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An Exploration of C. G. Jung's Psychological Types
as Predictors of Creativity and Self-Actualization

By

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A.B. (Stanford University) 1961
M.A. (San Jose State College) 1971

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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of the

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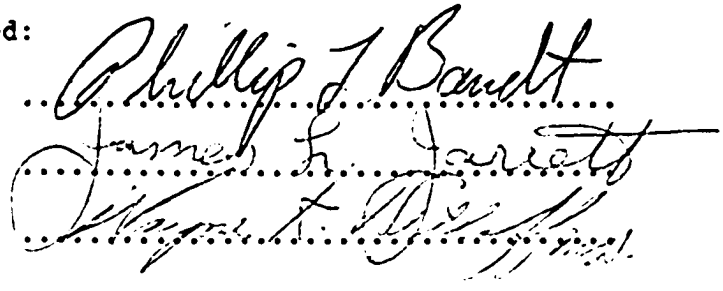

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TABLE OF CONTENTS

Chapter		Page
I.	INTRODUCTION	1
II.	BACKGROUND OF THEORY AND RESEARCH	9
	Psychological Types	10
	Individuation	23
	Self-actualization	28
	Creativity	43
	Ego Strength	52
III.	METHOD	55
	Hypotheses	55
	Subjects	59
	Procedure	63
	Design	64
IV.	RESULTS	66
V.	DISCUSSION	87
VI.	SUMMARY AND CONCLUSIONS	100
REFERENCES		104
APPENDIX		113

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LIST OF TABLES

Table		Page
1.	Maslow's (1970) Characteristics of the Highly Self- actualized Individual	31
2.	Summary Data from Empirical Cluster Analysis (BCTRY) of 22 Variables: 5 EI, 5 FT, 5 SN, 4 Creativity, SL, Es and MF	67
3.	Comparison of Empirical and Pre-set Cluster Analyses of 15 Type Scores	69
4.	Product Moment Correlations for Creativity and SL with Psychological Types	72
5.	3 X 6 Analysis of Variance of Self-actualization (SL) for Number of Extreme Function Scores and Personality Type Patterns: EFN, ETS, ETN, IFN, ITS, ITN	74
6.	3 X 6 Analysis of Variance of Creativity for Number of Extreme Function Scores and Personality Type Patterns: EFN, ETS, ETN, IFN, ITS, ITN	74
7.	Bonferroni t's for All Pairwise Comparisons of Three Extreme Score Groups for Self-actualization (SL)	76
8.	Self-actualization (SL) Means, Standard Deviations and n's for Three Extreme Score Groups and Six Personality Type Patterns	77
9.	Creativity Means, Standard Deviations and n's for Three Extreme Score Groups and Six Personality Type Patterns	78

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Table		Page
10.	Bonferroni t's for All Pairwise Comparisons of Six Personality Type Patterns for Self-actualization (SL)	80
11.	Bonferroni t's for All Pairwise Comparisons of Six Personality Type Patterns for Creativity	82
12.	Means and Standard Deviations of Females (n=146), Males (n=87) and Total Sample (n=233) on 10 Variables	84
13.	Creativity and Self-actualization (SL) Means, Standard Deviations and Product Moment Correlations for Two Studies: Maul, 1970 and Tuttle, 1973	94

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CHAPTER I

INTRODUCTION

"Positive growth of the whole person" is the motto of a new psychological revolution. Humanistic psychologists such as Carl Rogers (1961, 1969) and Abraham Maslow (1962, 1968, 1970) have acclaimed the importance of positive growth as a goal not only in psychotherapy, where personality change is a traditional goal, but also in education, in which the personality and intellect of the individual have often been kept as separate as possible.

Feeling (Moustakas, 1966) and fantasy (Jones, 1968) are felt to be neglected by the public schools and are yet considered vital to the training of the whole person. Even more central to the recent concern of humanistic psychologists with education, however, is their emphasis on value. This group of psychologists, which identifies itself as a "Third Force in Psychology," contrasts itself in particular with Behavioral Psychologists by rejecting the possibility or desirability of a value-free science. Maslow (1968), for instance, asserted that the Behaviorists have already determined a value when they assume a tabula rasa conception of human beings in which anything can be learned or

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anything taught by selective reinforcement and associations applied to a passive person. However, this value amounts to a devaluing of the individual as an active, seeking, hopefully autonomous organism. Third Force Psychologists also criticize Freudian Psychologists for their largely cynical view of man, in which positive values become mere defenses against more "basic" and therefore more "real" negative unconscious drives.

When Rogers (1969) and Maslow (1968) spoke of values, they did not mean lists of externally derived human values which are imposed on the individual from without. Instead, these psychologists focussed on the valuing process, which they felt to be an inherent and biologically based human capacity. Central to their view of valuing is their concept of the self. Maslow (1968) stated their case quite clearly:

> We speak then of a self, a kind of intrinsic nature which is very subtle, which is not necessarily conscious, which has to be sought for, and which has to be uncovered and then built upon, actualized, taught, educated.... The job of the psychotherapist (or the teacher) is to help a person find out what's already in him rather than to reinforce him or shape or teach him into a prearranged form, which someone else has decided upon in advance, a priori [p. 688].

The term these psychologists most frequently use to describe this inner process is self-actualization (Maslow, 1962, 1970).

Although self-actualization has been described as the central value on which Humanistic Psychology bases its educational and psychotherapeutic theories, it is not intended by its

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proponents that it be accepted simply on faith. Rogers (1961) and Maslow (1970) claimed self-actualization to be a biologically based process which is scientifically verifiable as characterizing normal development. They based their claim for a biological basis partly on the evidence of Goldstein (1939), a physiologist, who coined the term self-actualization to explain a process by which brain-damaged soldiers learned skills which, according to the neurophysiological theories of the time, they should not have been able to learn. Although it had been assumed that particular areas of the brain controlled particular types of learning and perception, Goldstein's soldier patients displayed a general drive toward growth which overcame the loss of some brain areas by developing new areas of their brains to handle the missing skills. Goldstein explored this process of self-actualization in various types of people and found it to be a general human growth process.

Rogers, like Goldstein, tried to describe the process of actualization of the self, but concentrated, on the personality rather than the physiological manifestations of the process. He focused his research largely on the individual's changes toward positive valuation of himself during therapy.

Maslow, in contrast, arguing that psychology had too long been infatuated by pathology, concentrated on the end state of the

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highly self-actualized individual, specifying the behavior and value differences between these highly self-actualized people and less self-actualized people. He (1970) arrived at seventeen characteristics which he felt distinguished the highly self-actualized individual.[1]

Self-actualization is appealing enough as a personality construct that its empirical verification is often ignored; it becomes used without question as a slogan for change. Maslow (1967) himself commented that:

> ...with my students and with other people with whom I share these ideas, the notion of self-actualization gets to be almost like a Rorschach ink blot. It frequently tells me more about the person using it than about reality [p. 279].

Why is it that self-actualization means different things to different people? It was the purpose of this research to examine this question.

A first step in examining the ambiguity and frequent personal bias in the definition of self-actualization is a direct comparison of creativity and self-actualization. Maslow developed a theory of creativity (1962) in which he contrasted the two concepts of self-actualization and creativity. He spoke of special talent creativity, which he considered the intensive development of a particular and limited skill, such as an artistic or scientific talent that results in creative products. He contrasted special talent creativity with self-actualizing creativeness,

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presumably the same as self-actualization, which he considered a personality characteristic or way of living. Although special talent creativity was distinguished from self-actualization by Maslow, certain similarities between self-actualization and the more general research definitions of creativity are observable.

Although creativity may be a somewhat different way of viewing the development of an individual's potential, as compared to self-actualization as Maslow defined it, it seemed to this author that more than one alternative view was possible. If, as Maslow and Rogers assume, self-actualization is the process of building on one's own values, skills and potentialities, or one's own self, is it not possible that different people have different selves to actualize and that the process of actualizing these selves might also differ?

To allow further exploration in this area, a carefully delineated theory of personality differences is needed, one which emphasizes healthy styles as Maslow does, and allows for the possibility of their actualization or expansion over time. One such theory is C.G. Jung's theory of psychological types (1971), first translated into English in 1921. Jung defines eight personality styles, or types, and links them to a concept of individuation, a process similar to Maslow's self-actualization but more carefully outlined. Since each individual will have stressed a

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different combination of styles and neglected others, individuation, in part a process of achieving greater access to neglected styles, is felt by Jung to be different in specific emphasis although similar as a general process for each individual. Because Jung describes the types carefully and because he links them to a process similar to self-actualization, it was possible to explore equivalences between his theory and Maslow's concept of self-actualization in this research.

Maslow acknowledges the possibility of such individual differences in self-actualization as are suggested by Jung's types. He spoke of a person's unique style (1968) or inherent nature (1962). He stated that "there is also a little evidence that different constitutional types actualize themselves in somewhat different ways (because they have different inner selves to actualize) [1962, p. 196]."

Many of Maslow's characteristics of self-actualization bear a striking resemblance to one of Jung's personality types: the intuitive personality type. Thus it was considered important in this research to compare self-actualization with the intuitive type for the extent of possible overlap. The emphasis here was not on seeing whether Maslow's self-actualization was "nothing but" intuition. On the contrary, the stress was on how to make the concept of self-actualization more potent by clearly facing

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the complexity of the problem of personality styles. Even the most well-intentioned person, when trying to be receptive to another person's style, perceives him in terms of his own style unless he has a broader framework than himself from which to work.

Since so much of the concepts of creativity and self-actualization are defined by a complex of cognitive skills, personal preferences and interpersonal behavior patterns, it would seem reasonable that a theory designed to differentiate a limited number of these broad complexes would add valuable information regarding the concepts themselves. Surprisingly, this broad conception of individual personality has not received much attention in the research of recent decades. "Personality" studies have usually dealt with single dimensions, arbitrarily selected as related to the major focus of a study. Thus, such personality attributes as anxiety, sociability or emotional stability have been individually paired with other important psychological variables. The more complex and comprehensive personality theories, such as that of Jung, have been less easily translated into research terms and have remained relatively restricted in application to small groups of clinical specialists.

It appears that research attention to Jungian theory has recently grown somewhat, however. An excellent series of short

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construct validation studies performed by Carlson and Levy (in press) was designed to show the usefulness of the psychological types theory in social psychological research. Helson (1970) has expanded the numerous uses of the types theory in the study of outstanding creativity (MacKinnon, 1961, 1962; Barron, 1969) to a study of the individuation process as exemplified in the work of more and less creative authors of children's fantasy.

This study, also, hopes to promote a further research use of the types theory and individuation in research studies of value-ladden terms such as self-actualization and creativity. It is precisely with such terms that a broader conception of personality should be useful since they are themselves broad designations, frequently misused because their breadth is so difficult to encompass in researchable definitions.

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CHAPTER II

BACKGROUND OF THEORY AND RESEARCH

Maslow (1970) has given us two sources of information about the qualities he considers descriptive of self-actualization. One of these is his list of the characteristics of the highly self-actualized individual. The second is his comparison of self-actualization with creativity as a process.

It has been suggested that Maslow's list of characteristics of the highly self-actualized individual may resemble one particular personality style: the intuitive type as described by Jung (1971). It has further been suggested that the differences between creativity and self-actualization as processes are unclear. In order to explore these questions several major comparisons of concepts are necessary. Self-actualization is compared with the intuitive personality type and with the other Jungian personality types as sets of personality characteristics. It is compared with individuation as a general process of self development. Although the characteristics of the creative individual are not described by Maslow, they are suggested by recent research on creativity (MacKinnon, et al., 1961). Thus, both personality characteristics and the process of creativity can be

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compared in the same manner as is self-actualization to the Jungian personality types and to individuation. Thus, the two concepts which Maslow contrasts can be compared through their relationships to a third set of concepts. In order to put these comparisons into proper perspective, a background of research on the four major concepts is briefly reviewed. A fifth concept of ego-strength is included in this review because it was used to attempt to clarify a technical problem in the interpretation of the psychological types test.

Psychological Types

Jung's (1971) theory of psychological types can be understood in terms of three pairs of opposites: two attitudes and four functions. The two attitudes are Extraversion-Introversion; within these attitudes the four functions operate. Two of the functions, Sensation - Intuition, are considered by Jung to be ways of perceiving while the remaining two, Feeling - Thinking, are alternate ways of judging or evaluating what has been perceived.

The attitudes are distinguished by their locus of attention. Introversion centers attention on subjective internal stimuli such as one's own thoughts or feelings, while extraversion centers attention on stimuli outside the subjective self such as other people and objects. Within each attitude Jung (1971) considered

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the four functions to be different processes of integration of stimuli into some form of meaning, the processes being most evident when decisions are made or action taken:

> For complete orientation all four functions should contribute equally: thinking should facilitate cognition and judgment, feeling should tell us how and to what extent a thing is important or unimportant to us, sensation should convey concrete reality to us through seeing, hearing, tasting, etc., and intuition should enable us to divine the hidden possibilities in the background, since these too belong to the complete picture of a given situation.... As a rule one or the other function occupies the foreground, while the rest remain undifferentiated in the background. [p. 518]

It is possible to think of Jung's personality types as suggesting differential cognitive abilities and personality orientations and to assume that motivational pattern and intensity would determine the extent to which the function is differentiated and used creatively.

