the NCS. The selection of the program from approximately one in three years prior to the collection of data, clinical evaluation in English-speaking groups for the basic core, sessions, and dependence in the United States or Canada with a current address available.

because current address availability a determined variable for a large number of enrollees and not all of the other criteria, especially for the 2nd annual NCS.
III. METHODOLOGY

Time and Place of Study

The study originated at the State University College at Buffalo, and was conducted during the 1974-1975 academic year. Data were collected during the month of March 1975 by questionnaires which were mailed to randomly selected individuals whose last known address was either in the United States or in Canada. American addresses ranged throughout the United States for a total of twenty-one states. Canadian addresses were all in Ontario or Quebec, the provinces in which the majority of Canadian CPSI enrollees reside.

Selection of the Sample

Initial criteria for the sample selection included:

(1) completion of only the Beginning Program at CPSI, (2) completion of the program from approximately one to three years prior to the collection of data, (3) participation in English speaking groups for the basic course sessions, and (4) residence in the United States or Canada with a current address available.

Because current addresses could not be determined definitely for a large number of enrollees who met all of the other criteria, especially for the 18th Annual CPSI,
it was decided to omit this as an initial criterion and to use the most recent available address for all sample members. Because of this decision, the phrase, "Please forward if necessary," was included on all envelopes, in addition to the investigator's return address with first-class postage. Only three questionnaires were returned as undeliverable.

The Rosters for 1972, 1973, and 1974, listing all CPSI enrollees for those years, were used in selecting the sample. Assigned classroom numbers on the Rosters were checked against a listing of the English-speaking Beginning Program classrooms for an initial list of possible sample members. These names were then double-checked against copies of the class lists given to Beginning Program leaders, in order to determine a list of those individuals who actually attended the Beginning Program during those years. To determine further that those individuals completed the five-day program, the names were also checked against the lists which leaders submitted for preparing CPSI certificates which are presented upon completion of the program. The names of those individuals who met the criteria for 1972 and 1973 were then checked against the Rosters for 1973 and 1974 in order to eliminate those who returned for Advanced Programs at CPSI in 1973 and/or 1974.

The number of individuals who met the final criteria were 89 for 1972, 127 for 1973, and 123 for 1974. Using a
table of random numbers, 35 sample members were selected from each of those groups.

Method of Obtaining Data

Each of the 105 sample members was sent a questionnaire, including an introductory cover letter. (Appendix A) A time interval of approximately three weeks was allowed for return of the completed questionnaires in the self-addressed, stamped envelopes which were enclosed when the questionnaires were mailed to sample members.

Description of the Tool

The CPSI Alumni Questionnaire, adapted by the investigator for this study, is a modification of a questionnaire which was utilized during the two-year Creative Studies Project conducted by Parnes and Noller.¹,² and is used for this study with permission of the originators. The questionnaire used in the Creative Studies Project was a shortened version of one that was utilized in earlier research conducted for the purpose of designing auto-instructional materials which are capable of developing creative behavior.³

The initial data sheet of the questionnaire was

¹Parnes and Noller, Toward Supersanity.
²Parnes and Noller, Toward Supersanity, Research Supplement.
³Parnes, Programming Creative Behavior.
designed as an additional determination that all sample members had completed the Beginning Program in creative problem-solving at a Buffalo CPSI during the time interval being studied. To ascertain further that returned questionnaires could be analyzed by specific years of attendance, a code in the form of initials was used on the last page, with different initials assigned for each of the three years. Other face sheet questions were included to assure that all sample members had completed only a beginning course of training in creative problem-solving.

Questions were designed to determine the perceptions of specific effects of training experiences upon individuals' lives, and also whether certain training experiences are perceived as being more, or less, influential than others. The first twelve items of the questionnaire are concerned with individuals' perceived gains, four items (13, 14, 15, 20) are concerned with present application of what was learned, and one item (16) pertains to future application. The remaining five items (17, 18, 19, 21, 22) pertain to related aspects of specific CPSI experiences and perceived influences upon the individuals' lives, with a final area (item 23) provided for general comments as desired by participants in the study.

Items 1-18 are fixed alternative items. The remaining questions are all open-end items.
IV. FINDINGS

Introduction to Presentation of Findings

A total of 105 CPSI Alumni Questionnaires were mailed to individuals who completed the Beginning Program in 1972, 1973, and 1974. Of the 35 sample members for each of the three years, there were 12 questionnaires which were completed and returned for the 1972 sample, 26 for the 1973 sample, and 18 for the 1974 sample. The total of 56 returned questionnaires represents 53 percent of the 105 which were sent out. The percentage of responses for each year is 34 percent for 1972, 74 percent for 1973, and 51 percent for 1974.

An additional five questionnaires were returned to the investigator. Three of these were undeliverable as addressed, one was incomplete and accompanied by a note regarding the respondent's memory loss due to illness, and one arrived several weeks after tabulation of the data had been completed.

Responses to questionnaire items 1-18 have been tabulated for each of the three years, as well as for the total sample, with percentages determined for each response category. Data from all of the remaining, open-end items have been analyzed in terms of possible trends regarding the effectiveness of program experiences and specific
problem areas which respondents may have solved through application of the creative problem-solving process. Data have been examined for evidence of general trends; however, tests of statistical significance have not been applied.

Table 1 shows the sum of the percentages for the top two categories of gain for each of the sixteen five-choice, fixed-alternative items. As can be seen here, and in further data presentation, a number of the scores for 1972 and 1974 are more closely related to each other than either of them are to the 1973 data.

All figures in the presentation of findings refer to the numbers and percentages of those fifty-six questionnaires which were completed and returned, unless stated otherwise. The symbol N refers to the number of sample members for each year of attendance and for the total sample, as listed in each column of the data presented for the individual items. Exceptions to this for items twenty and twenty-three are specified in the presentation of data regarding each of those items. Percentages represent the responses for each item category by year of attendance, as well as for the total group.
### TABLE 1

**ITEM COMPARISONS, BY YEAR, OF SUM OF PERCENTAGES FOR TOP TWO CATEGORIES OF GAIN**

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1972</td>
</tr>
<tr>
<td><strong>Topic</strong></td>
<td><strong>Number</strong></td>
</tr>
<tr>
<td>Observant</td>
<td>1</td>
</tr>
<tr>
<td>Open-minded</td>
<td>2</td>
</tr>
<tr>
<td>Different approaches</td>
<td>3</td>
</tr>
<tr>
<td>Consider more factors</td>
<td>4</td>
</tr>
<tr>
<td>Self-confident</td>
<td>5</td>
</tr>
<tr>
<td>Inquisitive</td>
<td>6</td>
</tr>
<tr>
<td>Effort in mental tasks</td>
<td>7</td>
</tr>
<tr>
<td>Aware of problems</td>
<td>8</td>
</tr>
<tr>
<td>Cope with problems</td>
<td>9</td>
</tr>
<tr>
<td>Think up ideas</td>
<td>10</td>
</tr>
<tr>
<td>Evaluate ideas</td>
<td>11</td>
</tr>
<tr>
<td>Develop and use ideas</td>
<td>12</td>
</tr>
<tr>
<td>Apply to employment</td>
<td>13</td>
</tr>
<tr>
<td>Apply to education</td>
<td>14</td>
</tr>
<tr>
<td>Apply generally</td>
<td>15</td>
</tr>
<tr>
<td>Apply to future</td>
<td>16</td>
</tr>
</tbody>
</table>
The rank order for items 1-16, as presented in table 2, refers to the sum of the top two categories of perceived gain. For some items, where equal percentages occur at the top two categories, ranking has been determined by the item with the largest percentage in the top category alone. For items in which both the sums of the top two categories and the individual top two categories were equal, item ranking has been determined by considering the percentages of the third category of response.

Table 2 illustrates that items 3, 4, and 16 rank among the three highest for each of the three years, with item 15 ranking fourth for all years being studied. Item 12 is shown to rank among the two lowest for each of the three years. The percentage of responses in the top two categories of perceived gain are consistently lower for each rank in the sample for 1973 than for 1972 and 1974.

The following data presentation discusses the findings for each of the individual items on the questionnaire. The data in table 2 are the referents for the rank orders discussed in the data presentation for each of the individual items.
### TABLE 2

**RANK ORDER OF ITEMS 1-16 BY YEAR OF ATTENDANCE AND FOR TOTAL SAMPLE**

<table>
<thead>
<tr>
<th>Rank</th>
<th>1972 Item</th>
<th>1973 Item</th>
<th>1974 Item</th>
<th>Total Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 91.7</td>
<td>3 84.6</td>
<td>16 94.4</td>
<td>3 89.3</td>
</tr>
<tr>
<td>2</td>
<td>4 91.7</td>
<td>16 84.6</td>
<td>3 94.4</td>
<td>16 87.5</td>
</tr>
<tr>
<td>3</td>
<td>16 84.0</td>
<td>4 69.2</td>
<td>4 88.8</td>
<td>4 80.4</td>
</tr>
<tr>
<td>4</td>
<td>15 75.0</td>
<td>15 69.2</td>
<td>15 88.8</td>
<td>15 76.8</td>
</tr>
<tr>
<td>5</td>
<td>2 75.0</td>
<td>1 57.7</td>
<td>2 77.8</td>
<td>2 67.8</td>
</tr>
<tr>
<td>6</td>
<td>7 58.3</td>
<td>2 57.7</td>
<td>10 66.6</td>
<td>1 53.6</td>
</tr>
<tr>
<td>7</td>
<td>13 58.0</td>
<td>13 53.8</td>
<td>7 61.1</td>
<td>13 51.8</td>
</tr>
<tr>
<td>8</td>
<td>6 50.0</td>
<td>5 50.0</td>
<td>11 55.5</td>
<td>10 51.8</td>
</tr>
<tr>
<td>9</td>
<td>14 50.0</td>
<td>6 46.2</td>
<td>1 55.5</td>
<td>7 51.8</td>
</tr>
<tr>
<td>10</td>
<td>5 50.0</td>
<td>10 46.2</td>
<td>6 50.0</td>
<td>6 48.2</td>
</tr>
<tr>
<td>11</td>
<td>9 50.0</td>
<td>7 42.3</td>
<td>9 50.0</td>
<td>5 48.2</td>
</tr>
<tr>
<td>12</td>
<td>11 50.0</td>
<td>14 38.5</td>
<td>5 44.4</td>
<td>11 46.4</td>
</tr>
<tr>
<td>13</td>
<td>8 41.7</td>
<td>11 38.5</td>
<td>13 44.4</td>
<td>9 44.6</td>
</tr>
<tr>
<td>14</td>
<td>1 41.7</td>
<td>9 38.5</td>
<td>8 44.4</td>
<td>14 41.4</td>
</tr>
<tr>
<td>15</td>
<td>10 41.7</td>
<td>12 30.8</td>
<td>14 38.9</td>
<td>12 35.7</td>
</tr>
<tr>
<td>16</td>
<td>12 41.7</td>
<td>8 26.9</td>
<td>12 38.9</td>
<td>8 35.7</td>
</tr>
</tbody>
</table>
Items Concerned with Perceived Gain

1. I believe that I am more observant since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>very little</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>somewhat</td>
<td>6</td>
<td>50.0</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>a good deal</td>
<td>3</td>
<td>25.0</td>
<td>11</td>
<td>42.3</td>
</tr>
<tr>
<td>a great deal</td>
<td>2</td>
<td>16.7</td>
<td>4</td>
<td>15.4</td>
</tr>
</tbody>
</table>

This item ranks fourth for the total sample of the twelve items concerned with perceived gains, and sixth among all sixteen of the five-choice items on the questionnaire. It is the only item which both ranks and scores higher for 1973 than for either of the other two years. Ranking fifth for 1973, fourteenth for 1972, and ninth for 1974, it is the only item except for item five to rank higher in 1973 than in either of the other two years.