The specific pattern for an individual depends on which pole of each of the three pairs of opposites he uses most frequently. Eight patterns are usually distinguished, the total possible combinations of each of the attitudes, perceptive functions and judging functions combined in groups of three. (Sometimes 16 patterns are referred to, by changing the order of the two functions to account for which is stronger, e.g. EFS or ESF.) The eight patterns to be considered in this research are:

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Extraverted Feeling Sensation (EFS)

Extraverted Thinking Sensation (ETS)

Extraverted Feeling Intuition (EFN)

Extraverted Thinking Intuition (ETN)

Introverted Feeling Sensation (IFS)

Introverted Thinking Sensation (ITS)

Introverted Feeling Intuition (IFN)

Introverted Thinking Intuition (ITN)

The first letter in the abbreviations used in this research refers to the attitude of the individual. The two remaining letters, the preferred functions of the individual, are of primary concern in the definition of individuation, which involves an increasing awareness and use of all four functions. In most people one function, the primary function, has been stressed while the second, or auxiliary function, is less frequently used but available for use when needed. The remaining two functions, in most people, are undeveloped and largely unused. The function on the opposite pole to the primary function is called the inferior function (in the above example, T would be the inferior function for an EFS type). It is the last and most difficult function for an individual to integrate. It is a most important but rarely achieved step in the individuation process.

Prior research on the psychological types has not been

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extensive, although momentum has recently increased as a result of the publication in 1962 of the most widely known test of the types, the Myers Briggs Type Indicator (MBTI) (Myers, 1962).

Research results support the existence of personality distinctions such as those hypothesized by Jung. Gorlow et al. (1966) developed a Q sort of 100 items from Jung's statements on the types. College students sorted the statements as they saw themselves. A varimax factor analysis yielded six clear factors: ET, IT(1), EF, IT(2), ES and EN. The authors considered that the emergence of these factors supported the hypothesis that, in self-report, individuals do order themselves in terms of at least some of the personality types postulated by Jung. Grant (1965) gave an 85 item behavior and attitude checklist to over 1400 university freshmen. Answers were grouped according to type scores on the MBTI. The resulting descriptions were considered very similar to those given in the MBTI manual (Myers, 1962).

A twin study provided initial support for the assumption of an heriditary basis for Extraversion-Introversion. In a study of 27 fraternal and 40 identical twins, Vandenberg et al. (1966), using the MBTI, found identical twins with the same EI type significantly more often than fraternal twins. The same analyses

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for FT and SN were not significant. The question of hereditary influence on the types is a much debated question among Jungians. Jung considered the possibility open but not proved. As Detloff (1972, p. 65) expressed it, "experience denies any simple genetic pattern, but unaccountable early dispositions are perplexing."

Another source of information about the types is the personality and behavior characteristics that are found to be associated with them. Of particular relevance to the present study are the characteristics found to be associated with those psychological types considered to be potentially related to Maslow's construct of self-actualization.

Intuition. Several studies suggested a positive relationship between intuition, as measured by the MBTI, and creativity. In a summary of research on highly creative individuals by the Institute of Personality Assessment and Research (IPAR), Barron (1969) reported that "only 25% of the general population is classified as 'intuition types'..., yet 100% of the creative architects...and 92% of creative writers...were so classified [p. 76]." For creative research scientists and mathematicians, both male and female, intuition was also a consistently common characteristic.

The measure of creativity used in this research was not

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an original and important contribution to one's field, as in the IPAR studies, but one characteristic assumed to be a part of creative thinking: divergent thinking. It was therefore of some interest to learn whether the frequency of the intuitive type among those scoring high on divergent thinking would be similar to the frequency of the intuitive type among IPAR creatives. Several studies suggest such a similarity. Peavy (1963) found, for twelth graders, that intuition correlated significantly with divergent thinking and with preference for complexity, another trait found highly related to creativity by Barron and Welsh (1952). Heidenberg (196-) found, among fifth graders and college students, a consistent positive correlation between intuition and ideational fluency.

Particular forms of expression have been linked to intuition. Anast (1966) found that intuitives preferred the more ambiguous stimulus of novels over the well-structured media of television and movies. Knapp (1964) found that intuitives preferred expressionistic paintings in comparison to realistic, geometric and surrealistic paintings. They also reported a positive attitude toward LSD (McGlothlin and Cohen, 1965). Helson (1965) found that intuitives among her sample of college women had preferred imaginary artistic and/or tomboy activities as children. These two clusters of childhood interests were also

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correlated with college age creativity in the Helson study, particularly the imaginary artistic cluster. By comparison, preference for social activities as a child was negatively related to intuition and also to creativity.

Thus, intuitives seem to prefer experiences where they can play with ambiguity and even create new possibilities, as in the drug state and imaginary artistic interests.

Introversion. Although intuition is the type considered likely to show the strongest relationship to self-actualization, several of Maslow's seventeen characteristics of the highly self-actualized individual are similar to Jung's described characteristics of the introverted attitude (see pages 30-33 for further discussion of the 17 characteristics).

The general distinctions expected between introversion and extraversion have been supported by research, using the MBTI. Palmiere (1972) found that introverts produce quantitatively more fantasy than extraverts on the Thematic Apperception Test (TAT). This supports the assumption that introverts are more actively involved with their inner life than extraverts. Fisher et al. (1967) found volunteers for a psychodysleptic drug study were almost entirely of the introverted intuitive type and that most of them were sensitive to the taste of quinine and therefore drug-reactive, i.e. they reacted earlier and in response

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to smaller doses of systemic stimulants or tranquilizers than the average person (Cortis, et al., 1967). The authors concluded that in a university setting it is mainly the introverted intuitive type individual who is motivated to participate in an introspective experience, such as the drug experience.

Stanfiel (1966) found introverts more field independent than extraverts on one of four experiments using the Rod and Frame Test (Witkin, 1948) and two of three experiments using the Embedded Figures Test (Witkin, 1969). He concluded that they rely on fewer external cues for judgment. Introversion was not found by Stanfiel to be related to neuroticism, which supports Jung's view that none of the types are more or less healthy than the others. Vaughn and Knapp (1963) did, however, find introversion to be positively related to three types of philosophical pessimism: pessimism about the universe, about man's motives, and about man's power to control his own destiny, as measured by a questionnaire developed by the authors.

Knapp (1965) found Introversion-Extraversion, as measured by the Eysenck Personality Inventory (Eysenck and Eysenck, 1963), to be unrelated to self-actualization, as measured by the Personal Orientation Inventory (POI) (Shostrom, 1963). For a high neurotic group, extraverts were more likely to be high scorers on the Personal Orientation Inventory

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(Shostrom, 1963), a measure of self-actualization, than introverts. For the low neurotic group, no significant difference was observed between extraverts and introverts. Eysenck's definition of introversion-extraversion differs considerably from Jung's in emphasis, since it is a matter of social withdrawal or outgoingness rather than a difference in the locus of general attention. Nevertheless, the results suggest that for a normally functioning group neither extraversion nor introversion should be particularly related to self-actualization. For creativity, on the other hand, MacKinnon (1962) reported that, for the IPAR studies of architects, writers, mathematicians and research scientists, two thirds of the highly creative groups were introverted.

None of the other types have been related to either self-actualization or creativity in research. However, a quick view of the types predominating in various fields of study gives some idea of their meaning and some reassurance that the theoretical distinctions made by Jung are distinguishable empirically. In all cases cited, the types were determined by the MBTI.

Conary (1965) found, among 1700 college freshmen, that engineering majors tended to be intuitive thinkers, business majors were sensing thinkers and architecture majors were either intuitive thinkers or intuitive feeling types. Myers and

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Davis (1965) found a predominance of introverted intuitive feeling types among over 4000 medical students. The extraverted intuitive feeling type was ranked most effective as a counselor among counselor trainees (Levell, 1965; McNamara, 1967). Ministers were most likely to be extraverted feeling types (Nauss, 1967). The most strongly represented type in law school was the introverted sensation thinking type, while extraverted sensation feeling types were underrepresented and had the highest dropout rate (Miller, 1967).

Thus, where facts and definite beliefs are stressed, as in business, sensation types have been found to predominate. Interest in possibilities, either theoretical as in engineering, visual as in architecture, or personal, as in counseling, suggests intuition. Where people are served, feeling types have appeared predominantly as in medicine, counseling and the ministry. Logic suggests thinking and is required for law and engineering, among other endeavors. Counseling, both in schools and the ministry, requires reaching out to people; extraverts evidently do best in these fields. Where judgment must be careful or logical, it may be necessary to maintain personal distance; for such reasons introversion may be a preferred attitude for engineers, doctors and lawyers.

The types do seem to differentiate major interests,

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attitudes and behaviors in a meaningful way as hypothetical constructs. They have added to an understanding of some of the concepts of interest here, such as creativity, and seem capable of adding to a greater understanding of self-actualization.

The most widely known test of Jungian psychological types is the Myers-Briggs Type Indicator (Myers, 1962). It has been considered useful because it has a wide range of correlations with other important psychological instruments and because normative information is available for various student and adult populations. However, some criticism has been voiced regarding its relationship to Jung's theory. Mendelsohn (1965) found the items on the Extraversion-Introversion scale to be based on popular rather than Jungian notions of extraversion and introversion, stressing pleasure in or retreat from interpersonal activities without any mention of the introvert's focus on the inner world of ideas. He felt the Sensation-Intuition scale stressed practicality versus an idea and theory orientation, representing a limited aspect of sensation and intuition. Stricker and Ross (1964) performed extensive content analyses of the MBTI. Their findings suggested:

> ...that the Sensation-Intuition and Thinking-Feeling scales may reflect restricted aspects of the dimensions they are intended to represent, and the Extraversion-Introversion and Judgment-Perception scales may reflect something quite different from their postulated dimensions. [p. 623]

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A second test, the Jungian Types Survey (Gray & Wheelwright, 1964), was developed by two Jungian analysts and appears to have greater relationship to Jungian theory. Bradway (1964) compared the MBTI and Gray-Wheelwright test scores, using as a criterion the self-typing of 28 Jungian analysts. Although both tests were very close to the criterion on EI (100% accurate for the MBTI and 96% for the Gray-Wheelwright), the Gray-Wheelwright was more accurate for FT (79% as compared to the MBTI's 61%) and SN (79% as compared to the MBTI's 68%). The Gray-Wheelwright test has been published but not widely circulated. Unfortunately, no validity or reliability data has ever been computed for the test and the manual does not give a scoring system; consequently it is usable only by a small group of Jungian specialists who understand the background of the types sufficiently to use it in its present form.

A third test, the Detloff Jungian Types Questionnaire, is being developed. Although unpublished, much careful statistical and theoretical work has gone into it with the major focus of improving on the construct validity and power of the earlier two tests. Inasmuch as usual test construction data are not yet available, Dr. Detloff provided a brief statement of steps taken in his research:

> The authors of the Gray-Wheelwright Type Survey and the Myers-Briggs Type Indicator were graciously and generously helpful. Great credit is due them for their research which

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extended over several years. They provided raw data and material intended for limited circulation. This was further supplemented by personal communication about their approach to the problem and more specific details about their methodology. From the total of 251 items on the two tests, the best 99 items were located by concensus face validity, using Jungian Analysts and advanced trainees as judges (over 40 judges on the sensation-intuition dimension), and by item analysis. The item analysis used the Analysts' self-evaluations as criteria for each of the three dimensions: introversion-extraversion, sensation-intuition, and thinking-feeling. The item not only had to show significance for the intended dimension but minimal relationship to the other two dimensions. The items were then cluster analyzed, using as definer variables for each dimension the following: Analyst's self-evaluation, scores from the two tests, and the items with greatest concensus face validity and highest statistical significance on the above item analysis. This cluster analysis assumed that an item should cluster best with the dimension for which it was designed. That is, each item should correlate more highly with the outside criteria for its dimension, total score for the dimension and the best items for that dimension, than the comparable definers for the other dimensions.

The format of these questions was then modified from a simple dichotomy to a scale from one to seven with the hope of increasing the strength of discrimination of each item. Further item analyses have been repeated on several larger adult populations now totaling over 2000. Reliability for clusters (BCTRY) and the high correlation among sub-scores for a particular dimension suggest that reliability for the test will be high. A tentative unpublished weighted scoring based on the earlier studies was made available for this thesis. (Detloff, personal communication)

The Detloff Questionnaire is scored on three dimensions: Extraversion-Introversion (EI), Feeling-Thinking (FT), and Sensation-Intuition (SN). The test takes about 20 minutes to complete. The types are considered stable for adults (Jung, 1971) and thus best limited to this age range for research clarity

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(Detloff, personal communication). Scoring is done objectively. Four sub-scale scores for each dimension represent sums of weighted scores on either pole of two clusters making up each of the three scales. From these four sub-scale scores, one summary score for each of the three scales is determined. The summary scores range from one to five. "One" and "two" would correspond to the left side of each dimension (E, F or S), while "four" and "five" would be the right side (I, T or N). "One" and "five" are extreme scores, equivalent to each other in terms of the magnitude of score, although different in kind.

Individuation

Jung's (1971) concept of individuation, although similar in some respects to self-actualization, moves beyond the latter term in its attention to process. Jung assumed that as a result of a process he called differentiation the primary function is more consciously used, but paradoxically, the other functions are also more available to consciousness as alternate modes of experiencing.

> Differentiation means the development of differences, the separation of parts from a whole.... I employ the concept of differentiation chiefly with respect to the psychological functions. So long as a function is still so fused with one or more other functions - thinking with feeling, feeling with sensation, etc. - that it is unable to operate on its own, it is in an archaic condition... To the extent that a function is largely or wholly unconscious, it is...undifferentiated;....

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> Without differentiation, direction is impossible, since the direction of a function towards a goal depends on the elimination of anything irrelevant. (Jung, 1971, pp. 424-5) ...Individuation, therefore, is a process of differentiation, having for its goal the development of the individual personality. [p. 448]

Jung did not consider this process to be automatic. As Maslow did, he seemed to distinguish between what makes a man creative and what makes him actualized.