2. I believe that I am more open-minded to ideas of others since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>very little</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>somewhat</td>
<td>3</td>
<td>25.0</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>a good deal</td>
<td>7</td>
<td>58.3</td>
<td>12</td>
<td>46.2</td>
</tr>
<tr>
<td>a great deal</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>11.5</td>
</tr>
</tbody>
</table>

Item number two ranks third among the perceived gains items and fifth among the sixteen five-choice items. Although the percentage of positive response is considerably lower for 1973 than for 1972 and 1974 which are nearly equal in response percentages, this item ranks sixth for 1973 and fifth for the other two years.
3. I believe that I am more likely to try different approaches to doing something or to attacking a problem since completing the program:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>I doubt it</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>not neces.</td>
<td>1</td>
<td>8.3</td>
<td>2</td>
<td>7.7</td>
<td>1</td>
<td>5.5</td>
<td>4</td>
<td>7.1</td>
</tr>
<tr>
<td>probably</td>
<td>5</td>
<td>41.7</td>
<td>10</td>
<td>38.5</td>
<td>7</td>
<td>38.9</td>
<td>22</td>
<td>39.3</td>
</tr>
<tr>
<td>definitely</td>
<td>6</td>
<td>50.0</td>
<td>12</td>
<td>46.2</td>
<td>10</td>
<td>55.5</td>
<td>28</td>
<td>50.0</td>
</tr>
<tr>
<td>(no response)</td>
<td>1</td>
<td>3.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

The third item ranks highest among the sixteen five-choice items for the total sample and is also the top ranking item for 1972 and 1973. For 1974, it ranks in second place only slightly behind item sixteen. As with most of the items, the percentage of positive response is lower for 1973, although less so than with many of the items.

4. I believe I tend to take more factors into consideration in making decisions since completing the program:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>I doubt it</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>not neces.</td>
<td>0</td>
<td>0.0</td>
<td>6</td>
<td>23.1</td>
<td>2</td>
<td>11.1</td>
<td>8</td>
<td>14.3</td>
</tr>
<tr>
<td>probably</td>
<td>7</td>
<td>58.3</td>
<td>9</td>
<td>34.6</td>
<td>8</td>
<td>44.4</td>
<td>24</td>
<td>42.9</td>
</tr>
<tr>
<td>definitely</td>
<td>4</td>
<td>33.3</td>
<td>9</td>
<td>34.6</td>
<td>8</td>
<td>44.4</td>
<td>21</td>
<td>37.5</td>
</tr>
<tr>
<td>(no response)</td>
<td>1</td>
<td>3.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

This item ranks second highest for the twelve items concerned with perceived gains, and third among all sixteen of the five-choice items. It ranks high for each of the three years, as second for 1972 and third for 1973 and 1974; however, the percentage of positive response is greatest for 1972, closely followed by the percentage for 1974, and then approximately twenty percentage points lower for 1973.
5. I believe I feel more self-confident since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>2</td>
<td>16.7</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>very little</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>somewhat</td>
<td>4</td>
<td>33.3</td>
<td>9</td>
<td>34.6</td>
</tr>
<tr>
<td>a good deal</td>
<td>4</td>
<td>33.3</td>
<td>12</td>
<td>46.2</td>
</tr>
<tr>
<td>a great deal</td>
<td>2</td>
<td>16.7</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>(no response)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Item five ranks eighth for perceived gains items and eleventh for the sixteen items. The total of the top two categories is equal to item six; however, item five has slightly fewer responses in the top category and slightly more responses in the lowest category. Although the percentage for the top two categories combined is lowest for 1974, the percentage for the top category alone is considerably higher in 1974 than in 1972 and much higher than in 1973.

6. I believe I am more inquisitive since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
</tr>
<tr>
<td>not at all</td>
<td>0 0.0</td>
<td>1 3.8</td>
<td>0 0.0</td>
<td>1 1.8</td>
</tr>
<tr>
<td>very little</td>
<td>2 16.7</td>
<td>2 7.7</td>
<td>3 16.7</td>
<td>7 12.5</td>
</tr>
<tr>
<td>somewhat</td>
<td>4 33.3</td>
<td>9 34.6</td>
<td>6 33.3</td>
<td>19 33.9</td>
</tr>
<tr>
<td>a good deal</td>
<td>1 8.3</td>
<td>9 34.6</td>
<td>6 33.3</td>
<td>16 28.6</td>
</tr>
<tr>
<td>a great deal</td>
<td>5 41.7</td>
<td>3 11.5</td>
<td>3 16.7</td>
<td>11 19.6</td>
</tr>
<tr>
<td>(no response)</td>
<td>2 7.7</td>
<td></td>
<td></td>
<td>2 3.6</td>
</tr>
</tbody>
</table>

For the sum of the top two categories of response, there is less variance among the three years for item six than for any of the other items. Percentages are equal for 1972 and 1974 and less than four points lower for 1974. This item ranks seventh for perceived gains and tenth among the sixteen items.
7. I believe that since completing the program I tend to exert more effort in mental tasks than I did before:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th></th>
<th>1973</th>
<th></th>
<th>1974</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>no</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>7.7</td>
<td>0</td>
<td>0.0</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>I doubt it</td>
<td>1</td>
<td>8.3</td>
<td>5</td>
<td>19.2</td>
<td>4</td>
<td>22.2</td>
<td>10</td>
<td>17.8</td>
</tr>
<tr>
<td>I don't know</td>
<td>4</td>
<td>33.3</td>
<td>7</td>
<td>26.9</td>
<td>3</td>
<td>16.7</td>
<td>14</td>
<td>25.0</td>
</tr>
<tr>
<td>I think so</td>
<td>4</td>
<td>33.3</td>
<td>9</td>
<td>34.6</td>
<td>8</td>
<td>44.4</td>
<td>21</td>
<td>37.5</td>
</tr>
<tr>
<td>definitely</td>
<td>3</td>
<td>25.0</td>
<td>2</td>
<td>7.7</td>
<td>3</td>
<td>16.7</td>
<td>8</td>
<td>14.3</td>
</tr>
<tr>
<td>(no response)</td>
<td>1</td>
<td>3.8</td>
<td></td>
<td></td>
<td>1</td>
<td>1.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This item ranks sixth among perceived gains items and ninth for the sixteen items. For the total sample, the sum of the top two categories is equal to that of item ten; however, the items differ regarding the sum of the two lower categories. The percentage of response for the lower categories of item seven is 21.4, compared with 8.9 for item ten. This item again ranks lower for 1973, both for the percentage of response to the top two categories and for the ranking of items within each individual year.

8. I believe that I am more aware of problems and challenges since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th></th>
<th>1973</th>
<th></th>
<th>1974</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>1</td>
<td>6.3</td>
<td>4</td>
<td>15.4</td>
<td>2</td>
<td>11.1</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>very little</td>
<td>2</td>
<td>16.7</td>
<td>1</td>
<td>3.8</td>
<td>2</td>
<td>11.1</td>
<td>5</td>
<td>8.9</td>
</tr>
<tr>
<td>somewhat</td>
<td>4</td>
<td>33.3</td>
<td>13</td>
<td>50.0</td>
<td>6</td>
<td>33.3</td>
<td>23</td>
<td>41.1</td>
</tr>
<tr>
<td>a good deal</td>
<td>1</td>
<td>8.3</td>
<td>6</td>
<td>23.1</td>
<td>6</td>
<td>33.3</td>
<td>13</td>
<td>23.2</td>
</tr>
<tr>
<td>a great deal</td>
<td>4</td>
<td>33.3</td>
<td>1</td>
<td>3.8</td>
<td>2</td>
<td>11.1</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>(no response)</td>
<td>1</td>
<td>3.8</td>
<td></td>
<td></td>
<td>1</td>
<td>1.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the total sample, item eight ranks lowest, at twelfth place for the perceived gains items and sixteenth for the sixteen five-choice items. Among the three years, it ranks lowest for 1973, but is relatively low for the other two years also.
9. I believe that I am better able to cope with problems since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>very little</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>somewhat</td>
<td>5</td>
<td>41.7</td>
<td>12</td>
<td>46.2</td>
</tr>
<tr>
<td>a good deal</td>
<td>5</td>
<td>41.7</td>
<td>9</td>
<td>34.6</td>
</tr>
<tr>
<td>a great deal</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>(no response)</td>
<td>2</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The top two categories for item nine are equal for 1972 and 1974, but lower for 1973. This item ranks low for the total sample, in tenth place for the twelve perceived gains items and thirteenth place for the sixteen five-choice items. It ranks low for all three years, but lower for 1973 than for the other two years.

10. I believe that I am better able to think up effective ideas since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>very little</td>
<td>2</td>
<td>16.7</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>somewhat</td>
<td>5</td>
<td>41.7</td>
<td>11</td>
<td>42.3</td>
</tr>
<tr>
<td>a good deal</td>
<td>4</td>
<td>33.3</td>
<td>11</td>
<td>42.3</td>
</tr>
<tr>
<td>a great deal</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>(no response)</td>
<td>1</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Item ten ranks fifth among perceived gains items and eighth among the sixteen items. Considering the top two categories of gain, this is the only item on the questionnaire which ranked progressively higher from 1972 through 1974. It ranks last for 1972 (tied with item twelve); tenth for 1973, and sixth for 1974. This item and item one are the only items on the questionnaire in which 1973 scores a higher percentage of positive response than 1972.
11. I believe that I am better able to evaluate my ideas since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>very little</td>
<td>3</td>
<td>25.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>somewhat</td>
<td>3</td>
<td>25.0</td>
<td>13</td>
<td>50.0</td>
</tr>
<tr>
<td>a good deal</td>
<td>5</td>
<td>41.7</td>
<td>9</td>
<td>34.6</td>
</tr>
<tr>
<td>a great deal</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>(no response)</td>
<td>2</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Item eleven ranks ninth for the perceived gains items and twelfth among the sixteen items. Although the percentage for 1974 is only slightly higher than for 1972, the rank for 1974 is eighth, whereas it is only in twelfth place for 1972. Again, the percentage of positive response is lower for 1973 than for either 1972 or 1974.