> To become a personality is not the absolute prerogative of the genius, for a man may be a genius without being a personality. In so far as every individual has the law of his life inborn in him, it is theoretically possible for any man to follow this law and so become a personality, that is, to achieve wholeness. But since life only exists in the form of living units, i.e., individuals, the law of life always tends toward a life individually lived. So although...all men share the same primary, psychic condition, this objective psyche must nevertheless individuate itself if it is to become actualized, for there is no other way in which it could express itself except through the individual human being. [Jung, 1954, p. 179]

It is important that differentiation of all four functions occur for individuation to lead to the highest development of the self, Jung's highest and most valued personality state. The self represents what Jung (1968, p. 225) called the union of opposites, the resolution of paradoxes, the "complexio oppositorum." Maslow (1962, 1970) described his highly self-actualized subjects as unusually capable of reconciling opposites in their own personalities such as selfish-unselfish, adult-child, male-female. Research on creatives shows some confirmation of the same

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characteristic, for example with masculine and feminine interests and self-expectations (MacKinnon, 1960; Domino, 1969; Schaefer, 1969); high scores on both ego-strength and pathologically oriented scales of the MMPI (Barron, 1969); and high scores on both theoretical and aesthetic values, as measured by the usually antithetical scales of the AVL Study of Values (Allport, et al., 1931) (MacKinnon, 1960). MacKinnon (1960) states:

> ...[what] strikes me most forcibly about the creative persons whom we have assessed...is their openness to experience, and the fact that they, more than most, are struggling with the opposites in their nature, striving ever for a more effective reconciliation of them.... [p. 378]

This characteristic of reconciliation of opposites or resolution of dichotomies is especially important since it is the only one of the seventeen listed by Maslow which is clearly also a part of Jung's definition of individuation. Although Maslow described his self-actualized subjects as resolving dichotomies, his experiment was informal. A more formal exploration was attempted here.

One research study, Schultz (1958), has previously explored the relationship of resolution of dichotomies to self-actualization. Schultz gave forty male theological gradutae students descriptions of the "self-actualizing," "adapting" and "compensating" patterns of personality and asked them to choose

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the three students in the group of forty which best matched each of these descriptions. Then each subject was given questionnaires designed to elicit his typical response to social and personal conflict situations. The personal conflict questionnaire consisted of ten dichotomous statements such as "keeping things to yourself - getting things off your chest" and "taking life as it comes - trying to change it." Subjects were to rate the intensity of conflict for each of the ten statements and then choose the appropriate statement: (a) no conflict, (b) don't go together - choose one, (c) one subordinate to other, (d) conflict unavoidable or (e) appear to conflict but complementary aspects overshadow conflict. Schultz considered these statements a progression toward resolution of dichotomies. Peer-judged self-actualization was found to correlate significantly with scores on this scale.

Thus, research on both self-actualization and creativity has supported a characteristic resolution of dichotomies, a major aspect of Jung's individuation concept. In the present study individuation, with its development of primary and auxiliary functions was assumed to be equivalent to the concept of self-actualization. Creativity was hypothesized as indicated not only by a high score on the creativity test, but also by a high score on one of the two function scales of the types test, since one highly developed function would imply a particular highly

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developed skill and style. The addition of more than one high score was hypothesized to reflect high self-actualization, according to the Jungian definition of individuation as differentiation and use of additional functions beyond the primary function. These hypotheses regarding size of score have not traditionally been applied to types tests, which have been designed primarily to classify individuals as to type preference without regard to intensity of preference. However, size of score was assumed by the author to be indicative of greater differentiation of function on the basis on Jung's (1971) theoretical statements about the nature of the functions and was considered measurable by the Detloff test (Detloff, personal communication).

Individuation goes beyond self-actualization because it has been related to the personality types. Thus, although resolution of dichotomies or, in Jung's terms, reconciliation of opposites may be found to be a characteristic common to both individuation and self-actualization, it is possible to separate general characteristics of individuation from the more specific processes determined by each individual's initial type pattern. This separation of the general from the specific is not possible for self-actualization as a construct as it now stands. However, by assuming self-actualization to be equivalent to individuation, the extent of self-actualization's correlation with general charac-

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teristics of individuation can be contrasted with self-actualization's correlation with the specific characteristics of the type patterns. Thus, we can begin to explore the extent of fit or lack of fit of the self-actualization concept with the individuation concept, at least insofar as they are measured by the tests available.

Self-Actualization

Goldstein (1939) was the first researcher to use the term self-actualization. Although a specialist in the study of brain damage, he found that it was not possible to develop a general definition of health in terms of people who were in unusual, limited or threatening situations. People in these situations he found, think in terms of homeostasis or the status quo. Consequently he considered such special cases as those beginning psychotherapy or those who have suffered brain damage as inappropriate models for the study of health and growth. Equally inappropriate as models are those who are studied in very controlled environments as is often true in experimental studies of personality and motivation. He also felt it was not appropriate to study health in relation to small children who are learning the most basic skills for living and learning in their culture.

For a general definition of self-actualization, Goldstein found it important to look at people who are functioning in such

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a way that they do not have to focus their attention on threat or on basic developmental needs. He found the relatively secure adult to be one who responds to "a continual change of tension of such a kind that over and again that state of tension is reached which enables and impels the organism to actualize itself in further activities, according to its nature [p. 197]." This process seemed to take place in ways that are unique to the individual and in ways that build upon his already developed and established personality and his already established confidences. The healthy individual who is self-actualizing in this most normal and natural sense is constantly moving forward, reaching out; this type of change is an important aspect of self-actualization as Goldstein saw it.

In a striking manner, Maslow (1970) found Goldstein's expectations of self-actualization in healthy people to be true also of those people he chose to study; this finding suggests the possibility of an interrelationship between what Goldstein suggested as necessary conditions (i.e., freedom from threat or concentration on basic needs) for this type of free self-actualization and Maslow's (1962) definition of a hierarchy of needs. Maslow distinguished the physiological needs, a need for safety, a need for some sense of social belongingness and a need for self-esteem as basic needs; beyond these needs, both Maslow and

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Goldstein seem to agree, true self-actualization begins.

Maslow's (1970) list of characteristics of the highly self-actualized individual (Table 1) was used in this research to define self-actualization. These characteristics were determined by Maslow in a study of nine contemporary and nine historical figures considered by Maslow as most self-actualized after he surveyed several thousand college students, prominent contemporary figures and well-known historical personalities. He described the list as global or holistic impressions suitable for further clinical and experimental study.

As already suggested, several of Maslow's characteristics are essentially intuitive in nature. While discussing self-actualizers' more efficient perception of reality and more comfortable relations with it, Maslow described his subjects as welcoming the unknown rather than adhering to the known. He found that they had less need than non-self-actualizers to perceive the unknown in terms of the known. Other characteristics included spontaneity, or acting easily on impulses when they wished to do so. They had a continued freshness of appreciation for simple experiences, deriving strength, ecstasy and inspiration from them. They had mystical experiences; for some these were mild continuous events, for others they were intense peak experiences. They identified with "mankind" while being well

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TABLE 1

Maslow's (1970) Characteristics of the Highly Self-Actualized Individual

1. Efficient perception of reality and comfortable relations with it.
2. Acceptance of self, others, nature.
3. Spontaneity, simplicity, naturalness.
4. Problem centering.
5. The quality of detachment, need for privacy.
6. Autonomy, independence of culture and environment, will, active agent.
7. Continued freshness of appreciation.
8. Mystic experiences, peak experiences.
9. Gemeinschaftsgefühl.
10. Interpersonal relations -- more profound and deep than they are for other adults.
11. Democratic character structure.
12. Discrimination between means and ends, good and evil.
13. Philosophical unhostile sense of humor.
14. Creativeness as a personality style.
15. Resistance to enculturation, transcendence of any particular culture.
16. Firm foundation for a value system, based on a philosophical view of man, with unique idiosyncratic values built on it.
17. Resolution of dichotomies.[1]

[1] Maslow added an eighteenth characteristic of the highly self-actualized person: imperfection. He was concerned that self-actualization not be equated with perfection. He found self-actualized people felt guilty, got upset and reacted bluntly at times. Since this is not a characteristic which distinguishes the highly self-actualized from other people, it was omitted from the definition of self-actualization used in the present study.

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aware of the shortcomings of the average person. They were creative, in Maslow's sense of self-actualization as a creative personality style. This spontaneity, creativity, mystical tendency and identity with an abstract "mankind," along with appreciation and inclusion of the unknown could as easily be a description of Jung's intuitive type as Maslow's self-actualized individual.

Jung considered sensation and intuition to be associated with perception as a way of ordering experience, whereas thinking and feeling are associated with judgment. He saw perception as an accepting view of experience, a more passive observing position than judgment which involves making choices and acting to change or manipulate aspects of what is experienced. Myers (1962) assumed that a person with a strong preference for judgment would be more rigid and authoritarian than his perception-oriented counterpart. Several of Maslow's described characteristics of the self-actualizing person are very similar to perception qualities in the Jungian sense: acceptance of self, others and nature as they are rather than as one might prefer them to be; democratic character structure in the sense of disregarding differences in education, race, color, class and so on; and a philosophical non-hostile sense of humor. Thus, nine of Maslow's seventeen characteristics appear to be

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descriptive of Jung's intuitive or intuitive-perceptive personality type as well as of self-actualized persons.

Three of the qualities on Maslow's list are consistent with Jung's definition of introversion. They are detachment and the need for privacy, autonomy and independence of culture and environment and the establishment of a few deep friendships rather than many more superficial ones.

The remaining five characteristics appear to be descriptive of a person deeply involved in his own personal development and goals in life, as might be expected of a highly self-actualized or individuated person. They are a problem-centeredness or sense of a particular mission in life, a discrimination between means and ends, a transcendence of any particular culture, idiosyncratic values based on a general philosophical view of man and resolution of dichotomies.

Thus the list of characteristics of highly self-actualized individuals offers several directions for further exploration. Self actualization can be compared with Jung's intuitive and introverted personality types for overlap of the concepts. Perhaps other personality types are also related. Self-actualization can also be compared to individuation based on the characteristics listed by Maslow which the two concepts appear to share. No research has yet examined self actualization through its relation-

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ship to Jungian types and individuation. Maslow's list of characteristics makes new hypotheses possible.

Of more than 100 studies stimulated by Maslow's description of self-actualization, most have used the one test published thus far, the Personal Orientation Inventory (POI) (Shostrom, 1963). Although described by its author as a test of self-actualization, it was actually based on a number of theories of positive mental health, including those of Perls, Reisman, May, Fromm, Horney, Watts and Ellis (Shostrom, 1963, 1964). Nevertheless, results using the POI offer initial support for some of the assumptions underlying self-actualization and suggest the usefulness of the concept in educational settings.

First, this research suggests that self-actualization levels differ among different groups of people. Studies of nurses (Gunter, 1969; Pittman and Kerchner, 1970), factory workers and managers (Margulies, 1970), college underachievers (LeMay and Damm, 1968, 1969), felons (Fisher and Silverstein, 1969a, 1969b) and "paranormals" (Fisher, 1971) indicate predictable general patterns. Nursing supervisors scored higher on the POI than nursing staff or students. Factory managers were higher scorers than workers. Underachievers and felons scored lower, whereas paranormals or psychics scored higher than the norm group average on the POI. Overall, these studies suggest that

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people who have invested the energy required to reach leadership positions are more self-actualized, those who are at least trained and working are somewhat self-actualized and those who have invested little energy in their own development are least self-actualized.

On the other hand, Lowe (1969) found some evidence that Maslow's self-actualization concept might be more closely tied to an individual style than his general statements about self-actualization intended. The Personal Values Inventory (Lowe, 1969) is a self-report measure of five different value orientations, originally intended to represent the five levels in Maslow's (1970) hierarchy of needs, culminating in the need for self-actualization. However, Lowe found that Self-actualizing Needs overlapped with several other need scales, particularly appearing as an opposite to both Physiological and Safety Needs. When the intercorrelated items were separated out, some Self-actualizing items remained which seemed to describe an experiential richness resulting from savoring one's inner feelings. Lowe called this new factor Psychological Detachment. Since it seemed to be a much more limited characteristic than Maslow had intended for self-actualization to be, Lowe suggested that the final scales derived from the factor analysis: Physical and Emotional Motility, Safety and Fear of Venturesomeness, Belongingness, Esteem and

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Psychological Detachment be considered alternate choices of ways to reach personally chosen goals, with none of the choices considered more self-actualizing than another. Although the final factors represent needs rather than personality styles they offer some support for questioning the extent to which Maslow's theory of self-actualization may be generalized.

The relationship of creativity to POI self-actualization is of particular relevance to this research. Damm (1970) gave the POI, two creativity measures: the Remote Associates Test (RAT) (Mednick, 1967) and the Biographical Information Inventory (Taylor & Ellison, 1964), and one intelligence measure: the California Tests of Mental Maturity (CTMM) (Sullivan, et al., 1936) to over two hundred high school students. He found that creativity was significantly correlated with self-actualization, especially for the high intelligence - high creativity group on the RAT. Maul (1970) also found a significant correlation between creativity and self-actualization for college students, using the Torrance Tests of Creative Thinking (Torrance, 1966). Thus a creativity - self-actualization relationship, as suggested by Maslow, has been supported. It is possible, using the Jungian personality type and individuation theories, to determine whether the relationship fits the model Maslow predicted when he distinguished self-actualization and creativity. The extension of

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information about the creativity-self-actualization relationship constituted a major focus of this research.

An unexpected finding in several studies was sex differences in self-actualization. LeMay and Damm (1969) found POI scales correlated with the Edwards Personal Preference Schedule (EPPS) (Edwards, 1954) scales of Autonomy (positively) and Abasement (negatively) for men, whereas for women the EPPS scales with high POI correlations were Change (positive) and Order (negative). Foulds and Warehime (1971) found college women were more self-actualized than college men, a result also reported by Maul (1970).