12. I believe that I am better able to develop my ideas and put them to use since completing the program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>not at all</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>very little</td>
<td>2</td>
<td>16.7</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>somewhat</td>
<td>5</td>
<td>41.7</td>
<td>15</td>
<td>57.7</td>
</tr>
<tr>
<td>a good deal</td>
<td>4</td>
<td>33.3</td>
<td>9</td>
<td>30.8</td>
</tr>
<tr>
<td>a great deal</td>
<td>1</td>
<td>8.3</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>(no response)</td>
<td>2</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the total sample, item twelve ranks eleventh for the twelve items regarding perceived gains and fifteenth for the sixteen five-choice items. The percentage of positive response is higher for 1972 than for either 1973 or 1974; however, for the year 1972 it ranks in lowest place (tied with item ten). This item ranks among the two lowest items for each of the three years.
Items Concerned with Present Application

13. I believe that I have been able to apply what I learned in the program to my employment situation:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>not employed</td>
<td>0/0.0</td>
<td>0/0.0</td>
<td>0/11.1</td>
<td>2/3.6</td>
</tr>
<tr>
<td>not at all</td>
<td>0/0.0</td>
<td>2/7.7</td>
<td>0/0.0</td>
<td>2/3.6</td>
</tr>
<tr>
<td>very little</td>
<td>0/3.8</td>
<td>2/1.1</td>
<td>2/5.3</td>
<td>3/5.3</td>
</tr>
<tr>
<td>somewhat</td>
<td>5/41.7</td>
<td>8/30.8</td>
<td>6/33.3</td>
<td>19/33.9</td>
</tr>
<tr>
<td>a good deal</td>
<td>3/25.0</td>
<td>12/46.2</td>
<td>4/22.2</td>
<td>19/33.9</td>
</tr>
<tr>
<td>a great deal</td>
<td>4/33.3</td>
<td>2/7.7</td>
<td>4/22.2</td>
<td>10/17.8</td>
</tr>
<tr>
<td>(no response)</td>
<td>1/3.8</td>
<td>1/1.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This item ranks second for the total sample among the items concerned with present application and seventh among all sixteen of the five-choice items. This is the only item in which the sum of the top two categories of response becomes progressively lower with a decrease in time elapsed since completion of the program. While ranking in seventh place for 1972 and 1973, this item ranks only thirteenth for 1974. Although it is not the only item which is lower for 1974 than for either 1973 or 1972 in the top two categories, it is the only one which is also lower than both other years when considering the top category alone. The combined top two categories for item five is lower for 1974 than for both 1973 and 1972; however, in item five the top category alone is higher for 1974 than for the other two years.
14. I believe that I have been able to apply what I learned in the program to my educational activities:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td>( \frac{1}{5} ) 8.3</td>
<td>( \frac{3}{5} ) 11.5</td>
<td>( \frac{1}{5} ) 5.5</td>
<td>( \frac{5}{5} ) 8.9</td>
</tr>
<tr>
<td>very little</td>
<td>0 0.0</td>
<td>2 7.7</td>
<td>2 11.1</td>
<td>4 7.1</td>
</tr>
<tr>
<td>somewhat</td>
<td>5 41.7</td>
<td>9 34.6</td>
<td>7 38.9</td>
<td>21 37.5</td>
</tr>
<tr>
<td>a good deal</td>
<td>4 33.3</td>
<td>7 26.9</td>
<td>3 16.7</td>
<td>14 25.0</td>
</tr>
<tr>
<td>a great deal</td>
<td>2 16.7</td>
<td>3 11.5</td>
<td>4 22.2</td>
<td>9 16.1</td>
</tr>
<tr>
<td>(no response)</td>
<td>2 7.7</td>
<td>1 5.5</td>
<td>3 5.3</td>
<td></td>
</tr>
</tbody>
</table>

Item fourteen ranks lowest of the present application items and fourteenth for the sixteen items. However, the ranking varies when considering each year of the sample. It ranks ninth for 1972, twelfth for 1973, and fifteenth for 1974, increasing in rank with an increase in the time elapsed since completing the program. The overall low rank is supported by the data in item twenty, where only 16.1 percent of the total sample gave examples of problems solved in the area of education.

15. I believe that I have been able to apply what I learned in the program to my life activities in general:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>0 0.0</td>
<td>0 0.0</td>
<td>0 0.0</td>
<td>0 0.0</td>
</tr>
<tr>
<td>I doubt it</td>
<td>0 0.0</td>
<td>2 7.7</td>
<td>0 0.0</td>
<td>2 3.6</td>
</tr>
<tr>
<td>not necessary</td>
<td>3 25.0</td>
<td>5 19.2</td>
<td>2 11.1</td>
<td>10 17.8</td>
</tr>
<tr>
<td>probably</td>
<td>4 33.3</td>
<td>10 38.5</td>
<td>9 50.0</td>
<td>23 41.1</td>
</tr>
<tr>
<td>definitely</td>
<td>5 41.7</td>
<td>8 30.8</td>
<td>7 38.9</td>
<td>20 35.7</td>
</tr>
<tr>
<td>(no response)</td>
<td>1 3.8</td>
<td>1 1.8</td>
<td>1 1.8</td>
<td></td>
</tr>
</tbody>
</table>

This item is one of the items generally ranked higher, both for the total sample and for each year. It ranks highest among the present application items, fourth for the total sample and fourth for each year of the sample. The lowest percentage of positive response again falls in 1973.
20. Problem areas solved through help of program:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Work</td>
<td>4</td>
<td>33.3</td>
<td>11</td>
<td>42.3</td>
</tr>
<tr>
<td>School</td>
<td>1</td>
<td>8.3</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Family</td>
<td>1</td>
<td>8.3</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Personal</td>
<td>1</td>
<td>8.3</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Number of respondents</td>
<td>6</td>
<td>50.0</td>
<td>16</td>
<td>61.5</td>
</tr>
</tbody>
</table>

N refers to the number of people who cited examples for each area, and the percent refers to the portion of the sample who responded for each year and for the total sample. Of the total sample, thirty-two individuals made some response to this item, ranging from one area to all five areas. The largest percentage of responses referred to the area of work. Examples noted in "Other," tended to relate to topics which might have been categorized under the area of "Personal."

A greater percentage of the sample who attended the program in 1973 responded to this item, giving specific examples of ways in which the program was helpful in solving problems. However, of the sixteen five-choice items, the sample for 1973 had the lowest percentage of positive responses for eleven of those items in comparing the top two responses with the other two years.

Specific examples of responses to item twenty are listed in appendix B.
Item Concerned with Future Application

16. I believe that I will be able to apply what I learned in the program to my future life activities:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th></th>
<th>1973</th>
<th></th>
<th>1974</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>no</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>I doubt it</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>not necessary</td>
<td>2</td>
<td>16.7</td>
<td>2</td>
<td>7.7</td>
<td>1</td>
<td>5.5</td>
<td>5</td>
</tr>
<tr>
<td>probably</td>
<td>5</td>
<td>41.7</td>
<td>14</td>
<td>53.8</td>
<td>6</td>
<td>33.3</td>
<td>25</td>
</tr>
<tr>
<td>definitely</td>
<td>5</td>
<td>41.7</td>
<td>8</td>
<td>30.8</td>
<td>11</td>
<td>61.1</td>
<td>24</td>
</tr>
<tr>
<td>(no response)</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
<td>3.8</td>
<td>1</td>
</tr>
</tbody>
</table>

This item ranks second for the total sample and is among the top three for all three years, being third for 1972, second for 1973, and first for 1974. In the top category alone, it is twice as high for 1974 than for 1973; however, less difference is seen when considering the top two categories of positive response.

Items Concerned with Aspects of Time

17. I believe the program would be most effective if it were presented over:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th></th>
<th>1973</th>
<th></th>
<th>1974</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>a longer period</td>
<td>1</td>
<td>8.3</td>
<td>1</td>
<td>3.8</td>
<td>2</td>
<td>11.1</td>
<td>4</td>
</tr>
<tr>
<td>a shorter period</td>
<td>1</td>
<td>8.3</td>
<td>4</td>
<td>15.4</td>
<td>1</td>
<td>5.5</td>
<td>6</td>
</tr>
<tr>
<td>the same period</td>
<td>10</td>
<td>83.3</td>
<td>19</td>
<td>73.1</td>
<td>13</td>
<td>72.2</td>
<td>42</td>
</tr>
<tr>
<td>(no response)</td>
<td>2</td>
<td>7.7</td>
<td>2</td>
<td>11.1</td>
<td>4</td>
<td>7.1</td>
<td>4</td>
</tr>
</tbody>
</table>

A large percentage of the sample for each year felt that the program was more effective given over a five day period of time than it would be if presented over either a longer or a shorter period of time. Considering the choices for the longer and shorter time periods, there
were more individuals who chose a shorter time in the 1973 sample than in the 1974 sample; however, the number selecting those choices was small for both years.

18. Since completing the program I have found that its effects upon my life have:

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  %</td>
<td>N  %</td>
<td>N  %</td>
<td>N  %</td>
</tr>
<tr>
<td>diminished w/</td>
<td>5 41.7</td>
<td>9 34.6</td>
<td>4 22.2</td>
<td>18 32.1</td>
</tr>
<tr>
<td>increased w/</td>
<td>4 33.3</td>
<td>8 30.8</td>
<td>9 50.0</td>
<td>21 37.5</td>
</tr>
<tr>
<td>remained s/</td>
<td>2 16.7</td>
<td>6 23.1</td>
<td>2 11.1</td>
<td>12 17.8</td>
</tr>
<tr>
<td>not been s/n</td>
<td>1  8.3</td>
<td>3 11.5</td>
<td>1 5.5</td>
<td>1 1.8</td>
</tr>
<tr>
<td>(&quot;not sure&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A somewhat larger percentage of the total sample felt that the effects of the program have increased with time. The percentage who responded that the effects have decreased with time becomes increasingly larger as the interval of time since completing the program increases over the three year period. The one individual who stated "not sure" completed the program slightly less than one year prior to the collection of data. Although the 1973 sample members were generally more negative in their questionnaire responses than were those of the other two years, no corresponding negative tendency is evident in their responses to this item.
**Items Concerned with the Most Helpful and Influential Program Experiences and Aspects**

19. What program experience(s) do you recall as being most helpful to you?

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBG sessions</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>optional sessions</td>
<td>3</td>
<td>10</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>25.0</td>
<td>38.5</td>
<td>33.3</td>
<td>35.7</td>
</tr>
<tr>
<td>total CPSI aspects</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>33.3</td>
<td>26.9</td>
<td>33.3</td>
<td>30.4</td>
</tr>
<tr>
<td>(no response)</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>16.7</td>
<td>23.1</td>
<td>16.7</td>
<td>19.6</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>25.0</td>
<td>11.5</td>
<td>11.1</td>
<td>14.3</td>
</tr>
</tbody>
</table>

For the total sample, those experiences which related to sessions based on the Creative Behavior Guidebook were recalled as being most helpful. Although this is consistent with the data for 1973 and 1974, a larger percentage of those who completed the program in 1972 indicated that some of the specific optional sessions were most helpful. These optional experiences included both formal and informal sessions with specific CPSI faculty. Specific responses regarding the helpfulness of CBG sessions included both activities related to an overall understanding of the five-step creative problem-solving process, as well as individual techniques which are utilized within the process.

The largest percentage of those indicating no response for item nineteen is from the portion of the sample who completed the program with the longest time interval prior to collection of the data.

Examples of responses to item nineteen are included in appendix C.
21. What aspect of the program do you believe has been most influential in your life?

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>CBG sessions</td>
<td>0</td>
<td>0.0</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>optional sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total CPSI aspects</td>
<td>6</td>
<td>50.0</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td>miscellaneous</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>(no response)</td>
<td>5</td>
<td>41.7</td>
<td>1</td>
<td>3.8</td>
</tr>
</tbody>
</table>

As with item nineteen, the largest percentage giving no response to this item were those who completed the program less recently than did those of the other two years being studied. For the total sample, as well as for the years 1972 and 1973, a larger percentage gave no response to this item than for item nineteen.

A greater percentage of the total sample indicated that aspects of the total CPSI experience were most influential in their lives, in contrast to the responses for item nineteen which indicated CBG sessions as being most helpful to them. However, the percentage indicating total CPSI aspects as being most influential decreases with each more recent year of the sample, from 50 percent in 1972 and 30.8 percent in 1973 to 27.7 percent in 1974.

The opposite pattern of response is seen regarding the CBG sessions which are indicated by a higher percentage for each more recent year, with none noted for 1972, 26.9 percent for 1973, and 44.4 percent for 1974. A similar pattern is noted in regard to the responses relating to
optional sessions.

A changing pattern of responses can be seen for each year of the study sample. For 1972, optional sessions are indicated as being most helpful, while total CPSI aspects are noted as being most influential. For the 1973 sample, CBG sessions rank as the most helpful, and total CPSI aspects again receive the highest percentage of response as being most influential. For 1974, the CBG sessions rank highest both in terms of being most helpful and most influential.

Responses to this item regarding CBG sessions involved both general aspects of the overall creative problem-solving process and specific aspects of that process, such as deferring judgment and overcoming habitual responses.

Responses related to optional sessions or experiences included references to evening sessions and to specific CPSI leaders who were perceived as being influential, in a positive way, upon the lives of individual sample members.

Two major themes were apparent in considering the responses related to total, overall aspects of the CPSI experience: (1) interpersonal relationships with other participants at CPSI, and (2) a new, positive outlook toward oneself and others. All of the nineteen sample members who mentioned total CPSI aspects as being most influential in their lives noted either one or both of these themes.
as least influential and 26.8 percent citing these sessions as most influential. Only one sample member indicated aspects of the CGP sessions as being both most and least influential in his life, giving the procedure of problem-solving as most influential, with the implementation process as least influential due to a lack of personalized help.

No sample members stated aspects of the total CPSI experience as being least influential, contrasted with the 33.9 percent of the total sample who found these aspects to be most influential in their lives.

More responses for this item were categorized as miscellaneous than for the other two items related to perceptions of the influences of specific CPSI experiences. These responses involved such diverse comments as, "the camaraderie spirit that is promoted in the individual groups," the "unprofessional lack of controls on psychological or emotional stress," and the "interruption of the TV comments." A more complete list of responses to this item is in appendix E.
### Item for Additional Comments

**23. Comments:**

<table>
<thead>
<tr>
<th></th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive comments</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Suggestions to improve</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Negative comments</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Number of respondents</td>
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<td>16</td>
<td>7</td>
<td>26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive comments</td>
<td>2</td>
<td>16.7</td>
<td>3</td>
<td>19.2</td>
<td>5</td>
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<tr>
<td>Suggestions to improve</td>
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<td>16.7</td>
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<td>23.1</td>
<td>5</td>
<td>22.2</td>
<td>12</td>
<td>21.4</td>
</tr>
<tr>
<td>Negative comments</td>
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<td>8.3</td>
<td>3</td>
<td>19.2</td>
<td>5</td>
<td>19.1</td>
<td>8</td>
<td>14.3</td>
</tr>
<tr>
<td>Number of respondents</td>
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<td>25.0</td>
<td>16</td>
<td>61.5</td>
<td>7</td>
<td>38.9</td>
<td>26</td>
<td>46.4</td>
</tr>
</tbody>
</table>

N refers to the number of people who cited examples for each area, and the percent refers to the portion of the sample who responded for each year and for the total sample. Some individuals made more than one comment, not necessarily within the same category of response.

This item elicited a variety of diverse responses which were difficult to categorize. Generally, the responses were within the areas of statements of positive effects of CPSI to the individual, suggestions for program improvement, and negative criticisms of the program, containing implicit suggestions.

A total of 46.4 percent of the sample gave some response to this item. For the three years, the highest percentage of response was given by the 1973 sample at 61.5 percent. Although this group's overall responses to the questionnaire tended to be more negative than for the other two years, there were an equal number of individuals who gave positive comments as those who gave negative ones for this particular item.
The percentage of returnees for each year following completion of the Beginning Program is relatively close for all of the three years being investigated; being 22 percent of those completing the Beginning Program in 1972, 23 percent in 1973, and 30 percent in 1974.

Of the twenty-six individuals who completed the Beginning Program in 1972 and returned in 1973, eleven returned for a third time in 1974; and eight of these eleven returned again in 1975. Two additional returnees in 1974 had attended in 1972, but not in 1973. Thus, 42 percent of those who returned in 1973 also returned in 1974, and 73 percent of those came back again in 1975. In addition to the eight who returned again in 1975, two others from the original 1972 group also attended, including one who did not attend in 1973 and one who did not attend in 1974.

Of the thirty-nine individuals who completed the Beginning Program in 1973 and returned in 1974, twenty-three of these (59 percent) returned again in 1975. Five other 1973 Alumni also returned in 1975 who had not been present in 1974. Therefore, the numbers of returnees given for succeeding years do not necessarily represent individuals who were present at the immediately preceding CPSI, but are represented in the first figure given, that is, the original number who completed the Beginning Program during each of the three years.
V. CONCLUSIONS, SUMMARY, AND RECOMMENDATIONS

Introduction

Although there was a good overall response to the CPSI Alumni Questionnaire, with 53 percent of the questionnaires being returned completed, the sample is small in terms of the yearly sub-samples. The response for 1973 was especially good, with twenty-six (74 percent) of those thirty-five sample members returning completed questionnaires. However, only twelve (34 percent) and eighteen (51 percent) individual responses were returned for 1972 and 1974, respectively. Because of this, caution is required in drawing conclusions from the findings, especially in terms of comparisons among the three years being studied.

In addition, the yearly samples differ in composition, since the 1972 and 1973 sample members were drawn from a population which excluded returnees. However, 46 percent of those who were mailed questionnaires for the 1974 sample did become returnees at the 1975 CPSI.

Therefore, conclusions drawn from the study must be considered as primarily speculation, and as with most research investigation, more questions are derived from the findings than are answered. This chapter will discuss the findings in relation to the research problem and subproblems
and will formulate some of the derived questions into hypotheses for future study.

Conclusions

The statement of the problem being investigated is: What is the persistence of the effects of training in creative problem-solving, as perceived by individuals who have completed the Beginning Program in creative problem-solving at an Annual Creative Problem-Solving Institute?

There is evidence from the research data that individuals do perceive some persisting effects of the program. Only six individuals (10.7 percent) of those fifty-six persons who completed the CPSI Alumni Questionnaire, indicated in item eighteen that the effects of the program upon their lives have "not been significant."

A somewhat larger percentage of the total sample responded that the effects of the program have increased with time, in comparison with those who said that they have decreased with time. The percentage of those responding that the effects have decreased with time becomes larger with an increase in the interval of time since completing the program. In contrast, a greater percentage of the most recent Alumni responded that the effects of the program upon their lives have increased with time. Data from this study indicate a possible trend of increased effects from the program during the first year following completion of the program, a "leveling off" during the second year, and then a
diminishing of effects.

Somewhat in conflict with the above, a general
trend toward more positive responses was seen in the 1972
sample than for 1973. Only item one was considerably
higher for 1973 than for 1972, and item ten was slightly
higher. All other items scored more positive responses
for 1972 than for 1973. This is not necessarily due to
an increase in the effects of training in creative problem-
solving over a longer period of time, but might be related
to any number of uncontrolled variables, such as the effects
of memory loss or distortion over varying intervals of time;
a higher, and possibly more representative, percentage of
response for the 1973 sample; or unknown events which were
specific to either the 1972 or 1973 CPSI.

Item thirteen, dealing with the application of what
was learned in the program to the individual's employment
situation, showed a progressively higher score with the
increase of time elapsed since completing the program.
This might relate specifically to a longer time interval
which would provide the opportunity to implement that which
was learned and to evaluate the effects of that implement-
tation.

Four specific items ranked highest for all three
years, representing two areas of achievement: (1)perceived
gains, and (2)the ability to apply what was learned. The
specific items are: more likely to try different approaches,
tend to take more factors into consideration in making
decisions, able to apply program learnings to life activities in general, and able to apply program learnings to future life activities. These four items all relate to the content of the Beginning Program at CPSI, as well as to the overall CPSI goal, "to make a difference in an individual's life in five days."

Of equal importance, however, are the two items which ranked among the lowest for all three years. These items are: more aware of problems and challenges since completing the program, and better able to develop ideas and put them to use. It may be that CPSI attracts those individuals who are already highly sensitive to problems and challenges in their lives, which might explain the low score and rank for item eight. However, being better able to develop and use ideas is an important component of the Beginning Program, and a low score in this area may indicate a need to improve the program, especially if individuals are attracted to CPSI because of their problem awareness.

For the total sample, nine of the sixteen fixed-alternative, five-choice items scored higher than 50 percent for the sum of the top two categories of response. These specific persistent effects of training in creative problem-solving relate to research subproblem (1), which is: What specific effects has training in creative problem-solving had upon his/her life, as perceived by the individual?
Table 4 illustrates those items with responses of over 50 percent for the sum of the top two categories of response.