Even if self-actualization levels differ among different sorts of people, it is of interest to know whether self-actualization is something which can be learned or increased. Maslow claimed that teaching the child to know his own style leads to self-actualization. Change in POI scores have been widely reported in the literature largely in relation to particular counseling or therapy techniques. Most of the studies have been of college age students. Foulds (1969) found significant positive changes for college students in nine week counseling center growth groups as did Culbert et al. (1968) for an initial low scoring group (the initial high scoring group did not change). Several tests of the effectiveness of marathon groups yielded

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inconclusive results. Young and Jacobson (1970) found no significant change on the POI, but scores for social desirability increased significantly for the marathon group. Guinan and Foulds (1970) found significant change on the POI for the marathon group, but also reported that those volunteering for a marathon were significantly lower POI scorers than volunteers for an experiment; evidently the marathon experience helped them raise their scores to the control group's initial level.

Weir and Gade (1970) reversed the use of the POI to evaluate counseling; they counseled alcoholics by going over the POI together in order to raise low scores. Success was in terms of men still abstinent 18 months later. The work with the POI was judged successful as a counseling technique!

Thus, POI scores can be increased. The values associated with self-actualization can be learned in conjunction with some counseling techniques and also as a result of teaching these values directly.

It is of interest that those already high on self-actualization either do not change much as a result of growth groups (Culbert, et al., 1968) or choose some other experience (Guinan & Foulds, 1970). Goldstein (1939), Rogers (1961) and Maslow (1970) all stated that self-actualization as a process is never finished. On this basis, we would not expect the scores

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to level off. That they have been found to do so may be because the limits of the POI have made it impossible to measure upper level change. If so, however, why would students who were already high self-actualization scorers consistently choose another type of activity? It is possible that the growth groups actually encouraged a particular style of self-exploration, one which these students had already developed and therefore were less interested in. Having actualized in this way, as indicated by their high POI scores, they were seeking other experiences. This hypothesis would fit with the assumptions of type and individuation theories (Jung, 1971) that once one style is well developed, an inner urge exists to seek development of other styles. It would, however, also suggest that the POI, and also possibly the self-actualization concept itself, measure a value of a particular personality style, rather than the more general and never-completed process intended by Maslow and Rogers. Thus, the effects of initially high POI scores add additional support for a correlation of self-actualization with a single personality style such as the intuitive style.

The search for an appropriate test of self-actualization for use in the present investigation uncovered only one published test, the Personal Orientation Inventory (POI) (Shostrom, 1963). However, this instrument has been the subject of much criticism

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(Buros, 1972). Shostrom based his test not only on Maslow's theory of self-actualization, but also on concepts he considered related from other theories of positive mental health. Two major scales: Inner support (inner vs. other directedness) and Time competence (living in the present) are broken down into a dozen interrelated sub-scales, some of which are descriptive of aspects of self-actualization that are questionable because they are so mutually overlapping or are dependent on so few items. Reviewers have reported that the subscales are difficult to interpret, the normative data biased, the items weighted in favor of extraversion, and that the instrument reflects "...a lack of sophistication in questionnaire item formulation [Buros, 1972, p. 293]." Zimmerman (1969) found that the POI scales did not hold up as distinguishable factors. Maul (1970) reported that of the 150 items on the POI, 62 were answered in the same manner by 85% or more of his subjects. Thus, 42% of the test failed to distinguish self-actualizers from non-self-actualizers. Maul also found poor face validity for some of the items; they were questionably related to self-actualization theory. He felt that:

> ...some of the POI scales measure processes that Maslow and Rogers use to define self-actualizing people, that some of the POI scales measure something other than the self-actualizing processes described by Maslow and Rogers, and that many of the processes of self-actualization are not examined by the POI [Maul, 1970, p. 50].

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Maul, who was concerned primarily about construct validity, developed a scale of his own which he called the Styles of Living Preference Scale (SL). Although as yet used in only two research studies, the care with which it was developed led to its choice for this study in preference to the POI. The questions were adapted from Maslow (1968), Rogers (1961), some of the POI questions which had face validity, and from an unpublished checklist provided by Harmon (1969), which Maslow felt had more face validity than the POI (Maul, 1970). Items which did not correlate highly with the total score were removed. The remaining 21 items were found to have low intercorrelations (average $\underline{r}$ = .12), indicating they measured different specific processes, although they all correlated highly with the total score.

The SL Scale correlated significantly with the POI's two major scales ($\underline{r}$ = .27, .63), but its highest correlation ($\underline{r}$ = .66) was with a Maslow-Rogers scale consisting of 31 POI items selected by Maul as most like statements of Rogers and Maslow on self-actualization.

Offenstein (1972) used the SL Scale in a construct validation study of self-actualization. He found that high and low scorers responded differently to problem solving tasks and social situations. The problems to be solved required making

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a shift in one's ordinary perception or use of an object. High self-actualizers were no better than low self-actualizers at solving these problems. However, low self-actualizers became more fatigued, confused, angry and depressed than high self-actualizers as indicated by their scores on the Profile of Mood States Scale (POMS) (McNair, et al., 1971) when unable to solve the problem. In another experiment, low self-actualizers were significantly more defensive than high self-actualizers when relating a supposed failure on a test to another student thought to have done well on the same test. In other words, Offenstein's results supported the conclusion that highly self-actualized people's self-images, as shown by their lessened need for defensive emotional reactions, are not as related to external evaluation of success or failure as are those of the less self-actualized. Correlations with the POMS indicated that in general high self-actualizers were significantly less depressed and fatigued and significantly more vigorous than low self-actualizers. When the self-actualization construct was explained to them, students were able to obtain significantly higher scores if they responded as they thought a high self-actualizer would than when they responded as honestly as possible. Offenstein's results provide additional strength for the assumption of face and construct validity of the SL Scale.

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Offenstein also reconstructed the SL Scale on the basis of fifteen of the seventeen characteristics listed by Maslow (1970) (See Table 1). Unfortunately, this work was not complete in time for use of the revised scale in this study. However, according to Offenstein, eleven of the characteristics were included in the original Maul SL Scale used here. Appendix A includes a copy of the Maul SL Scale used in the present study. Each of the 21 items on the scale has been related by Offenstein to one or more of the characteristics of the highly self-actualized individual ennumerated by Maslow (Table 1); the relationships as he sees them are included in Appendix A.

Administration of the SL Scale takes from 5 to 10 minutes. Scores are sums of the 21 items on a Likert scale of 1-9 for each item, with a total possible maximum score of 189.

Creativity

Creativity was of interest in this research primarily because Maslow used it to clarify what he meant by self-actualization. Its similarities to self-actualization as a set of values and skills has already been noted. The fact that researchers have explored creativity both as a process and as an end-state makes it relatively easy to compare creativity with self-actualization.

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Maslow (1962) first referred to two types of creativity, already discussed briefly in Chapter 1. One he called special talent creativeness (the extensive development of a particular skill or talent), and the other self-actualizing creativeness, a personality characteristic or way of living.

Maslow also distinguished between primary and secondary creativeness. He saw primary creativeness as a spontaneous access to one's own preconscious processes, one's own subjective experience. He associated it with receptivity to all kinds of stimuli, ideas and impressions. Secondary creativeness, on the other hand, he saw as requiring a great deal of evaluation, control and training. He described it as a very carefully learned expertness and substantially developed talent in a particular area. Maslow considered the primary and secondary creative processes to result in an integrated creativeness when they operate in succession. Initial access to spontaneous subjective experience followed by a heightened ability to evaluate hence develops a more sophisticated talent or skill in a particular area. He felt that integrated creativeness leads to the great art, philosophy or science of an age.

It is possible to speak of Maslow's theories of creativity in terms of three broad types of creativity. The first type of creativity seems to be the special talent type of creativity. The

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specialized skills and talent required for special talent creativity appear to be very similar to, if not equivalent to, secondary creativeness with its careful evaluation, control and training. Both of these specialized skill creativities seem by definition not necessarily to involve self-actualization since, as skills, they can be used separately from other areas of living.

The second broad category of creativity might be called the style of living type of creativity. Self-actualization would clearly belong under this heading. Primary creativeness, as a receptivity to stimuli and preconscious processes, would also seem to typify a general pattern of life. Furthermore, these two creativities are similar in a lack of focus on creative products. The process itself is what counts.

The third broad type of creativity Maslow outlined is integrated creativeness, including both of the first two types together to form a life style devoted to creative process which leads to creative products in one or more areas. On the basis of other research in the field of creativity, it is possible to determine support for one or more of these hypothesized types of creativity.

Although Maslow distinguished self-actualizing creativeness from special talent creativeness by its emphasis on spontaneity and receptivity to one's own preconscious processes,

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one of the most consistent findings in studies of outstandingly creative individuals is just this receptivity and spontaneity. Researchers at the Institute of Personality Assessment and Research (IPAR), found this characteristic to be common among highly creative architects, writers and mathematicians (Barron, 1962, 1968). The same characteristic was observed in highly creative college students by Helson (1967).

Other characteristics of the highly self-actualized individual (See Table 1) are also found to be descriptive of the highly creative individual. Outstanding creatives were found to value independent achievement and were relatively uninfluenced by social conformity pressures (Barron, 1965; Helson, 1967; MacKinnon, 1967), indicating autonomy and independence of environmental pressures. They scored low on a desire to include or be included in the activities of others (MacKinnon, 1965) and were socially poised but introverted (MacKinnon, 1967), indicating a quality of detachment and need for privacy. Resolution of opposites was found typical of the highly creative by MacKinnon (1960), Barron (1965), Domino (1969) and Schaefer (1969).

Craig (1966) compared thirteen of the seventeen characteristics of the highly self-actualized (Maslow, 1970) with eighty-four characteristics of the highly creative summarized from a survey of creativity research articles (Torrance, 1962) and

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found an almost complete overlap of the two concepts. Thus, research findings appear to support Maslow's integrated creativity concept as descriptive of outstandingly creative individuals.

An important consistent relationship in terms of the present study is that of creativity and intuition. Already mentioned were the IPAR studies which consistently found over 90% of all their outstandingly creative subjects to be of the intuitive type. It was of interest in the present study whether a similar close relationship with intuition would be found for self-actualization. It was also of interest whether the relationships of self-actualization and creativity with the type groups would be similar, hence supportive of Maslow's integrative creativity construct.

In order to compare creativity with self-actualization, a definition was needed which stressed special skills or talents, as separate from a personality style. In this way, similarity of relationship with the personality types could not be explained away by the similarity of test measures. The self-actualization test would measure a broad widely applicable set of personal values. The creativity test to be chosen would complement the breadth of self-actualization if it measured the depth required for development of special skills in a particular subject area. Unfortunately, no test which matched these specifications was

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available. The best comparison would require a different measure of creativity for each special area under consideration.

The studies of the highly creative by IPAR used peer ratings as a way of adequately evaluating what was considered creative in each field (Barron, 1969). Teacher ratings have also been widely used (Getzels & Jackson, 1962; Helson, 1967). However, these approaches require a highly select group with enough interpersonal contact to make accurate judgments. Furthermore, it is difficult when using ratings to separate the self-actualizing personality aspects from the special talent - skill aspects.

The Torrance (1966) Tests of Creative Thinking - Verbal A (TTCT) was chosen because it compared favorably with other creativity tests in terms of validity and reliability (Buros, 1972), has been widely used in recent years (Maul, 1970), and would allow a direct comparison with Maul's study of the relationships between creativity and self-actualization. It is a general test of creativity which stresses the cognitive skills assumed theoretically to be associated with creativity but which excludes personality. As a result, an operational distinction between the two constructs of self-actualization and creativity can be assumed.

Torrance (1966) defined creativity as:

> ...a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so

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> on: identifying the difficulty; searching for solutions, making guesses or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results [p. 6].

This definition would seem to apply more to creative scientists than to creative artists and musicians. However, Torrance defended the generality of his definition on the basis of consultations with artists and writers who felt the process described their work as well. More important, perhaps, than his definition is the scoring of the test activities themselves. Torrance scored each of seven activities for three of Guilford's (1967) divergent thinking factors.

Guilford developed a three dimensional model of the factors of general intelligence, including his conception of creativity. "Creative thinking abilities seemed to have properties of their own, involving fluency, flexibility and elaboration abilities; so a class of factors was given the title of 'divergent thinking' abilities" [Guilford, 1967, p. 62]. Factor analyses differentiated three kinds of fluency, two types of flexibility, plus originality and elaboration. The TTCT are scored for fluency (ideational), flexibility (spontaneous) and originality.

Controversy surrounds the equation of creativity with divergent thinking abilities. The tests of divergent thinking are new enough that little can yet be said about the extent of their

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relationship to outstanding creativity or even to creative achievement of any kind. Some evidence of predictive validity for the Torrance Tests exists, for in a 5 1/2 year follow-up study Erickson (1966) found scores on a creative activities checklist significantly correlated with both fluency ($r = .27$; $p < .05$) and flexibility ($r = .24$, $p < .05$). On the other hand, Nicholls (1972) found a questionable relationship between divergent thinking and creative achievement among average samples. He stated that "...validations are not abundant (Vernon, 1967; Wallach, 1970) and negative findings have been reported (Harvey, et al., 1970; Moss & Duenk, 1967) [p. 723]."

Although the extent of relationship between divergent thinking and a broader definition of creativity is thus subject to some question, tests of the broader aspects of creativity all involve a mixture of personality with cognitive skill. Since this research primarily focused on creativity as a means of more carefully highlighting the specific characteristics of self-actualization, it was decided to go ahead with the TTCT as a means of collecting further data on the self-actualization concept and developing clearer hypotheses for further research.

The Torrance Test - Verbal Form A (Torrance, 1966), appropriate for subjects from kindergarten through graduate school, consists of seven timed activities and takes a total of 50

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minutes to administer. The exercises are scored using a detailed instruction and scoring manual. Although subjective judgments are required for flexibility and originality scores, the criteria for judgment are explicit enough in the scoring manual that reliability of scoring among teachers with only standard written instructions ranged from .85 to .99 for the three factors (Torrance, 1966, p. 19).

Torrance (1966) defined fluency as the "ability to produce a large number of ideas with words [p. 72]." A fluency score is the total number of relevant ideas. Responses which deviate from the requirements set forth in the instructions are considered irrelevant.

Flexibility is "a person's ability to produce a variety of kinds of ideas, to shift from one approach to another, or to use a variety of strategies [p. 73]." Lists of categories of responses are provided and the score consists of the number of shifts or different categories used.

Originality consists of "ideas that are away from the obvious, commonplace, banal or established [p. 73]." The test score for originality is defined in relation to the statistical infrequency of the response and is determined from comparisons with lists of common responses and responses that depart from the obvious.

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Originality scores appear to the author to be biased toward quick thinkers because those who put down many responses obtain not only higher fluency scores, but higher originality scores as well; they have more opportunities for unique ratings. Thus, in the present study, an average originality score was computed, which consists of originality divided by fluency. Torrance (1966) suggested the usefulness of dividing originality by fluency as another way of examining the interrelationships of the creativity scores. Maul (1970) included Originality/ Fluency as an additional creativity score in his research on correlations between creativity and self-actualization.

Ego-strength

The use of extreme scores as equivalent to differentiation of a function and number of extreme scores as representative of the degree of individuation or self-actualization leads to a technical problem. How are the middle type scale scores, the "three" scores in the 1-5 scoring range, to be interpreted? Do they represent those who are highly individuated and therefore equally well developed on each pole or those which are poorly individuated and therefore very little developed on either pole? Detloff (1972, p. 67) stated that "when opposite functions appear to be on the same level, it is more often a matter of equal lack of development than of great differentiation." A short test of ego-

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strength and a post hoc analysis sought to determine in the present study, whether the assumption of lack of differentiation for the "middle" scorers was exerting a significant bias on the type correlations with creativity and self-actualization.

The Barron Ego Strength Scale (Es) (1953) was adopted for this purpose because of its ease of administration and the availability of validity information from studies of creativity. The Es Scale takes 5 to 10 minutes to fill out and is scored objectively as a simple sum of responses. It was originally designed as a test of responsiveness to psychotherapy. A small sample of psychoneurotic patients (n=33) who had received six months of outpatient psychotherapy were divided into those considered improved and those considered unimproved by clinical judges. Sixty-eight MMPI items were found to differentiate the two groups. Later larger clinic samples sustained the differences. Barron used the scale in his studies of graduate students, Air Force officers and creative writers and found the more creative groups scored above the less creative groups and well above the patient sample means. He thus suggested its usefulness "in any situation in which an estimate of personal adaptability and resourcefulness is called for [1953, p. 333]."

Barron (1968) defines ego strength as "a general factor of capacity for personal integration [p. 125]." In the study of

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male graduate students, he found Es correlated .38 with vitality, .41 with drive (perseverance, directed energy) and -.40 with submissiveness on staff ratings using the Adjective Check List (Gough, 1952) after a three day live-in assessment. It also correlated -.46 with the Ethnocentrism Scale (Adorno, et al., 1950), a measure of intolerance and ethnic prejudice. Interestingly, Barron described high scorers on the Ethnocentrism Scale as showing "lack of differentiation of ego [p. 127]." Thus it seemed appropriate to assume that high scorers on the Es Scale might be more differentiated, in the Jungian sense, than low scorers. In Barron's (1953) study, test-retest reliability for 30 cases after three months was .72 while odd-even reliability was .76 for 126 subjects.

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CHAPTER III

METHOD

Hypotheses

1. Creativity will be significantly correlated with intuition but with no other single dimension on the Types Questionnaire.

Past research on creativity has found a very high relationship between creativity and intuition (MacKinnon, 1962). Highly creative architects, writers, and mathematicians were almost all intuitive. Hypothesis 1 is a replication hypothesis.

2. Self-actualization will be equally and nonsignificantly correlated with all dimensions on the Types Questionnaire.

Since no previous research has attempted to explore the relationship of self-actualization to the Jungian types, Hypothesis 2 is essentially a null hypothesis. Although a relationship with intuition has been suggested as a strong possibility, other correlations may also exist. Introversion has been noted as another possible link. While such relationships have been suggested, the null hypothesis gives equal weight to any type combination, as befits an exploratory hypothesis such as this one.

3. Number of extreme scores on the two function scales (FT and

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SN) of the Types Questionnaire will significantly differentiate subjects on self-actualization: Those with no extreme scores will be least self-actualized, those with one extreme score will be moderately self-actualized and those with two extreme scores will be most self-actualized.

The use of number of extreme scores on the function scales for this hypothesis is intended to make self-actualization directly equivalent to Jung's individuation concept. Jung considers individuation to involve increased differentiation of previously underdeveloped functions. This process only really involves the four functions of thinking, feeling, sensation and intuition. The two attitudes of introversion and extraversion are choices for the direction of energy or attention. This choice is usually quite clear-cut for most people, whereas the functions need not necessarily be particularly differentiated. No extreme scores on the functions would imply that none of the functions were particularly highly developed. One extreme score would mean the primary function was highly developed; this would imply it was being actively and intensively used in some manner. Two extreme scores would lead us to assume that both primary and auxiliary functions were highly developed. Naturally, it would be even more informative if we could determine the level of development of the third and fourth functions, since these are

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vital to the important reconciliation of opposites involved in the individuation concept. However, the polar nature of the types test precludes this extension. Still, the size of mean score for each of the three groups tested in this hypothesis gives some indication of the overall fit or lack of fit of the self-actualization and individuation concepts.

4. Those with one extreme score on a function scale of the Types Questionnaire will show significantly higher creativity scores than either the no extreme score or two extreme scores groups.

This hypothesis is an attempt to contrast creativity with self-actualization. Once again, an equivalence between individuation and self-actualization is assumed. The great differentiation of one function or set of skills and attitudes is assumed to be equivalent to creativity as it stands in greatest contrast to self-actualization as the extensive development of a particular and limited characteristic of an individual, a talent of some kind. In Hypothesis 4, creativity is distinguished from self-actualization, which is assumed to be more highly related to two extreme scores. In terms of the three broad areas of creativity described by Maslow, Hypothesis 4 contrasts the special talent type of creativity with creativity as a self-actualizing life style. To the extent that the two contrasting types of creativity are similarly related to number of extreme scores on the types, to

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that extent the third type of creativity, integrated creativity, is suggested. Thus, creativity and self-actualization as they are assumed to be related by Maslow are compared through the use of the third and linking concept of individuation.

5. Type group membership will be significantly related to creativity but not to self-actualization.

Hypothesis 5 is similar to, but broader than, the first two hypotheses. It assumes that creativity and intuition will be correlated and therefore type group membership and creativity will be also. It further assumes that no particular type combination should be any more related to self-actualization than another. In this case each subject's three scores on EI, FT and SN were combined to form eight combinations: EFS, IFS, EFN, ETS, ITS, ETN and ITN. Thus, it was possible to compare mean creativity and self-actualization scores for each of these groups and to include the effects of the attitudes and of functions other than intuition.

6. No significant sex differences on any of the variables will be observed.

Hypothesis 6 is a null hypothesis since sex differences have already been reported for self-actualization. Creativity studies have not reported significant differences due to sex.

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Differences on the types were expected by Jung (1971) and have been reported by Myers (1962) on the MBTI. Women tend to score higher on feeling and men on thinking (Myers, 1962). Although two specific relationships have been suggested between sex and self-actualization and sex and the types, the null hypothesis allows consideration of any differences as important.

Although not stated as a formal hypothesis, a post hoc analysis of the effects of ego strength on the interpretation of the middle scores on each of the two function scales was performed in order to determine whether the traditional interpretation of middle scorers as undifferentiated on either of the two functions was supportable for this sample.

Subjects

In selecting a population for study, several factors were considered. A wide range of type patterns was desired, so no tightly homogeneous group seemed appropriate. On the other hand, a totally random sample was not possible for practical reasons. The types were assumed to be best stabilized in adults (Jung, 1971) so a population all of whom were over the age of 20 was desired. Large samples were needed for the intended statistical analysis. For eight type groups and three levels of extreme scores, 24 possible cells in the analysis of variance

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were anticipated. Two hundred and forty subjects would be necessary to allow the possibility of 10 subjects in each cell. Finally, because the subjects were to be volunteers, it seemed most reasonable to choose people who might have some interest in the concepts being studied.

For these reasons, the population chosen was graduate students in professional psychology programs. The subjects were drawn from departments of psychology and education at three Bay Area state universities. These universities were located respectively in a large city, a middle sized city and a suburban area.

The large city university has a graduate counseling program in the Education Department with an enrollment of several hundred and a general orientation toward training elementary and secondary school counselors. A special program for training rehabilitation counselors for work with the physically disabled tends to mix students with the general counselors through mutual course offerings. School psychology and clinical psychology at this same large city university are offered in a small and highly selective program in the Psychology Department. Less than fifty students are enrolled in the three year school psychology and two year clinical psychology masters programs. Most of their courses are closed to other students and the

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training in both specialties stresses clinical testing and therapy skills.

The middle-sized city university has a highly selective Psychology Department which trains clinical and school psychologists, and an Education Department which trains counselors for school settings and admits anyone who meets the university graduate admission requirements. The school psychology program at this university, however, is less clinical in orientation. It concentrates on overall evaluation and research skills applied to learning problems rather than personal development problems. The clinical program is the smallest and most selective of the three programs at this school. It is also under fifty in enrollment and has some closed classes.

The suburban university has no clinical training program. School psychologists and counselors are trained separately but in the same Department of Educational Psychology. Both programs are quite large. The counseling program has 400 students listed, although many take a course at a time. Only counseling students from this university were tested.

The age range was greatest for all three counseling programs as compared to the Psychology Department programs. Part time students were in the majority in the counseling programs, and were not included in the two big city university psychology programs.

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It was hoped that geographical differences, admission policy differences and the different objectives of the training programs would lead to a wide range of type patterns but at the same time yield a limited population with a shared interest in professional training in psychology about which meaningful generalizations could be made.

Two hundred and seventy three students in 17 classes were given creativity tests. Of these, 233 completed all three of the additional tests and comprised the study sample. Their college distribution was: University H (suburban), 78; University J (medium city), 76; and University F (large city), 79. Over two thirds of the students were in counseling programs; 38 were in school psychology and 20 were in clinical psychology. Of the 233 students, 146 were female; 87 were male. Their ages ranged from 22 to 55 with a mean age of 30.

The 40 students who did not complete the test battery were approximately evenly divided by sex; 23 were male, 17 female. Their mean age was 30.2, not significantly different from the sample group. Fifteen were from University H, 17 from University J and 8 from University F. All three major fields were represented although the majority were from counseling programs. One important difference from the final subject group was observed. Their mean scores on the creativity

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test were significantly lower than those of the 233 students remaining ($t=3.54$, $p < .01$). Without the missing tests it was impossible to determine whether lower creativity scores also signified differences from the rest of the sample on other important characteristics such as the types or self-actualization.

Procedure

The research project was introduced to the subjects by the author in each of the classes tested. The subjects were told that they were to be given tests of creativity, self-actualization and personality styles. The tests used were: Styles of Living Preference Scale (SL) (Maul, 1970); Detloff Psychological Types Questionnaire (Detloff, 1972); Torrance Tests of Creative Thinking (TTCT) (Torrance, 1963); and the Barron Ego Strength Scale (Es) (Barron, 1953). (See Chapter II for more detail on the selection and description of the tests.) The purpose of the study was briefly explained and their cooperation requested. It was not felt necessary to keep secret the subject of the investigation since three of the tests were clearly labeled. The ego strength scale was not identified. Since the specific personality styles were not identified, social desirability pressures were not considered a strong biasing factor.

Participation was voluntary and those who chose not to

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participate were allowed to leave. The number who took this option varied considerably. In some cases no one left. In others only one third of the class chose to participate. This voluntary withdrawal was an unfortunate reality factor. Voluntary participation was one of the stipulations of most of the faculty members in allowing their students to be tested. The amount of time required of each student for the tests (1 1/2 hours) was an additional factor that probably increased the number of dropouts. The unknown biasing effects of the loss of these students must be added to those resulting from the loss of the 40 who only completed part of the test battery.

The creativity test was given in one class period of 50 minutes, administered and timed by the author. The other three tests, totaling approximately 30 more minutes of the students' time, were given them to take home. Students returned the tests to their professor who forwarded them to the author. After scoring, the author returned to provide feedback on the scores and to explain the research.

Design

A cluster analysis was performed using the BCTRY computer program (Tryon & Bailey, 1970) on a CDC 6400 computer. All dependent and independent variables were included in order to test the appropriateness of the theoretical

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assumptions of the creativity and types tests for this population. Empirical clustering of the appropriate sets of scores was considered a test of the internal consistency of these tests.

Hypotheses 1 and 2 were tested using correlations among three type scores, four creativity scores and one self-actualization score.

Hypotheses 3, 4 and 5 were tested with a 3X6 analysis of variance, with factors of number of extreme scores on the functions: 0, 1 and 2 extreme scores and personality type group: ETS, EFN, ETN, ITS, IFN and ITN. Two type groups: EFS and IFS, were omitted from the analysis of variance because of small n's. Post hoc Bonferroni t's (Kirk, 1968; Miller, 1966; Dunn, 1961) for all possible pairwaise comparisons between factor levels were computed when F's were significant beyond the .05 level.

Sex differences, Hypothesis 6, were tested by Student's t tests of male and female subgroup means on each of the type, creativity and self-actualization variables.

The effects of ego strength were evaluated by using χ^2 to compare the creativity and self-actualization scores of those who were above the mean on ego strength with those below the mean among the middle scorers on either of the two polar function scales (n = 77).

A significance level for all hypotheses was set a $p < .05$, although other significance levels obtained beyond the .05 level are reported.