**TABLE 4**

**ITEMS WITH SUM OF TOP TWO CATEGORIES OF RESPONSE OVER 50% FOR EACH YEAR AND FOR TOTAL SAMPLE, IN RANK ORDER**

<table>
<thead>
<tr>
<th>1972</th>
<th>1973</th>
<th>1974</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item %</td>
<td>Item %</td>
<td>Item %</td>
<td>Item %</td>
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<tr>
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</tr>
<tr>
<td>3</td>
<td>91.7</td>
<td>3</td>
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<tr>
<td>4</td>
<td>91.7</td>
<td>16</td>
<td>84.6</td>
</tr>
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<td>84.0</td>
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<td>..</td>
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<td>..</td>
</tr>
</tbody>
</table>

The top four items are the same for each of the three years. Only the 1974 data does not include being able to apply learnings to the employment situation in the above 50 percent level of response, possibly reflecting a lack of the time interval which might be necessary to implement the creative problem-solving process and evaluate its
effects upon long-term objectives.

According to the data illustrated in table 4, the specific effects of training in creative problem-solving, as perceived by individuals who completed the Beginning Program within three years prior to the collection of data, are as follows:

Items Concerned with Perceived Gain--

More likely to try different approaches
Tend to take more factors into consideration in making decisions
More open-minded to ideas of others
More observant
Better able to think up effective ideas
Tend to exert more effort in mental tasks

Items Concerned with Application--

Able to apply program learnings to future life activities
Able to apply program learnings to life activities in general
Able to apply program learnings to employment situation

Sample members for all three years gave high responses to the item regarding future application, especially the 1974 sample. However, even the 1973 sample members, who generally responded more negatively than those of the 1972 and 1974 samples, indicated a high degree of belief in their ability to apply what they had learned to their future life activities.

Those items which rank highest in the findings relate to behaviors which contribute to the ability to cope with problems. However, the item which deals specifically with being better able to cope with problems since completing the
program ranks relatively low. This apparent discrepancy might be explained by a possible lack of internalization of the overall process by Beginning Program Alumni, and therefore an inability to recognize the relationship between perceived gains and coping with problems. Another possible explanation might be that program learnings are being applied in a way which respondents do not categorize semantically as "coping with problems," a phrase which is sometimes used in a more restricted sense than the broader CPSI view of "problems." At any rate, coping with problems is an important element of the Beginning Program, and a low perception of gain in this area warrants further study.

Subproblem (2) is: What specific problem areas do individuals perceive as having been helped by training in creative problem-solving?

In spite of the relatively low ranking in regard to being better able to cope with problems, as discussed above, there was some evidence that training in creative problem-solving was helpful to individuals in dealing with specific problems. In terms of this subproblem, it might also be important to note that item twelve (being better able to develop ideas and put them to use) received among the lowest responses on the questionnaire. This ability is a major part of the problem-solving process as presented in the Beginning Program at CPSI.

All three years of the sample noted the area of
"Work" as the highest problem area in which the program had been helpful. The fixed-alternative item related to the application of program learnings to employment also ranked relatively high for the 1972 and 1973 samples. As noted earlier, a longer interval of time may be required to evaluate the effects of creative problem-solving implemented in work situations; or respondents may perceive that a longer time is necessary, without considering its daily application to short-term work-related activities.

The second highest area of response in terms of specific problems helped by the program, was in the category of "Personal." Some specific examples of these include: found a successful money manager/broker and now have 100 percent return on investment, became more open to new challenges--took part in community theater production and ran for public office, have become a more competent and responsible person, found some solutions to the problem of not having enough time to do everything desired. A few respondents mentioned specific examples of "School" and "Family" problems which were helped through the program, with nearly equal percentages for each area.

One of the highest ranking items was the ability to apply program learnings to life activities in general, a finding which again might appear to conflict with the data from item nine (better able to cope with problems.) Perhaps the overall broad scope of the CPSI experience provides
learning which is seen as applicable to "life activities in general," without identifying specific daily behaviors as being in response to "problems" as the term is used at CPSI.

The fixed-alternative item which concerns the applicability of program learnings to the individual's educational activities ranked generally low; however, this item on the questionnaire may have been interpreted by respondents as referring only to formal educational programs in which they may not have been enrolled, rather than to a broad range of educational activities.

Subproblem (3) is: What specific training experiences do individuals perceive as having been most influential upon their lives?

Items related to this subproblem were open-ended and some respondents did not complete this portion of the questionnaire. Most individuals did respond, however, and the largest percentage of those not responding were from the 1972 sample. Since those members represented the longest time interval since completing the program, the lower response may reflect an inability to recall specific experiences.

Responses regarding the most influential and most helpful program experiences and aspects were categorized generally as relating to the following areas: concepts based upon the Creative Behavior Guidebook; specific optional program activities in the offered courses;.
ning Program; and the overall CPSI experiences, such as interpersonal relationships and the general CPSI atmosphere.

For the total sample, overall CPSI aspects were generally seen as being the most **influential** in respondents’ lives, whereas the CBG sessions and optional sessions were perceived as being the most **helpful**. The 1974 sample is an exception to this however, where the CBG sessions received a considerably higher percentage of response as being both most helpful and most influential.

Many of the specific examples of total CPSI aspects which were given by sample members are provided for deliberately, but not necessarily considered a "training experience" of the Beginning Program. For example, meal times and other intervals which are not specifically scheduled as program sessions are considered to be an important part of the total five-day experience for enrollees. Findings from this study indicate that individuals are influenced by their experiences during these unscheduled times. Questionnaire respondents gave examples of changes in self-concept and attitudes which they perceive as resulting from informal interaction with others and from the general spirit of optimism and enthusiasm which is generated during the week.

Subproblem (4) is: What specific training experiences do individuals perceive as having been least influential
upon their lives?

Less than one third of the respondents gave specific examples of experiences which they perceived as being least influential. Of the total sample, 69.6 percent either gave no response, stated that they were unable to remember, or stated that all aspects of the program were influential.

Responses were categorized into the areas of CBG sessions, optional sessions, and miscellaneous; however, the examples given for those classified as CBG or optional sessions represented diverse and miscellaneous opinions within those categories.

Although the CBG sessions might appear from the data to be increasingly less influential each year, the data regarding the most helpful and influential program experiences indicate the opposite trend, based on a larger percentage of response. The data regarding the least influential program aspects are insufficient to draw conclusions concerning specific experiences, except to say that the perceptions of these experiences vary considerably among individuals. There is a greater amount of evidence from this study to conclude that CPSI experiences are helpful and influential to those who complete the Beginning Program, than to conclude that those experiences are non-helpful or insignificant.

Subproblem (5) is: Do preliminary data indicate a difference in the persistence of effects of training in
creative problem-solving, as perceived by individuals who have completed a Beginning Program in creative problem-solving with varying intervals of time since completion of the program and collection of the data?

Again it must be emphasized that the yearly sub-samples are small, and that indications of differences among them are untested for statistical significance. A known uncontrolled variable is the element of memory over varying time intervals, which may result in differences in the perceived persistence of effects, rather than in actual differences in the effects of training as implemented within an individual's life activities.

**TABLE 5**

**COMPARISON OF FOUR HIGHEST RANKING ITEMS BY YEAR**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Item</th>
<th>Item</th>
<th>Item</th>
</tr>
</thead>
<tbody>
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<td>3</td>
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</tr>
<tr>
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</tr>
<tr>
<td>4</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

As shown in table 5, the four highest ranked items are the same for each of the three years. These four items
represent both perceived gains (more likely to try different approaches, and tend to take more factors into consideration in making decisions) and application of program learning (to life activities in general, and to future life activities.)

**TABLE 6**

**COMPARISON OF FOUR LOWEST RANKING ITEMS BY YEAR**

<table>
<thead>
<tr>
<th>Rank</th>
<th>1972</th>
<th>1973</th>
<th>1974</th>
</tr>
</thead>
<tbody>
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<td>11</td>
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</tr>
<tr>
<td>14</td>
<td>1</td>
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</tr>
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<td>15</td>
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</tr>
<tr>
<td>16</td>
<td>12</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

Items twelve and eight (better able to develop ideas and put them to use, and more aware of problems and challenges) are among the four lowest ranking for all three years. Individuals who are attracted to CPSI may already perceive themselves as high in problem sensitivity and therefore would not achieve a high gain for item eight. Being better able to develop ideas and put them to use might be seen as requiring more training than would be provided in the Beginning Program. However, this explanation
might conflict with the consistently high perception of individuals' abilities to apply what they have learned to their life activities in general.

A closely related item is number ten (better able to think up effective ideas) which is consistent in response with item twelve for the 1972 sample. However, item ten ranks tenth for 1973 and sixth for 1974. The ability to think up effective ideas, in quantity, may diminish in time without continued deliberate practice, or may become so much a part of the individual's life that it is no longer perceived in its pre-CFSI perspective.

Although item one (more observant) is ranked among the lowest for 1972, it ranks fifth and sixth for 1973 and 1974, respectively. Percentages for item one are more closely related for the latter two years. Being more observant since completing the program may be an example of a behavior which is particularly difficult to assess accurately after a longer interval of time, which would explain the considerably lower rank for 1972.

With the exceptions of items one and ten, which are discussed above, and of those items which relate to specific application of what was learned in the program, 1972 and 1974 scored relatively similar percentages. The application of program learnings to the areas of employment and education correspond with the longer time intervals during which implementation might take place. An exception to the
relationship between time and implementation is seen in
the data regarding application to life activities in gen-
eral which ranks high for all three years. Possibly this
area of application was interpreted as referring to short-
range daily activities, in contrast to what might have been
interpreted as longer-range occupational and educational
activities.

A comparison of the sum of the top two categories
of response among each year in the sample showed seven of
the sixteen fixed-alternative, five-choice items with the
highest score in 1974, five of the sixteen items which
scored highest in 1972, and only one item with the highest
score in 1973. The remaining three, of the sixteen items,
were each tied for the highest score between two years.

The items which scored highest in 1974, in order
of top percentages are: able to apply to future life activ-
ities, more likely to try different approaches, able to
apply to life activities in general, more open-minded to
ideas of others, better able to think up effective ideas,
tend to exert more effort in mental tasks, and more aware
of problems and challenges. The one item which scored high-
est for 1973 is: more observant. Those items which received
the highest percentages for 1972 are: tend to take more
factors into consideration in making decisions, able to
apply to employment situation, able to apply to educational
activities, better able to evaluate ideas, and better able
to develop ideas and put them to use. Among the items which were tied in highest percentages, feeling more self-confident scored lowest for 1974; more inquisitive, and better able to cope with problems both scored lowest for 1973.

The items that scored highest for the 1972 sample reflect gains which might reasonably be considered to require a longer period of time to achieve. These items relate directly to the ability to evaluate ideas in terms of specific criteria, develop and implement those ideas, and apply these skills to long-term objectives.

The items which scored highest for the 1974 sample represent lower-level achievements that must be developed prior to implementing more creative approaches. Examples of these achievements are: being aware of problems, open-minded to ideas, willing to try different approaches, and able to think up effective ideas. Not surprisingly, this group was also the most optimistic in terms of applying creative problem-solving to future activities.