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CHAPTER IV

RESULTS

Prior to testing the formal hypotheses, a cluster analysis was performed on the 22 variables with which the study was concerned. The BCTRY computer program (Tryon & Bailey, 1970) was used. Included were four sub-scale scores, expected to represent various aspects of each type function or attitude, and one summary score for each of the three type dimensions: EI, FT and SN. Four creativity scores: Fluency (FLU), Flexibility (FLEX), Originality (ORIG) and ORIG/FLU, and one self-actualization measure, the Styles of Living Preference Scale (SL), were also included, as were scores on Barron's Ego Strength Scale (Es) and the sex of each subject.

First, an empirical cluster analysis of the variables was performed. This allowed the variables to cluster wherever mathematical relationships were closest. The results of this analysis are listed in Table 2. The oblique factor coefficient values are the correlations of each dimension with the factor composite score. Reliability is used in a special sense by Tryon and Bailey to indicate the variability which is common to the factor composite. The principal definers of each cluster are indicated by a letter D.

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TABLE 2

Summary Data from Empirical Cluster Analysis (BCTRY) of 22 Variables: 5 EI, 5 FT, 5 SN, 4 Creativity, SL, Es and MF

	Oblique Factor Coefficient	Reliability (Definers Only)
Cluster I		
FLU (D)	.9575	
FLEX (D)	.9149	
ORIG (D)	.8941	.9459
Cluster II		
SN (summary) (D)	1.0055	
SN (D)	.8020	
SN (D)	-.7972	
SN (D)	-.7136	
SN	.6183	
SL	.4548	.9057
Cluster III		
EI (summary) (D)	.9307	
EI (D)	-.8986	
EI (D)	.7709	
EI (D)	-.6137	
EI	.5842	.8873
Cluster IV		
FT (summary) (D)	.8751	
FT (D)	-.7668	
FT (D)	.6794	
FT (D)	-.6497	
FT	.6320	.8837

Unique: Variables excluded because of communalities below .2000

MF
Es
ORIG/FLU

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Additional variables were then added to the cluster with which they had the greatest relationship. Variables with very low relationship with any cluster (communalities of less than .2000) were listed as unique.

The strongest cluster consisted of the three main creativity scores. The remaining three clusters were defined by the type scores for the three type dimensions. The summary scores for each of the type dimensions were the strongest definers, adding considerable evidence for internal consistency of the scoring system of the Type Questionnaire. Reliabilities were quite high (.89 to .96) indicating strong cohesive clusters.

Following the empirical analysis, a pre-set analysis was performed, in which the five scores on each dimension of the Types Questionnaire were introduced as pre-set definers and the first factor, the creative factor, was eliminated. Only three clusters were thus considered: the EI, FT and SN clusters of the types. The similarities between empirical and pre-set clusters are listed in Table 3. The reliabilities were only slightly reduced by applying rational rather than empirical criteria. The findings were considered to provide substantial evidence for the internal consistency of both the types and creativity tests. The tests may be assumed to measure empirically and theoretically meaningful dimensions.

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TABLE 3

Comparison of Empirical and Pre-Set
Cluster Analyses of 15 Type Scores

	Oblique Factor Coefficient		Reliability	
	Empirical	Pre-set	Empirical	Pre-set
Cluster SN				
SN (summary)	1.0055	1.0092		
SN	.8020	.8369		
SN	-.7972	-.7054		
SN	-.7136	-.7612	.9057	
SN	.6183	.6245	.8994	.8981
SL	.4548	.5052	.8873	.8886
Cluster EI				
EI (summary)	.9307	.9471		
EI	-.8986	-.7864		
EI	.7709	.7840		
EI	-.6137	-.6823	.8873	
EI	.5842	.5938	.8837	.8777
Cluster FT				
FT (summary)	.8751	1.0005		
FT	-.7668	-.6140		
FT	.6794	.7094		
FT	-.6497	-.6948	.8216	
FT	.6320	.6232	.8402	.8558

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Because the summary score on each of the type scales was the strongest definer for each cluster and because it represented a summary of the information of the four subscale scores, it alone was used in further statistical tests of the types.

Table 3 provides initial evidence of the strength of overlap of self-actualization and intuition concepts which was suggested in Chapter I. SL was the only variable aside from the types scores which formed a cluster with them. Its positive factor coefficient under the SN cluster indicates a positive relationship to the intuitive pole of the scale. In contrast, the creativity scores formed a strong cluster independently from the psychological types.

MF and Es were not expected to be more strongly related to any particular cluster than to another; their positions as unique variables were consistent with these expectations. However, the ORIG/FLU score, one of the creativity measures, was expected to be more closely related to creativity. The ORIG/FLU factor coefficient for the empirically derived creativity cluster was .14, as compared with .88 to .96 for the other three creativity scores. Apparently the scoring procedure, which was designed to reduce the impact of fluency on originality, destroyed the sensitivity of the originality score as a measure of creativity. At any rate, the mathematical ambiguity and lack of any logically

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understandable pattern of relationship to the other variables led to the removal of ORIG/FLU from further analyses.

Table 4 presents the correlations of the four creativity and the SL scores with the three types scores. The size of a significant correlation was determined by considering both the probability of a single correlation being significant by chance, and also the probability for chance significance of one in fifteen correlations. Thus, the level at which a correlation was considered significant (r = .20) was higher, providing a stricter test of the hypothesis, than had each correlation been considered individually.

The correlation between creativity and intuition just reached significance (r = .20). The strongest contributor to this significant correlation was ORIG (r = .21). The FLU and FLEX correlations with intuition failed to reach significance. Thus, Hypothesis 1 was supported. Creativity and Intuition were found to be significantly correlated.

For SL, negligible correlations were found for the EI and FT dimensions, while the correlation with SN was highly significant (r = .44). Hypothesis 2 was rejected. Self-actualization was not equally and nonsignificantly correlated with the type dimensions. Rather, self-actualization was significantly and positively correlated with sensation-intuition.

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TABLE 4

Product Moment Correlations for Creativity and SL With Psychological Types

	EI[1]	FT	SN
FLU	-.06	-.05	.13
FLEX	-.12	-.09	.19
ORIG	-.05	-.11	.21*
CREATIVITY	-.06	-.10	.20*
SL	-.16	-.12	.44**

* $p < .05$ ** $p < .0001$

n = 233

A significant $r = .20$, $p < .05$

[1] Although the types scales are theoretically expected to be bimodal in distribution (Myers, 1962), only the EI scale was bimodal for this sample. Technically, a bimodal distribution requires point biserial correlation rather than product moment correlation statistics. Point biserial r's (Baggaley, 1964) for the EI scale for this sample were:

FLU-EI $r = .06$, ns
FLEX-EI $r = .01$, ns
ORIG-EI $r = -.12$, ns
CREAT-EI $r = -.03$, ns
SL-EI $r = -.11$, ns

A significant point biserial r for this sample would have been .13, $p < .05$.

Thus none of the corrected correlations changed the basic result. No significant correlation between EI and either creativity or self-actualization was found.

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Tables 5 and 6 provide the necessary information for Hypothesis 3. Three levels of extreme function scores: 0, 1 or 2 scores and six type profile patterns: EFN, ETS, ETN, IFN, ITS and ITN were considered. The F for number of extreme scores was significant for self-actualization ($F = 4.45$, $p < .05$) but not for creativity ($F = 1.25$, ns).

Following the analysis of variance, all pairwise comparisons were made of groups for which F's were significant. The Bonferroni t test (Dunn, 1961; Miller, 1966; Kirk, 1968) was selected instead of the more commonly used Student's t or the Scheffé contrast, the most commonly used post hoc test following analysis of variance. There are several reasons for its preference. The significance level, α, is determined for each comparison separately for the Student's t, on the one extreme, and for all possible comparisons using the Scheffé contrast, on the other extreme. The α level for the Bonferroni t is determined only for the finite number of comparisons actually made, but is divided among them. Thus, the Bonferroni t makes the most efficient use of the statistical probabilities of significance testing. In addition, Student's t requires the researcher to choose only one set of orthogonal comparisons to test, while the Bonferroni t allows any combination of comparisons. As a result, the Bonferroni t, although less powerful

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TABLE 5

3 x 6 Analysis of Variance of Self-Actualization (SL) for Number of Extreme Function Scores and Personality Type Patterns: EFN, ETS, ETN, IFN, ITS, ITN

	SS	df	MS	F
Extreme Score	1770.20	2	885.10	4.45*
Type Pattern	7261.85	5	1452.37	7.30**
Type Pattern X Extreme Score	2386.10	10	238.61	1.20
Within Cell	40961.04	206	198.84	
Total	52379.19	223		

*p<.05 **p<.0001

TABLE 6

3 x 6 Analysis of Variance of Creativity for Number of Extreme Function Scores and Personality Type Patterns: EFN, ETS, ETN, IFN, ITS, ITN

	SS	df	MS	F
Extreme Score	3221.26	2	1610.63	1.25
Type Pattern	24498.30	5	4899.86	3.81**
Type Pattern X Extreme Score	10500.40	10	1050.04	0.81
Within Cell	264660.56	206	1284.76	
Total	302880.52	223		

*p<.05 **p<.01

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than the Student t for each individual comparison, made the desired combination of multiple comparisons possible. Bonferroni t tests for differences between the three levels for number of extreme scores on self-actualization are summarized in Table 7. Two of the three t tests were significant and the progression from low self-actualization scores for no extreme type scores to high self-actualization scores for two extreme type scores was of the form predicted (See Table 8). Hypothesis 3 can be considered supported.

Since the F for creativity on the number of extreme scores factor was insignificant (Table 6), Hypothesis 4 was not rejected. Furthermore, an inspection of creativity mean scores for each of the three levels of the number of extreme scores factor (Table 9) indicates that the one extreme score group, hypothesized as highest on creativity, was actually lowest. The two extreme scores group had the highest mean creativity, but the insignificant F indicates it was not significantly greater than the other two.

The F for the type group factor was significant for creativity ($F = 3.81$, $p < .01$), as predicted, but was also significant for self-actualization ($F = 7.30$, $p < .0001$) (Tables 5 and 6). Thus Hypothesis 5 is partially supported. Type group membership

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TABLE 7

Bonferroni t's for All Pairwise Comparisons of
Three Extreme Score Groups for Self-Actualization (SL)

Comparison	Value of ψ	SE_{ψ}^2	Lower Limit	Upper Limit	Decision
2 Extremes - 1 Extreme	112.53-110.63 = 1.90	$198.84(\frac{1}{48} + \frac{1}{114})$ = 5.90	-3.91	7.71	--
2 Extremes - 0 Extremes	112.53-105.13 = 7.40	$198.84(\frac{1}{48} + \frac{1}{62})$ = 7.40	0.69	14.11	*
1 Extreme - 0 Extremes	110.63-105.13 = 5.50	$198.84(\frac{1}{114} + \frac{1}{62})$ = 1.68	2.39	8.61	*

* $p < .05$

TABLE 8

SL Means, Standard Deviations and n's for Three Extreme Score Groups and Six Personality Type Patterns

		0 Extreme Scores	1 Extreme Score	2 Extreme Scores	Total by Type
EFN	$\bar{X}$	110.00	110.82	115.22	112.30
	sd	16.07	11.38	14.23	13.68
	n	12	17	18	47
ETS	$\bar{X}$	99.25	107.60	82.00	99.91
	sd	12.66	11.01	7.07	13.98
	n	4	5	2	11
ETN	$\bar{X}$	107.57	117.33	125.17	115.30
	sd	11.41	13.94	17.80	14.68
	n	14	24	6	44
IFN	$\bar{X}$	104.27	112.96	110.67	110.10
	sd	11.64	17.90	13.28	15.66
	n	15	28	12	55
ITS	$\bar{X}$	93.67	96.85	85.00	94.81
	sd	10.58	12.47	2.83	11.59
	n	6	13	2	21
ITN	$\bar{X}$	106.36	109.41	114.38	109.53
	sd	15.19	14.99	10.50	14.31
	n	11	27	8	46
Total by Extreme Score Group	$\bar{X}$	105.13	110.63	112.53	
	sd	13.49	15.03	16.20	
	n	62	114	48	224

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TABLE 9

Creativity Means, Standard Deviations and n's for Three Extreme Score Groups and Six Personality Type Patterns

		0 Extreme Scores	1 Extreme Score	2 Extreme Scores	Total by Type
EFN	$\bar{X}$	218.83	228.47	225.33	222.88
	sd	34.09	37.01	34.54	34.54
	n	12	17	18	47
ETS	$\bar{X}$	189.00	197.60	229.50	200.30
	sd	30.01	53.77	17.68	41.03
	n	4	5	2	11
ETN	$\bar{X}$	213.36	205.79	235.33	212.23
	sd	44.72	34.89	39.42	39.17
	n	14	24	6	44
IFN	$\bar{X}$	216.07	217.29	214.67	216.43
	sd	25.69	40.39	29.01	34.05
	n	15	28	12	55
ITS	$\bar{X}$	172.83	188.62	199.00	185.13
	sd	29.36	22.91	5.66	24.59
	n	6	13	2	21
ITN	$\bar{X}$	233.09	214.41	215.38	219.03
	sd	39.72	39.15	25.41	37.42
	n	11	27	8	46
Total by Extreme Score Group	$\bar{X}$	213.13	211.73	221.33	
	sd	37.95	36.64	31.14	
	n	62	114	48	224

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did affect creativity score, but the expected discrimination between self-actualization and creativity was not supported. Bonferroni t's were computed for both SL and creativity to determine the source of the differences suggested by the significant F's (Tables 10 and 11). Significant differences for both creativity and self-actualization were between the intuitive groups and the two sensation groups; differences within the four intuitive or two sensation groups were never significant.

For all the variables listed in Table 12, difference between the means t tests were computed for the two sexes as a test of Hypothesis 6. Tests for sex differences on Styles of Living, Ego strength and the four type functions: FT and SN were not significant. However, females were found to be significantly more extraverted and creative than males in this sample. Thus, Hypothesis 6 was only partially rejected. Some sex differences were found.