The 1973 sample gave a considerably higher percentage of return to the questionnaire; however, the scores for items 1-16 were consistently lower for the 1973 sample than for the other two years. No corresponding negative trend was evident in the open-end items. If there had been, this might have explained the higher percentage of return as a need to express concerns or negative feelings regarding the
1973 CPSI.

The responses to item eighteen indicate that the perception of the effects of CPSI upon individuals' lives tends to increase during the first few months following CPSI, level off during the second year, and then decrease during the third year post-CPSI. However, the similarity in the 1972 and 1974 scores, considered in relationship to the lower 1973 scores, might indicate a particular period of frustration occurring during the second year post-CPSI. Perhaps the lower scores represent a "second-year-syndrome" which may occur regularly after CPSI and is not indicative of specific variables related to the 1973 CPSI. If so, then the higher scores for 1972 might reflect an adjustment mechanism which follows a more negative period of time, rather than being related directly to specific variables of the 1972 CPSI.

In comparing responses among the three years, it must be re-emphasized that the 1974 sample also included a number of 1975 returnees to CPSI, and therefore represents a different population than the 1972 and 1973 samples. If the 1974 sample had not included returnees, a clearer pattern of yearly responses might have been evident. Considering that the 1972 sample scored generally higher than the 1973 sample, a pattern of increasingly more positive responses might be seen with increased intervals of time since completion of the Beginning Program. Further data would be
required before drawing the above conclusions.

Summary of the Study

This investigation was an exploratory field study regarding the perceived persistence of effects of training in creative problem-solving over a three-year period of time. Research problems concerned perceptions of the effects of training in creative problem-solving related to: (1)specific effects of the training, (2)problem areas which were helped by the training, (3)most influential and helpful training experiences, (4)least influential training experiences, and (5)differences in the persistence of effects among the three years being investigated.

The study sample consisted of 105 individuals who completed the Beginning Program in creative problem-solving at an Annual Creative Problem-Solving Institute during June of 1972, 1973, and 1974. Thirty-five sample members were selected randomly for each of the three years. Each sample member was sent the CPSI Alumni Questionnaire. Fifty-six questionnaires (53 percent) were completed and returned to the investigator.

Four specific areas of perceived effects of training ranked highest for all three years: (1)more likely to try different approaches, (2)tend to take more factors into consideration in making decisions, (3)able to apply program learnings to life activities in general, and (4)able to apply program learnings to future life activities.
Two specific areas ranked among the lowest for all three years: (1) more aware of problems and challenges, and (2) better able to develop ideas and put them to use.

All three years of the sample noted the area of "Work" as the problem area which was most helped by the training. The second most frequently cited problem area was in the category of "Personal."

Open-end responses regarding the most helpful and influential training experiences were primarily within the categories of: sessions which are based on the Creative Behavior Guidebook, and the overall CPSI experiences and atmosphere.

Data regarding the least influential program experiences were insufficient to draw conclusions concerning specific training activities.

Results were inconclusive regarding specific differences in persistence of effects among the three years. However, there was some evidence that, generally, the effects of training in creative problem-solving tend to increase during the first few months following CPSI, level off during the second year, and then decrease during the third year post-CPSI.

Findings from the study yielded numerous hypotheses and recommendations for further study.
Recommendations

The overall question as to whether CPSI meets its stated goal, "to make a positive difference in an individual's life in five days," can be given a tentative affirmative answer, based on the findings in this study. The identification of these specific differences will require further study. Having identified that individuals do perceive persisting influences of CPSI, which make either specific or general differences in their lives, an important research task then is to identify the variables which relate to making those differences.

Some of these variables involve the interrelated areas of: (1) the CPSI population, (2) specific effects of training in creative problem-solving, and (3) CPSI activities. Identifying significant relationships among these variables might be used to develop optimal training programs in creative problem-solving in the future. Questions and hypotheses, formulated as a basis for further study, have been classified within the above areas. In addition to the following recommendations for further research, some suggestions have been made for immediate consideration, based on findings from the CPSI Alumni Questionnaire.

Research questions and hypotheses regarding the CPSI population

What differences exist between CPSI Beginning Program Enrollees (pre-CPSI) and the general population in terms of
each of the following variables?

1. Perception of problem-sensitivity
2. Performance on objective testing of problem-sensitivity
3. Self-concept
4. Attitudes toward others
5. Performance on diverse creativity tests
6. Perception of problem-solving ability
7. Performance on objective testing of problem-solving ability

In regard to each of the variables listed above:

What differences exist between CPSI Beginning Program Enrollees (pre-CPSI) and Beginning Program Alumni (post-CPSI)?

What differences exist between Beginning Program Alumni (post-CPSI) and the general population?

What differences exist between Beginning Program Alumni who return to CPSI and those who do not return?

In regard to initial goals for attending CPSI and perception of goal attainment:

What differences exist between Beginning Program Alumni who return to CPSI and those who do not return?

Hypotheses:

Pre-CPSI, Beginning Program Enrollees will tend to have greater problem-sensitivity than the general population.

Pre-CPSI, Beginning Program Enrollees will not differ
significantly from the general population in terms of self-concept, attitudes toward others, and perception of problem-solving ability.

Beginning Program Alumni will tend to have more positive self-concepts and more positive attitudes toward others than the general population.

Beginning Program Alumni will not tend to perceive themselves as having greater problem-solving ability than the general population.

Beginning Program Alumni will score significantly higher on objective testing of problem-solving ability than the general population.

Research questions and hypotheses regarding specific effects of training in creative problem-solving

What is the relationship between specific perceived gains from training in creative problem-solving and each of the following variables?

1. Gains indicated by objective testing
2. Perception of problem-solving ability
3. The ability to apply program learnings to various life activities and situations
4. The length of the training program
5. Varying intervals of time since completion of the program
6. The probability of returning to CPSI
What is the relationship between specific perceived gains from training in creative problem-solving and entry profiles of Beginning Program Enrollees regarding each of the following variables?

1. Perception of problem-sensitivity
2. Performance on objective testing of problem-sensitivity
3. Self-concept
4. Attitudes toward others
5. Goals for attending CPSI
6. Perception of problem-solving ability
7. Performance on objective testing of problem-solving ability
8. Performance on diverse creativity tests

Hypotheses:

The perception of a decrease in the effects of training will become greater with an increase in the interval of time since completing the program.

The perception of specific effects of training will be greatest during the first year following completion of the program.

The perception of specific gains from training in creative problem-solving will be significantly related to entry profiles of Beginning Program Enrollees.

Research questions and hypotheses regarding CPSI activities

What is the relationship between specific Beginning
Program sessions and each of the following variables?

1. Specific perceived gains
2. Performance on diverse creativity tests
3. The ability to apply session concepts to various life situations
4. Persistence of gains over varying time intervals

In regard to each of the variables listed above:

What is the relationship between these variables and specific optional program sessions?

What is the relationship between the overall CPSI atmosphere and each of the following variables?

1. Specific perceived gains
2. Performance on diverse creativity tests
3. Changes in self-concept
4. Changes in attitudes toward others
5. The probability of returning to CPSI

Hypotheses:

Specific Beginning Program sessions will be significantly related to:

1. Specific perceived gains
2. Performance on creativity tests
3. The ability to apply session concepts to various life situations

The overall CPSI atmosphere will be significantly related to:

1. Changes in self-concept
2. Changes in attitudes toward others
3. The probability of returning to CPSI

The above recommendations for future study are derived from a sample of some of the more salient questions which resulted from the findings in this investigation. Each question elicited multiple related questions which are far beyond the scope of this study. Therefore, an attempt was made to limit the above discussion to a summary of those questions and hypotheses which are directly and immediately related to the findings in this study.

Three of the items which scored relatively low in the findings of this study are related to a major part of the Beginning Program at CPSI. These three items concern the abilities to: (1) evaluate ideas, (2) develop ideas and put them to use, and (3) cope with problems. Because of the relationship of these abilities to the basic structure and intent of the implementation phase in creative problem-solving, it is recommended that immediate consideration be given to the Beginning Program content and learning activities in these areas. By increasing the ability to implement ideas, and therefore cope with problems, the goal of making a positive difference in five days can progress from hypothetical speculation to a reality of creative pragmatism.
APPENDIX A

COVER LETTER AND CPSI ALUMNI QUESTIONNAIRE

Cover Letter

Buffalo, New York
February 28, 1975

Dear

As you may be aware, an innovative Graduate Program in Creative Studies has been initiated at the State University College at Buffalo by Sidney J. Parnes and Ruth E. Noll in cooperation with the Creative Education Foundation. As one of the first participants in that program, I am conducting a study which requires the assistance of persons like yourself who have completed a program of instruction in creative problem-solving.

I would very much appreciate your taking a few minutes to complete the enclosed anonymous questionnaire which will hopefully supply information that can be used in providing optimal creative problem-solving programs in the future.

Please return the questionnaire by March 20th. A stamped self-addressed envelope is enclosed for your convenience.

Thank you for your assistance.

Sincerely,

Delores E. Young
Graduate Assistant
Creative Studies
State University College/Buffalo

DEY:fei
CPSI Alumni Questionnaire

Please complete the following. (Your name and address are not required unless you would like to request an abstract of the findings when the study is completed.)

Date of attendance at CPSI at Buffalo: June 19

Completion of the full five-day Beginning Program:

Yes: ___ No: ___ Number of days completed: ___

Attendance at Regional Extensions of CPSI:

Yes: ___ No: ___ Extensions Attended:

Arizona: ___ Year Attended: ___
California: ___ Year Attended: ___
Connecticut: ___ Year Attended: ___
Minnesota: ___ Year Attended: ___

Attendance at CPSI at Buffalo for Advanced Programs after completing the Beginning Program at CPSI:

Yes: ___ No: ___ Year Attended: ___

Attendance at creative problem-solving programs other than CPSI at Buffalo or a Regional Extension of CPSI:

Yes: ___ No: ___ Before CPSI: ___
After CPSI: ___
Date of Attendance: ___
Brief description of program: ___

Please underline one reaction in each multiple choice statement. Space is provided at the end of the questionnaire for additional comments if desired.

1. I believe that I am more observant since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)

2. I believe that I am more open-minded to ideas of others since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)
3. I believe that I am more likely to try different approaches to doing something or to attacking a problem since completing the program: (definitely) (probably) (not necessarily) (I doubt it) (no)

4. I believe I tend to take more factors into consideration in making decisions since completing the program: (no) (I doubt it) (not necessarily) (probably) (definitely)

5. I believe I feel more self-confident since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)

6. I believe I am more inquisitive since completing the program: (a great deal) (a good deal) (somewhat) (very little) (not at all)

7. I believe that since completing the program I tend to exert more effort in mental tasks than I did before: (definitely) (I think so) (I don’t know) (I doubt it) (no)

8. I believe that I am more aware of problems and challenges since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)

9. I believe that I am better able to cope with problems since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)

10. I believe that I am better able to think up effective ideas since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)

11. I believe that I am better able to evaluate my ideas since completing the program: (a great deal) (a good deal) (somewhat) (very little) (not at all)

12. I believe that I am better able to develop my ideas and put them to use since completing the program: (not at all) (very little) (somewhat) (a good deal) (a great deal)

13. I believe that I have been able to apply what I learned in the program to my employment situation: (not employed) (not at all) (very little) (somewhat) (a good deal) (a great deal)

14. I believe that I have been able to apply what I learned in the program to my educational activities: (a great deal) (a good deal) (somewhat) (very little) (not at all)
15. I believe that I have been able to apply what I learned in the program to my life activities in general: (no) (I doubt it) (not necessarily) (probably) (definitely)

16. I believe that I will be able to apply what I learned in the program to my future life activities: (no) (I doubt it) (not necessarily) (probably) (definitely)

17. I believe the program would be most effective if it were presented over: (a longer period of time) (a shorter period of time) (the same period of time--5 days)

18. Since completing the program I have found that its effects upon my life have: (diminished with time) (increased with time) (remained the same) (not been significant)

19. What program experience(s) do you recall as being most helpful to you?

20. If the program has helped you to solve particular problems in any of the following areas, please explain briefly how the program was helpful. Include whether the problem was identified and solved since completion of the program or during the time that you were taking the program. (You may attach additional sheets if you find the space below is not sufficient.)

  Work:

  School:

  Family:

  Personal:

  Other:
21. What aspect of the program do you believe has been most influential in your life?

22. What aspect of the program do you believe has been least influential in your life?

23. Comments:
APPENDIX B

PROBLEM AREAS SOLVED THROUGH HELP OF PROGRAM

EXAMPLES OF RESPONSES TO ITEM TWENTY

1972 Subsample

Work:

"Identification of problems."

"I have taught, several times, the proper way of brainstормing and the five points in problem-solving—with great success."

"Working with a group of peers who were not especially interested or challenged by changing aspects in health care. Increased interpersonal relationship skills, ways to excite others about change and to get them to accept change without feeling threatened."

"I work part-time as a counselor at college. The program led me to do much further reading and training in my field."

School:

"A six-month Creative Problem-Solving Course was given at our high school. The workshop I took at Buffalo was helpful as background to our setting this course up in the following scholastic year."

Family:

"I have encouraged family members to take part in many different groups—I didn't push it before. The problem was present before CFSI and solved afterwards."

Personal:

"I am more willing to listen to conflicting points of view than previously."
Other:

"Planning my future. I try to define all my options, then decide on my course of action. CPSI has helped me think all facets of my life thru--since I try to think of all facets or angles, positive and negative, I've been able to make better and satisfying choices."

1973 Subsample

Work:

"Greater involvement of staff in decision making."

"Have applied CPS techniques to company problems (group sessions) with some success."

"Applied to our Value Engineering Training Program. Very successful."

"Working with personality types that would otherwise be a source of conflict."

"I was quite dissatisfied with the work that I was doing and the rewards that I received for doing it. I used CPSI process to help (not exclusively) guide my decision to start a business of my own. Although not profitable yet, I am competent sic that it will be."

"The ability to make my summer job more interesting by analyzing what I don't like and approaching those situations from a more enjoyable and fresher angle."

"Leading conferences for church workers. I used the CPS technique in two work problem situations. More satisfying solutions were found than if such approach were not taken."

"Have utilized CPSI materials and concepts in teaching undergraduate and graduate courses."

"I am cooperating with three others who attended the institute in teaching a class to other teachers on creativity."

School:

"Ability to get more enjoyment and more variety out of my study techniques. The ability to be a better thinker in testing situations."
"I went back to school for M.A. in Business because I wanted to."

"Am now teaching non-credit course in creative thinking in local high school Adult Education Program."

"I have worked many of the ideas into my teaching."

"The approach I take with my students--watching for reaction to situations and trying to understand differences."

Family:

"Personal development of family members given more priority."

"Sharpened my thinking about some difficulties with our children--helped my perspective of the problem."

"Broadening possible alternatives in family matters."

"The first week after my return from the workshop--then somehow the novelty fades away."

Personal:

"More open to ideas of others. Tend to encourage exploring of alternatives instead of everythink black and white."

"Have become more open to new challenges. Since attending CPSI, have had a part in a community theater production and run for public office."

"Broader approach to solutions."

"I feel that I am growing in my confidence and self-awareness as a result of my experience with CPSI. I know I have used more of my creative talents and imagination . . . but it is very difficult to cite specific examples. I believe that I am solving problems better, faster, and easier as a result of taking CPSI. More important I see myself now actively seeking challenges and opportunities to grow. I look at CPSI as a life-long growing process."

"Working out problem areas to stay happy regardless of circumstances."

"The ability to express myself in personal problems. I mean that I am better able to identify the roots of the situation, to be an objective thinker in the situation, and to implement solutions."
"I resolved a technical problem after several years only to discover that the solution was not what I wanted to believe or see."

Other:

"I found what I believe to be the requisites for a successful money manager/broker, found him, and now have a 100 percent return on my investment after two months--to beat inflation."

**1974 Subsample**

**Work:**

"I have been more creative in all areas of my job in advertising. As a result of attending CPSI, I have been given more responsibility. I have been able to cope effectively with any problem that has confronted me."

"I have applied the process to some of the problems presented to me in my work and it has been very helpful."

"Aided my input of possibilities for professional growth. I decided to become a free-lance agent as a direct result of CPSI and utilized CPS process in goal-setting, establishment of client groups, publicity, lesson planning, evaluation strategies."

"Will change jobs soon--am going in business for myself."

"It has greatly helped my teaching."

"As a volunteer, I have used the process to help a group create an ideal program--rather than solve a particular problem."

"I came to the session of CPSI seeking a relief from frustration which stems from attempting to deal with the Civil Service system here in New York City. I found the session enlightening and an experience I'll never forget--but it really is ineffective against a system as rigid as the one I deal with."

**School:**

"Realized when I was taking on too much. Realized where my real interests lie. Have thought through some more practical
goals. Have tried to finish things up wherever possible."

"In my completion of graduate study assignments as well as planning of lessons in teaching I utilize CPS extensively."

"As a Mother, I have interested my fifth grade son's teacher in using some techniques with the children."

Family:

"In a way, I have become a lot closer to those in my family. I appreciate everything I have."

"Understanding different needs and wants of each member. Realizing we'll never be completely organized or in agreement--But that's O.K."

"I have more or less solved the problem of living with (not literally since he is away from home) the fact that our eighteen year old son has an incurable disease."

Personal:

"Help solve problems quicker."

"Was thinking of going back to school or going to work now that the children are in school all day. Am working on my directions and identifying the problem."

"I found some solutions for the old problem of not having enough time to do what I want to do."

"As a female elementary educator, CPS was most helpful in looking at career alternatives to 'classroom teacher' syndrome. I have been able to utilize CPS in combination with T.A. to look at some personal marital problems but this has not aided my spouse's understanding, or 'team' concept of problem-solving--(Ah ha! a new challenge!)"

"The ability to face difficulties optimistically. Not to blame others but to look within to find the answer. Accept my own failures and lacks without losing faith in myself. Can look for different ways of getting to where one would like to go."

"I have become a more competent and responsible person."
Other:

"We need others--but we need to rely upon ourselves. We are all in process--concepts of ourselves and world change continually."

"The overall effect on me, personal or other, has truly been tremendous. Attending CPSI has really had a lasting effect on me and I am really looking forward to 1975."
APPENDIX C

MOST HELPFUL PROGRAM EXPERIENCES--EXAMPLES

OF RESPONSES TO ITEM NINETEEN

1972 Subsample

"The brainstorming technique probably."

"Generally: magnify, minify, reverse, combine, rearrange, substitute, adapt, put to other uses."

"Actually working through the process in a situation that was specific to my own employment problems."

"Opportunity to meet instructors from various backgrounds; I have followed through intensively with ... [one of the leaders] as a consultant to my work. It is this much more intensive involvement that has been helpful. The results of the workshop itself were to prepare me to consider these approaches but I did not learn the process well enough during the workshop."

"The program offerings that I did on my own--the fabulous environmental evening that ... [one of the leaders] concocted called 'Dragon Theater.'"

"Case studies."

"Nite Flites. However, the whole program worked together towards being helpful."

"The cooperative problem-solving with others."

"I met some very wonderful people. We had some sharing of experiences. I have maintained correspondence with some. Thus enrichment has come to my life."

1973 Subsample

"Identifying the real problem."

"The regular daily CPS 'beginning' group with planned experiences and learning exercises."
"Problem Solving Techniques."

"A sequence involving use of all problem solving strategies."

"The activities of the basic group to which I was assigned."

"Exchange of ideas, identification of problem, problem-solving methods."

"Intensive group ideation."

"Practical experiences in problem solving."

"Brainstorming, special seminars, talking with others and getting ideas from others."

"Interaction after regular sessions with other participants and speakers."

"Nite flites."

"The opportunity to go through some of the 'creative experiences' such as the trust walk—not helpful in the sense of being useful, but in having gone through it and knowing what it was."

"The use of Synectics and the Gordon approach to problem-solving."

"Interactions with other participants."

"Breadth of exposure--forced to think larger."

"Broadening my perspective."

"The 'Can Do' atmosphere and spirit of cooperation."

"Being part of a group--concern for others and self-image."

"They were all significant in helping me to become a more creative problem solver."

1974 Subsample

"Run through in basic course of the steps in problem-solving."

"Being exposed to the principles of CPS."

"Putting structure to my creative ideas."
"I have used many techniques in group situations. Ideation, the matrix, forced relationships on some 'self-imposed barriers' also have been useful."

"Unlimiting of my mind during solution-finding. Whole session unrestricted my imagination."

"Video-tape of myself, creative problem solving technique, feedback of others in program."

"Idea-generating techniques and matrix techniques for evaluating ideas; the open-minded atmosphere at Buffalo; the stress placed on looking at problems from many viewpoints."

"Brainstorming, parapsychology session, varied offerings night and day--procedures widened my horizons."

"The fish bowl exercise. Meeting and communicating through music with the Brazilians."

"The after-hours sessions with other participants and faculty."

"Interpersonal relations."

"Exposure to and sharing of ideas, experiences, etc. with creative, talented professionals. . . . Early a.m. advisory period--personal problem solving opportunities. Application of CPS process to personal and professional challenges."

"Understanding that creativity has many polarities--thinkers and doers are each necessary."

"All programs I studied have at one time been helpful in not only my work, but also in other activities (organizations) that I have participated in."
APPENDIX D

MOST INFLUENTIAL PROGRAM ASPECTS--EXAMPLES OF RESPONSES TO ITEM TWENTY-ONE

1972 Subsample

"Getting in groups and working problems thru. 'Games' to loosen individuals and group up to get the juices flowing and especially I recommend the 'nite flites.' Too often we get caught up in our daily routine and problems. We need to shake loose from them to get the creative juices flowing again."