In addition to the test of the six major hypotheses, a post hoc analysis for the effects of ego strength was performed. On the basis of ego strength scores, middle scores on the type dimensions were to be interpreted as either highly differentiated or undifferentiated. Those with high ego strength were to be considered highly differentiated in terms of both poles of the dimension, while those with low ego strength scores would be

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TABLE 10

Bonferroni t's for All Pairwise Comparisons of Six Personality Type Patterns for Self-Actualization (SL)

Comparison	Value of ψ	SE_{ψ}^2	Lower Limit	Upper Limit	Decision
ETN - ITS	115.33-94.81 = 20.52	$198.8\left(\frac{1}{44}+\frac{1}{21}\right)$ 14.00	11.58	29.46	*
ETN - ETS	115.33-99.91 = 15.42	$198.8\left(\frac{1}{44}+\frac{1}{11}\right)$ 20.50	4.58	27.26	*
ETN - ITN	115.33-109.53 = 5.80	$198.8\left(\frac{1}{44}+\frac{1}{46}\right)$ 8.05	-0.99	12.59	—
ETN - IFN	115.33-110.10 = 5.20	$198.8\left(\frac{1}{44}+\frac{1}{55}\right)$ 7.39	-1.30	11.70	—
ETN - EFN	115.33-112.30 = 3.00	$198.8\left(\frac{1}{44}+\frac{1}{47}\right)$ 7.15	-3.38	9.38	—
EFN - ITS	112.33-94.81 = 17.52	$198.8\left(\frac{1}{47}+\frac{1}{21}\right)$ 13.69	8.67	26.47	*
EFN - ETS	112.33-99.91 = 12.42	$198.8\left(\frac{1}{47}+\frac{1}{11}\right)$ 22.30	1.12	23.72	*

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TABLE 10 (continued)

Comparison	Value of ψ	SE_{ψ}^2	Lower Limit	Upper Limit	Decision
EFN - ITN	112.33-109.53 = 2.80	$198.8\left(\frac{1}{47}+\frac{1}{46}\right)$ 8.55	-4.22	9.78	—
EFN - IFN	112.33-110.13 = 2.20	$198.8\left(\frac{1}{47}+\frac{1}{55}\right)$ 7.82	-4.50	8.90	—
IFN - ITS	110.13-94.81 = 15.32	$198.8\left(\frac{1}{55}+\frac{1}{21}\right)$ 13.08	6.67	23.97	*
IFN - ETS	110.13-99.91 = 10.22	$198.8\left(\frac{1}{55}+\frac{1}{11}\right)$ 21.70	-0.95	21.39	—
IFN - ITN	110.13-109.53 0.60	$198.8\left(\frac{1}{55}+\frac{1}{46}\right)$ 7.95	-6.14	7.34	—
ITN - ITS	109.53-94.81 = 14.72	$198.8\left(\frac{1}{46}+\frac{1}{21}\right)$ 13.79	5.86	23.58	*
ITN - ETS	109.53-99.91 = 9.62	$198.8\left(\frac{1}{46}+\frac{1}{11}\right)$ 22.40	-1.69	20.93	—
ETS - ITS	99.91-94.81 5.10	$198.8\left(\frac{1}{11}+\frac{1}{21}\right)$ 27.50	-7.42	17.62	—

* $p < .05$

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TABLE 11

Bonferroni t's for All Pairwise Comparisons of Six Personality Type Patterns for Creativity

Comparison	Value of ψ	SE_{ψ}^2	Lower Limit	Upper Limit	Decision
EFN - ITS	224.83-185.13 = 39.70	1284.8 $(\frac{1}{44} + \frac{1}{21})$ 88.55	17.20	52.20	*
EFN - ETS	224.83-200.33 = 24.50	1284.8 $(\frac{1}{44} + \frac{1}{11})$ 144.50	-4.30	53.30	—
EFN - ETN	224.83-212.23 = 12.60	1284.8 $(\frac{1}{44} + \frac{1}{46})$ 56.50	-5.39	30.59	—
EFN - IFN	224.83-216.43 = 8.40	1284.8 $(\frac{1}{44} + \frac{1}{55})$ 50.70	-8.60	25.40	—
EFN - ITN	224.83-219.03 = 5.80	1284.8 $(\frac{1}{44} + \frac{1}{47})$ 55.40	-11.98	23.58	—
ITN - ITS	219.03-185.13 = 33.90	1284.8 $(\frac{1}{47} + \frac{1}{21})$ 89.25	11.30	56.50	*
ITN - ETS	219.03 - 200.33 = 18.70	1284.8 $(\frac{1}{47} + \frac{1}{11})$ 177.00	-13.10	50.50	—

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TABLE 11 (continued)

Comparison	Value of ψ	SE_{ψ}^2	Lower Limit	Upper Limit	Decision
ITN - ETN	219.03 - 212.23 = 6.80	1284.8 $(\frac{1}{47} + \frac{1}{46})$ 57.35	-11.30	24.90	—
ITN - IFN	219.03 - 216.43 = 2.60	1284.8 $(\frac{1}{47} + \frac{1}{55})$ 51.50	-14.55	19.75	—
IFN - ITS	216.43 - 185.13 = 31.30	1284.8 $(\frac{1}{55} + \frac{1}{21})$ 84.60	9.30	53.30	*
IFN - ETS	216.43 - 200.33 = 16.10	1284.8 $(\frac{1}{55} + \frac{1}{11})$ 152.50	-13.40	45.60	—
IFN - ITN	216.43 - 212.23 = 4.20	1284.8 $(\frac{1}{55} + \frac{1}{46})$ 52.60	-13.12	21.52	—
ETN - ITS	212.23 - 185.13 = 27.10	1284.8 $(\frac{1}{46} + \frac{1}{21})$ 83.25	5.30	48.90	*
ETN - ETS	212.23 - 200.33 = 11.90	1284.8 $(\frac{1}{46} + \frac{1}{11})$ 177.00	-19.90	43.70	—
ETS - ITS	200.33 - 185.13 = 15.20	1284.8 $(\frac{1}{11} + \frac{1}{21})$ 193.00	-18.00	49.40	—

* $p < .05$

TABLE 12

Means and Standard Deviations of Females (n = 146), Males (n = 87) and Total Sample (n = 233) On 10 Variables

		F	M	Total	t
EI	$\bar{X}$	2.84	3.56	3.11	-3.14**
	sd	1.80	1.70	1.80	
FT	$\bar{X}$	2.99	3.14	3.05	-0.76
	sd	1.43	1.42	1.43	
SN	$\bar{X}$	4.05	4.02	4.04	0.20
	sd	1.11	1.09	1.10	
FLU	$\bar{X}$	59.74	55.06	57.99	3.27**
	sd	11.39	9.97	11.12	
FLEX	$\bar{X}$	77.10	72.71	75.46	2.25*
	sd	13.47	12.24	13.20	
ORIG	$\bar{X}$	82.05	77.54	80.36	2.41*
	sd	14.05	13.61	14.06	
ORIG/FLU	$\bar{X}$	1.09	1.11	1.10	-0.97
	sd	0.17	0.20	0.18	
SL	$\bar{X}$	109.85	108.57	109.37	0.61
	sd	14.79	15.76	15.17	
Es	$\bar{X}$	49.41	50.17	49.70	-1.05
	sd	4.94	5.77	5.28	
CREAT	$\bar{X}$	218.89	205.40	214.25	2.18*
	sd	37.04	33.83	36.46	

* $p < .05$ ** $p < .01$

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assumed to be undifferentiated on both poles, the traditional interpretation of a middle score. Based on past research by Barron (1968) which used a score of 49 as the lower limit for a high ego strength group, the mean score for this sample (49.70) was used to divide the 77 subjects with middle scores on a scale of 1-5 on one or more type dimensions into two groups: High and Low Ego Strength. The effects of this division were compared by chi square analysis for creativity and self-actualization, using the means on these two variables as cutting scores for high and low groups. Chi squares were 2.18 for SL and 0.18 for creativity. Neither were significant at the .05 level.

Assuming that extreme scores on ego strength would increase the possibility of differences on the two test variables, if they existed, those "middle" scorers with Es scores over one standard deviation above and one standard deviation below the mean were selected as High (n=15) and Low (n=13) Es groups and compared on creativity and self-actualization. Once again neither χ^2 was significant ($\chi^2_c = 0.75$, $\chi^2_{SL} = 0.03$, ns).

Since SN was the type dimension with the greatest correlations on SL and creativity of the three type dimensions, a new sorting of those with middle scores on SN was considered likely to show more change on these variables than middle scores on the other two type dimensions. Therefore, those

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subjects with middle scores on SN (n=50) were sorted into high and low Es groups and compared as before on creativity and self-actualization. Once again the results were not significant ($\chi^2_c = 0.79$, $\chi^2_{SL} = 0.26$, ns).

Although not a direct test of the "differentiated" or "undifferentiated" interpretations of middle scores, the effects of either interpretation were shown not to differ significantly for this sample. Thus, for this study the traditional interpretation of middle scores as undifferentiated could be maintained without serious bias to the results of the study.

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CHAPTER V

DISCUSSION

The major purpose of this research was to understand better the self-actualization concept by equating it with individuation and by determining its relationship to the various personality types of Jung.

The strong positive correlation between self-actualization and intuition ($r = .44$, $p < .0001$) plus the clustering of the SL Scale with the SN cluster lent considerable support to the supposition that self-actualization, as Maslow defined it and as Maul tested for it, consists, in part at least, of rather specific characteristics related to one personality style. The lack of significant correlation with either of the other two type scales ($\underline{r} = -.16$ with EI, ns; $\underline{r} = -.12$ with FT, ns) suggested a simple relationship with the one intuitive style. The possible relationship to introversion suggested in Chapter II did not appear likely from the low correlation of SL with the EI scale.

Although on the one hand self-actualization appeared to overlap with intuition in some respects, the significant relationship between number of extreme scores and SL ($F = 4.45$, $p < .05$) supported the likelihood of general characteristics of self

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development or actualization similar to those expected by Jung's concept of individuation. This combination of general and specific relationships lent support to the assumption that, of Maslow's seventeen listed characteristics, some could be found to be general while some would be specific. The existence of this list and further, of a test based on the list, makes possible further research to determine which characteristics might be most strongly related to the general concept of actualization of self, thus simplifying and strengthening the concept for further use.

Part of Maslow's definition of self-actualization was based on his list of characteristics. The other portion of his conceptualization of self-actualization was based on his theory of the distinctions between self-actualizing, special talent, and integrated creativity. The first test of these distinctions was a correlation analysis of creativity with each of the three psychological type scales. Creativity was significantly correlated with intuition ($\underline{r} = .20$, $p < .05$) as was predicted and was not significantly correlated with either of the other type scales. In a supplementary statistical analysis, creativity was also found to be significantly related to type group membership ($F = 3.81$, $p < .01$). The four highest mean scores on creativity were for the four type groups which included intuition. Four of the t tests

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comparing the means of the six type groups were significant, all differentiating intuition and sensation groups.

Thus, the expected relationship between creativity and intuition was supported by two separate statistical tests. The relationship between creativity and intuition appeared weaker (r = .20) than the relationship between self-actualization and intuition (r = .44). Nevertheless, the results suggest that the concepts of creativity, as measured by the TTCT, and self-actualization, as measured by the SL Scale, are similar, at least in their relationship to the intuitive personality style.

Before further assumptions can be made regarding any possible overlap between the two concepts, several artifactual reasons for the difference in magnitude of the two correlations should be discussed.

Tests of creativity and intuition differ from those used in the earlier research on which hypotheses for this study are based. Since the creativity measure used here was a limited one compared to the peer ratings of outstanding creativity with which intuition has been found most significantly related, a weaker relationship between the two might also be expected. The test of intuition used in this study was also different from the MBTI intuition scale used in earlier studies. Differences between the two scales have not yet been assessed, so that effects of scale

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differences on the results reported here are indeterminable.

Two additional factors should be considered in evaluating the strength of the creativity-intuition correlation of $\underline{r}$ = .20 and in comparing it to the self-actualization-intuition correlation of $\underline{r}$ = .44. The Styles of Living Scale and the Detloff Types Questionnaire both ask for self-report evaluations of personal preference while the creativity test was a perceptual-cognitive performance test. Therefore, a certain amount of correlation between the first two tests could be expected because of their similarity of format. Thus, the test for creativity-intuition correlation is a harder test and the difference between it and the self-actualization-intuition correlation may not be as great as it seems.

The second factor to be considered in comparing this creativity-intuition correlation with earlier research findings is the variability within the sample in this study. Since all subjects are at the same academic level in the same field and not expected to be distinctive as either very creative or very noncreative, the range of creativity is more limited than in studies which seek to differentiate highly creative groups from those considered less creative. An additional, although unexpected, characteristic of this sample was their marked tendency to score on the intuitive end of the SN scale. Thus the

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range on intuition was also limited. Given the restriction of range on both creativity and intuition, the correlation of .20 between the two can probably be considered support of a creativity-intuition relationship of theoretical and practical importance.

According to Maslow's theory, special talent creativity should differ from self-actualizing creativity by emphasizing a particular skill or talent rather than by being a general personality style oriented to actualization of any or all aspects of the person. To the extent that the TTCT measures a creativity which is, like special talent creativity, distinct from a general personality style, creativity and self-actualization should not be related in this research. However, both creativity and self-actualization were found to be significantly correlated with the intuitive personality style, suggesting some lack of discrimination between the two concepts, at least on this dimension.

Creativity was compared not only to the individual personality types, but also to the general growth concept of individuation. In this way, it was contrasted with self-actualization through the similarities and differences of relationship of the two with individuation, as they had been contrasted through their relationships to the individual personality types. These similarities and differences were formally tested in Hypotheses

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3 and 4, where self-actualization was hypothesized as related most strongly to the group with two extreme function scores while creativity was hypothesized to be more strongly related to the one extreme score group. Although the self-actualization relationship was supported, the creativity one was not. The one extreme score group's mean creativity level was the lowest of all three groups (211.7). Furthermore the two extreme score group's mean creativity was the highest of the three groups (221.3), making it similar to self-actualization in this respect, and suggesting an integrated creativity concept more strongly than a special talent creativity. However, the F for the two extreme score group on creativity was not significant ($F=1.25$, ns). Neither similarity nor difference between creativity and self-actualization can be strongly stated, in this case, except that the self-actualization results were stronger and more unequivocal.

Although Maslow described two presumably separate concepts when he defined self-actualizing and special talent creativity, there appears to be evidence for overlap from other sources as well as the results reported here. Maul (1970) made a direct comparison of creativity and self-actualization, using the same tests as those of this study. Although not part of a hypothesis in the present study, a correlation between creativity and self-actualization was computed as part of the BCTRY

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analysis and is available for comparison with Maul's results, as summarized in Table 13.

Maul considered his correlations, all significant at the .05 level, to offer support for a general creativity-self-actualization relationship. The comparable statistics from this study, none of them significant, did not support Maul's findings, although the results on the equivalent tests of creativity and self-actualization were in the same direction as his results, suggesting the overlap he found between the two. Maul's sample was chosen to tap high creative and low creative groups. He chose lower division students in an experimental residential history and literature program and upper division and graduate students in an experimental education course on games as his high creative subjects. They were compared with students in a required junior college English course. As has already been stated, the sample of the present study produced a more strenuous test of the creativity-self-actualization relationship, because no range of creativity or self-actualization such as that of Maul's sample was expected. Thus, although the significant correlations between creativity and self-actualization found by Maul were not replicated in this research, the similarity of the two concepts' significant correlations with the intuitive personality style suggest an overlap between measures of the two

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TABLE 13

Creativity and Self-Actualization Means, Standard Deviations and Product Moment Correlations for Two Studies: Maul, 1970 and Tuttle, 1973

		Maul (n = 137)	Tuttle (n = 233)
FLU	$\overline{X}$	83.04	57.99
	sd	31.91	11.12
	r_{SL-FLU}	.27*	.07
FLEX	$\overline{X}$	46.72	75.46
	sd	14.28	13.20
	$r_{SL-FLEX}$	.23*	.14
ORIG	$\overline{X}$	54.91	80.36
	sd	29.88	14.06
	$r_{SL-ORIG}$	.36*	.17
CREAT	$\overline{X}$		214.25
	sd	—	36.46
	$r_{SL-CREAT}$	—	.14
SL	$\overline{X}$	105.42	109.37
	sd	17.53	15.17

* $p < .05$

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concepts and, further, suggest what may account for a major portion of the overlap. The relationship between creativity and self-actualization might be further clarified by additional research on their mutual correlations with the Jungian intuitive personality type.

Although relationships between the measures of self-actualization, creativity and the personality types have offered several suggestive leads for further research understanding of self-actualization, results of comparisons with Jung's individuation concept have not been as clear-cut. The significant relationship between SL score and number of extreme function scores did point to some overlap between self-actualization and individuation as general growth concepts. The result of the test of the relationship between creativity and individuation was, however, ambiguous. Although the similarity of the measures of creativity and self-actualization in their relationship to intuition supported Maslow's integrated creativity construct, the lack of similarity of the two in relation to individuation points to the distinction between the two concepts suggested by Maslow's special talent and self-actualizing creativities.

The resolution of dichotomies appears to this author to be one of the most significant general theoretical characteristics typifying the three concepts of individuation, self-actualization

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and creativity. Resolution of dichotomies was reported for both high creatives (MacKinnon, 1960; Domino, 1969; Schaeffer, 1969) and the highly self-actualized (Maslow, 1970; Schultz, 1958). Called the union of opposites by Jung (1968), it is a major defining characteristic of individuation. This characteristic was not directly tested in this research. Further research exploration of its contribution to the relationship between the three concepts studied here would seem to offer hope of a clearer understanding of the concept of self-actualization as Maslow defined it.

Sex differences on the types, especially Feeling-Thinking, and on self-actualization were expected because of earlier research. Although some sex differences were found, they were not in the areas expected. Males and females did not differ on self-actualization or on the FT scale of the Detloff Types Questionnaire. Females were found, however, to be more extraverted and more creative than males.

The lack of expected sex differences is particularly noteworthy for the Feeling-Thinking dimension where women typically score higher on feeling and men on thinking in this culture (Myers, 1962). Detloff's FT scale may differ from the MBTI FT scale since Detloff attempted to minimize sex differences (Detloff, personal communication). It is also possible, however, that professional psychologists, as a group differ from the general population by drawing men more interested in

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feeling activities and requiring women who are more thinking than the average to complete the graduate studies required. Certainly this lack of sex difference is of some significance when these same professional psychologists are in the business of telling the general public how life can be better lived. If counselors and therapists are compensatory models of more feeling men and more thinking women, perhaps that accounts for a portion of their therapeutic effectiveness.

It is not clear why women professional psychologists should be more extraverted than the men. Since extraverted feeling types have been identified as most effective as counselors (Levell, 1965; McNamara, 1967), women of this type may choose the profession. There is no clear reason why men of this type do not also choose counseling as a profession, however, unless the total number of men of this type is much fewer as compared with women. It is not known whether a numerical difference between sexes on this type pattern actually exists.

It is even less clear why women in this sample were found to be more creative than men, while no differences between the sexes were found for self-actualization. A more complex analysis of the data would be necessary even to hypothesize why such differences occured. A more careful analysis of sex differences in any future study of the tested variables is reccmmended.

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Ego strength might be expected theoretically to correlate with self-actualization since the descriptions of both include high differentiation of ego and capacity for positive change and growth. Ego strength did show such a significant correlation with self-actualization ($\underline{r} = .26$, $p < .05$).

On the other hand, an expected correlation of Es with creativity did not occur. Barron (1969) found that for creative writers the mean Es score was 58, while for representative writers the mean was 52. In this study those scoring above the mean on creativity reported a mean score of 49.5 on Es, while the mean Es score for those below the mean on creativity was 49.7. The correlation between creativity and Es was $r = .001$, ns, indicating no relationship at all.

The only other significant correlation of Es was with SN ($r = .25$, $p < .05$), perhaps a reflection of the SL - Es correlation of $r = .26$, since SL and SN were also highly correlated ($r = .44$). Chi squares were performed for Es and SN, SL and SN and Es+ SL combined and SN. Although the Es-SN χ^2 was significant, most of the relationship between Es and SN seemed to be accounted for by its correlation with SL ($\chi^2_{Es\text{-}SN} = 4.98$, $p < .05$; $\chi^2_{SL\text{-}SN} = 26.54$, $p < .01$; $\chi^2_{Es+SL\text{-}SN} = 26.67$, $p < .01$).

Although the traditional interpretation of type scores was not contradicted by Es in this study, the problem of

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determining whether middle scores on the types scales include some very highly differentiated subjects as well as some who are very undifferentiated has not been settled. It is a difficult problem to evaluate within the present bipolar structure of the types questionnaires. It would certainly be easier to determine, if the functions could be scored separately as well as in either-or combinations.

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CHAPTER VI

SUMMARY AND CONCLUSIONS

Maslow's (1970) concept of self-actualization was examined by comparing it to Jung's (1971) concept of individuation as achieved through differentiation and integration of psychological functions. Subjects were 233 graduate students in counseling psychology, school psychology and clinical psychology programs at three Bay Area state universities. They were given tests of self-actualization, creativity, psychological types and ego strength. Test scores were examined for overlap of self-actualization with specific personality types, for similarities of self-actualization with individuation and for goodness of fit with Maslow's theory of the differences between self-actualization and creativity.

Jung's (1971) theory of psychological types defines two attitudes and four functions. Of particular importance to individuation are the functions. Maslow's self-actualization was compared with each function by means of correlation and an empirical cluster analysis. The correlation between self-actualization and the intuitive function was strong ($r = .44$, $p < .0001$). It was supported by the clustering with the sensation-intuition

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cluster of self-actualization, indicating an overlap between it and the intuitive pole of the cluster. No correlation between self-actualization and any of the other functions was significant. Thus, some evidence exists that self-actualization describes, at least in part, a particular personality style rather than a broadly applicable growth process.

On the other hand, a significant relationship between number of extreme function scores and self-actualization ($F = 4.45$, $p < .05$) supported the assumption of a general growth process, since self-actualization increased with number of functions found highly developed, regardless of which function was involved. An increase in number of highly developed functions is part of Jung's definition of individuation. Thus, the results show a similarity or overlap of the concepts of individuation and self-actualization.

The results appear to support two conflicting hypotheses regarding self-actualization: (1) that it is a general growth concept and (2) that it is not general, but specific to a particular personality style. The possibility thus suggests itself that of Maslow's seventeen characteristics of the highly self-actualized individual, some may be general characteristics of growth while others may be more limited descriptions of a particular style of development. It was suggested that characteristics of self-

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actualization be individually examined to determine which have the strongest correlation with the intuitive personality style. It was expected that some characteristics would be found to be of a general nature; a comparison of these characteristics with those posited in the concept of individuation might expand our understanding of the differences between general characteristics of self-actualization and those characteristics found to be specifically related to intuition.

In addition to Maslow's list of characteristics of the highly self-actualized individual, he (1962) defined self-actualization as a process to be contrasted with the creative process. By comparing creativity to individuation and the functions in the same manner as self-actualization was compared, the similarities and differences between creativity and self-actualization suggested by Maslow were explored.

Creativity was found to be significantly correlated with intuition ($r = .20$, $p < .05$) and mean creativity scores were significantly higher for groups of intuitive types as compared to groups of sensation types ($F = 3.81$, $p < .05$), indicating support for an overlap between creativity and intuition. However, when creativity was compared with individuation no clear pattern was evident. It was suggested that possible overlap between creativity and self-actualization be explored in terms of the extent to which

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it could be accounted for by their mutual correlations with the intuitive style.

The usefulness of the similar but more complex concept of individuation was discussed in terms of extending research on positive growth of the whole person. The importance of representing all possible personality styles in such a general concept as self-actualization was considered vital to the real appreciation and continuing development of each individual's unique personality now beginning to receive much-needed attention in education.

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APPENDIX

STYLES OF LIVING PREFERENCE SCALE

The following life situations reveal that people react in differing degrees to any particular setting. The scale for each of these settings uses the numbers 1 through 9, with a midpoint at 5. Working as rapidly as you can, circle the number in each scale that you feel most accurately represents your true position in relation to each of the two poles for each of the following life situations.

1. I have rejected most of the moral values I was taught.	1 2 3 4 5 6 7 8 9	I have rejected few of the moral values [5,6][1] I was taught.
2. I nearly always consider my interests first.	1 2 3 4 5 6 7 8 9	I nearly always consider the interests of others first.
3. I nearly always evaluate the situation before expressing my feelings.	1 2 3 4 5 6 7 8 9	I nearly always express my feelings without first evaluating the [3] situation.
4. I nearly always find it innately and effortlessly possible to cope with life.	1 2 3 4 5 6 7 8 9	I nearly always find it takes deliberation and effort to cope with [2,3] life.
5. I nearly always do the things I want to do.	1 2 3 4 5 6 7 8 9	I nearly always do the things I ought to do. [4]
6. I usually prefer that which is familiar and understandable.	1 2 3 4 5 6 7 8 9	I usually prefer that which is unexplored and unknown. [1]
7. I spend most of my time securing my future position.	1 2 3 4 5 6 7 8 9	I spend most of my time enjoying my present position. [7,12]

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8. I am usually uncomfortable with my emotions. 1 2 3 4 5 6 7 8 9		I am rarely uncomfortable with my emotions. [2,15]
9. I nearly always respond to my principles as the major guidelines for my behavior. 1 2 3 4 5 6 7 8 9		I nearly always respond to my situations as the major guidelines for my behavior. [14]
10. I nearly always can do something even if I know it will hurt somebody. 1 2 3 4 5 6 7 8 9		I almost never can do something if I know it will hurt somebody. [2]
11. Usually I am loved because I give love. 1 2 3 4 5 6 7 8 9		Usually I am loved because I am lovable. [5,6]
12. I rarely let myself be silly. 1 2 3 4 5 6 7 8 9		I often let myself be silly. [3,7]
13. I nearly always trust that the American values are best for me. 1 2 3 4 5 6 7 8 9		I nearly always trust myself as the best source of my values. [5,6]
14. When I feel angry I nearly always try to express it. 1 2 3 4 5 6 7 8 9		When I feel angry I nearly always try to control it. [2]
15. When I pursue my own interests I nearly always have reasons for my actions. 1 2 3 4 5 6 7 8 9		When I pursue my own interests I almost never have any other reasons for my actions. [3]
16. I am rarely assertive and affirming. 1 2 3 4 5 6 7 8 9		I am usually assertive and affirming. [2]
17. I nearly always act spontaneously. 1 2 3 4 5 6 7 8 9		I nearly always consider my actions. [3]
18. Usually my goal is to do "good works". 1 2 3 4 5 6 7 8 9		Usually I believe "the way to do is to be". [2,3]

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19. Evil is nearly always an intrinsic part of human nature which opposes good.	1 2 3 4 5 6 7 8 9	Evil is nearly always the result of frustration in trying to be good. [11]
20. I like to initiate change.	1 2 3 4 5 6 7 8 9	I like to protect tradition. [1]
21. Usually I don't try to predict what I'm going to do.	1 2 3 4 5 6 7 8 9	Usually I try to predict what I'm going to do. [3]

[1]Numbers in [ ] refer to the list of seventeen characteristics of the highly self-actualized on page 31. The item-characteristic correspondence is as it was determined by Offenstein (1972) during his further revision of the SL Scale.

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