"Openness to new ideas."

"Learning that things aren't always as they look. Getting a creative picture on life. Using my own knowledge and experience to work to my best advantage in instituting change."

"Being taught that there is no problem that cannot be solved creatively in some way; the spirit of optimism and enthusiasm which pervaded the whole five days. I don't think anyone thought a single negative thought during the Institute. It was exhilarating."

"Just meeting other people."

"The personal friendships."

"Increased perception of self and others. The encouragement to be more open and trusting with others."

1973 Subsample

"Procedure of problem-solving."

"Greater awareness of the potential alternatives in problem-solving."

"Finding alternative uses for the products that I develop."

"Training in use of the CPS technique."
"Approach to problem solving. More inductive reasoning utilized."

"Learning the basic CPS process."

"The logical approach to thinking about problems, personal, business, or otherwise."

"Perceiving from a different standpoint or getting another viewpoint."

"Some of the nite flites."

"Exposure to some new research and ideas in evening sessions."

"The creative experiences. I was somewhat familiar with the process prior to attending."

"The opportunity to interact with others."

"Probably interaction with others--got more from this than from any specific technique taught."

"Association with people of like mind and aspiration."

"Awareness of human possibilities in creative thinking and the sheer pleasure of being creative and being with creative people."

"They all interrelate and have been influential."

"The personal experience of that whole week and that there is a way of solving problems."

"The realization that any problem can be solved given the proper approach and the proper understanding of the problem. This means that life can be a very enjoyable experience if its problems are approached with enthusiasm and a confidence that they can be solved. I am a firm believer that all things work to the good of the person."

"Realizing that 'Creative Problem Solving' is, like many ideas, somewhat 'overrated' and unfortunately 'under-taught' if I can use that expression."

1974 Subsample

"The structure and spurs to idea gathering and emphasis on deferred judgment during ideation and criteria setting."
"The group problem solving process."

"The actual problem-solving steps, though I can't change a system with them, I go through them anyway—they leave my mind alert."

"Assimilation of ideas, my own and others."

"The attitude that there are many possible solutions to a problem and that one should generate many ideas before deciding on any—this has led to my not accepting solutions which are only partially satisfactory."

"Getting away from habitual responses."

"I am now compelled to try and help people solve problems—its almost a vocation so I would say—the process has been most influential. I also now look at things in many ways."

"Be somewhat more open to ideas. Look for the strengths in a new idea rather than look first and dwell upon its weaknesses. To sample the advanced program offerings meant as much to me as the basic program. The bright, interested, growing, resourceful people who attended."

"Sensitivity training."

"The advanced electives were very enjoyable. They helped look at new ways of relating to people."

"More confidence in meeting and talking with people."

"Meeting people who are truly creative individuals . . . . Advanced groupings were more stimulating."

"The realization that there are many open, searching, sharing people dedicated to the creative problem solving process."

"The creative people I met!"
APPENDIX E

LEAST INFLUENTIAL PROGRAM ASPECTS--EXAMPLES OF RESPONSES TO ITEM-TWENTY-TWO

1972 Subsample

"A couple of the 'sensitivity' sessions."

"The TV comments--we could have done without them. They were an interruption. I sound too harsh in that statement. As I recall, I had a very strong negative reaction. I remember stating that they were among the most uncreative things--obviously a judgment based on little knowledge of the problems involved."

"Anything that I have forgotten."

"This is difficult to recall, because I believe that I gained a great deal from all sessions."

1973 Subsample

"Creative problem solving technique, since I was already aware of the procedure."

"Very little personalized help on the implementing process."

"... [one of the leaders] emphasis on the umteen steps, in step by step fashion, to problem solving. By the time one has used his technique, either the problem has resolved itself or is of less importance than the other problems that have taken its place."

"The films, which were good but hard to schedule with the crowded program."

"The 'extras'--the evening programs were fun but left little to take home."

"Some of the optional sessions--probably made some poor choices."

"Smoking, drinking, and heated arguments."
"I took the program quite awhile ago so I am not certain if I remember everything. But I do not recall anything that has not been helpful."

"Everything I experienced was thrilling, entertaining, and mind opening—from the foreign contingent represented to the extra seminars held every evening. I've never experienced anything like it since."

**1974 Subsample**

"The formalized step-by-step CPS process. (Perhaps there were so many peripheral 'goodies' that the CPS process didn't stand out as it should have. Perhaps it just wasn't very well presented. I'm not really sure, but I suspect the latter.)"

"'Group thinking.' Very structured aspects of the program."

"The home base discussion oriented sessions each morning."

"Those aspects of the course aimed at commercialism, merchandising, industry."

"I feel the comraderie spirit that is promoted in the individual groups is unnecessary. Sharing one's personal life with a group is not my bag."

"I was gravely upset by the unprofessional lack of controls on psychological or emotional stress and influences. Many 'elective' courses were playing with sophisticated tools in dealing with emotional problems. Also no screening process seemed lacking."[sic]

"That one which included personal contacts."

"Experiential were the least influential. I have done a great deal of work in encounter."

"Don't know—its taking too long for me to answer this one—must have forgotten it."
APPENDIX F

COMMENTS—EXAMPLES OF RESPONSES

TO ITEM TWENTY-THREE

1972 Subsample

"Although the experience and its effects have dimmed with time, my original enthusiasm and response is as clear as when I attended in 1972. It was a very 'special' experience and one I hold dear along with the people I worked with. They became very close to me and very important although I have seen none of them since. If circumstances had permitted I would have attended every year following the first."

"I missed the inclusion of good music and art in the week."

"I enjoyed your program and really feel it has made a difference in my decision making life. . . . I did feel there was too much routine, not enough activity tho I especially enjoyed the 'Night Flights.' Most of us work full time and probably sit at a desk most of that 7½ hour day. We certainly don't need nor want more sitting during vacation! . . . A good program needing updating, variety, and innovation each year for maximum effectiveness! (Maybe more social events too!)"

1973 Subsample

"A very worthwhile experience which I strongly recommend to anyone. My thanks for the time and effort spent on the program."

"I thought the total program had a unified impact, very profitable."

"Once a lifetime to take the basic course is sufficient. When finances provide, I would like to take the advanced course. I suspect that once a lifetime would be sufficient for that too. . . . The course was, and is, a positive influence in my life. I very much enjoyed and benefited from the experience."

"More structured social events. More dialogue with faculty members."
"It was a fantastic experience for me—and I recommend it for anyone who has the slightest bit of open-mindedness. I think that a 'closed' person would fight the techniques and not get as much out of the workshop. It could conceivably hinder others. It was really beautiful watching many people 'open up'! Thank you for this opportunity to react and good luck in your endeavors."

"I believe that with the nucleus of knowledgable, creative people such as were in one of the large auditoriums, filled to capacity, all immediate problems of humanity could have been resolved... I believe local centers should be established in each city, with the same spirit and excitement, to 'fuel up' at least once each year where each participant can reinforce what was learned about creative thinking."

"Very little time to dig into library resources."

"A clearer definition of the beginner program would have allowed me to choose a better approach (advanced) and I would have benefited more."

"Would like to see the CPSI Program expanded to make the offerings more accessible to a greater number of persons."

"All in all, I thought CPSI to be a worthwhile experience, however from talking to other first year students, the basic instructors have a lot to do with the student's attitude. I feel the basic course could be reduced to about three days using the other two days to sample or experience other classes."

"A few of the practitioners tend to get too serious and 'academic' about the whole process and a few really go off on tangents but the program was a real eye opener for me."

"Comparisons 'before' and 'after' CPSI may not be valid in this case, since methods taught closely parallel the 'Engineering Methods' taught when I was in college. Not much new ground plowed at Buffalo."

"As I recall, I was most enthusiastic about CPSI and really looked forward to it. Unfortunately I found the operation of our class (by the three instructors) to be rather poorer than one should expect from even a 'normal' school. Too much talking (listening) and not enough doing. There were some good areas—don't get me wrong. Most of the 'goods' were 'guest lecturers' or visits to other sessions. What I (and several others as I recall) wanted was to actually
work thru the basic CPS process—not just talk about it and dabble with it at a distance. If a participant leaves CPSI (or any course) without some definite skill acquisition (or attitude change), then the course has lost virtually all its value. The attendee, after all, is going back to his/her real world so stamina is needed to survive the re-entry shock. That is why definite practice and skill acquisition is so important—especially in the nebulous areas of life (TA, T-Groups, Creative Problem Solving, ...)

"I think creativity is something that doesn't require a conference to develop. We all have it and use it as required. Many of the participants during my week had severe letdowns upon 're-entry' to their normal worklife. I think the program was not as well suited for me, a businessman, as it was for educators. There was too much emotional involvement during the week. I think different approaches to the same problem are beneficial but awareness is more important than a lot of verbalizing. For me my personal benefits of attending were not very quantifiable."

"If the CPS basic course was meant to teach brainstorming it missed its mark. If it was meant to acquaint those attending with all the new fancy self analytical-sensitivity methods, it approached the target. However (being over 50, and having worked in manufacturing environment for 30 years, and having trained as an engineer) I find sensitivity, transactional analysis, Grid, etc. so much hooey, trying to hang new fangled names on the same 'old' people. People who—if they have mentally matured—when told in simple understandable language what the score is understand. If they have not matured—it doesn't make any difference what you tell them. How about getting ... [one of the leaders] reactions to CPS the way it is done today?"

1974 Subsample

"In short, the overall CPSI experience has had more influence on me personally than any other type of education."

"More time should have been made to see some of the films and other activities. The Guidebook is so helpful and well written, that one could do it on his own."

"I am a visual artist and was disappointed at the limited offerings in the fine arts area. If I attend Buffalo CPSI again, I will be especially interested in the work of ... [some of the leaders] who are interested in the psychic
phenomena of perception and creativity."

"Am more inclined to think best alone but like shared
group experiences in Music and Art. This can be relea-
sing. Believe Creative Thinking needs time for taking in
a lot from the environment and time for it to settle.
Group thinking may be okay for practical ideas and may
help in this world. There is also a place for the poet,
artist, the out of the world thinker. Need to approach
creativity from many directions."

"Since I was unemployed and had no real problems I had no
reason to apply the actual problem solving techniques ex-
cept in a way that wasn't real--the solution didn't really
concern me. The thing I got from the program was associa-
tion with all kinds of people there and an increase in my
ability to communicate with them which carried over to my
daily life."

"I felt the lack of emphasis on the evaluation and imple-
mentation steps definitely hindered my ability to set
strategies for implementation as well as evaluate the
success (or lack of success) of the total process. I
would highly recommend additional input and concenstra-
tion in these two areas."
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