The Perception and Expression of Metaphor as a Function of Intellectual Level and Cognitive Style.

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A DISSERTATION

Presented in Partial Fulfillment of Requirements for the
Degree Doctor of Philosophy in the Division of
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Georgia State University
1971

By

Joel Washington Chapman
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CHAPTER I
INTRODUCTION

The present study is an initial step in the search for clearer understanding of metaphor formation--its underlying psychological processes. The creation of metaphor is conceptualized as a cognitive activity which both filters perceptual and conceptual stimuli and creates, through the medium of language, a different interpretation of one's cognitive world. It is hypothesized that perception and expression of metaphor relate to certain types of cognitive functioning.

It is a singularly human activity to put thought into words. We communicate not only by signs and gestures but also by a highly complicated symbolic system which transforms experiences into linguistic forms. Language is highly conventional, since conventional usage of meanings and syntax is necessary for the communication of pragmatic information. On the other hand, language has its unconventional side as well--its growing edge.

Gendlin (1962) states that while language is logical, human experiencing is not always equally logical. He speaks of human thought as being "supralogical (p. 29)." Whereas conventional language tends to dichotomize experience (e.g., good vs. bad or right vs. wrong), phenomenal experiencing might best be translated into language as "right but not wrong" or "good and bad." In other words, it does appear
that linguistic forms can lessen the impact of unique experiencing, making language a limitation of the sensitive and aware individual.

But there are also individuals who seem capable of tailoring language to fit their needs rather than becoming encapsulated by words and sentences which are prefabricated and only loosely express personal meaning. Why is it that one person may say, "I am most happy and content right now," while another might express a similar feeling by exclaiming, "I overflow with a sensuous joy in living"? Both individuals have put words to personal experience but in quite different styles. The latter individual has expressed himself metaphorically, and, in so doing, has communicated a different kind of meaning. It would seem therefore, that one's linguistic and phenomenal horizon is broadened or narrowed by his ability to capture his supra-logical experiences in a personalized and yet highly communicative language. The metaphor is one way of facilitating this personalized language.

The present study will examine metaphoric perception and expression as a process by which man attempts to know and understand his world. Broadly conceived, all thought expressed in language is metaphoric in that certain perceptions and cognitions are selected in lieu of others. People interpret experience and present linguistically a filtering and construing of what they consider to be salient information. One must attend to and interpret experiences selectively as
it is manifestly impossible to report all degrees and varieties of stimulation—both sensory and cortical.

Considering metaphor not only as a poet's tool but also as part of the process of language and thought, it makes sense to ask what psychological functions facilitate or inhibit metaphoric self-expression and perception. Since experience is always interpreted to one degree or another, then what determines if the representation is stated metaphorically or not?

**Review of the Literature**

The very fact that so many people from various disciplines have shown an interest in metaphor is an indication that metaphor is an intriguing phenomenon, but the definition of metaphor remains unclear. Attempts to define metaphor have primarily come from the areas of philosophy, linguistics, and clinical psychology.

From the grammarian's viewpoint (*The MacMillan Handbook of English*, 1960), a metaphor is "a device for talking about one thing as if it were something else . . . . To suggest a likeness, while at the same time defining the limit of that likeness, is the delicate process of making a metaphor (p. 366)." It is suggested that all figurative language can be referred to as metaphor. In the field of literature, Turbayne (1962) states that the metaphor combines two categories of meaning and thus creates a new perspective. He
concludes that metaphor is a psychological creation. Embler (1966) defines metaphor rather broadly. Metaphor is a vehicle with which one organizes and sorts his perceptions, and it is through metaphor that language is adapted to a changing world.

Unlike the grammarian or student of literature, linguists do not technically recognize the term "metaphor." They prefer to speak of non-literal language created by semantic anomaly. To say "man is a human" is a literal statement. To say "man is a bear" is non-literal since calling man a bear involves crossing conceptual categories. In truth, man is not a member of the bear family. Not all anomalies become figures of speech as Osgood's Semantic Differential Technique demonstrates. Thus, a "hot day" is a literal phrase; a "hot issue" is metaphorical (and anomalous); and the phrase "hot flux" is more likely to be perceived as nonsense (also anomalous).

On the other hand, a number of philosophers see metaphor as a real process and have examined its role in the communication of meaning. For example Black (1962) speaks of the metaphor as the interaction of two ideas, each influencing the other. "It is two systems of ideas which are blended with a metaphor acting as a filter—emphasizing certain relation aspects through the exclusion of other cognitions (p. 39)." Thus, in the metaphor "man is a bear," certain likenesses between men and bears are emphasized:
man can be brutish, dangerous, vicious and instinct driven. The metaphor, however, does not imply characteristics untrue of men, such as seeing man as furry, having claws, or as having a long snout. Such differential perceptual ability is an interesting human capacity. Black says it is possible because the metaphor acts as a filter or screen through which some comparisons pass and others do not.

Cassirer (1970) exceeds Black in scope when he states that "language is, by its very nature and essence, metaphorical. Unable to describe things directly, it resorts to indirect modes of description, to ambiguous and equivocal terms (p. 120)." Words are only shadows of the actual experience they represent. Not only are all words metaphors, but also the creation of fresh metaphors is one method for surpassing the limits of categories of thought and their linguistic representation.

Royce (1970), building on Cassirer's views, divides ways of "knowing" into three epistemic categories: rationalism, empiricism, and metaphorism. Respectively these three trends in psychological studies are represented as thinking, perceiving and symbolizing. Royce sees metaphoric interpretation of events as a conceptualizing process separate from rational and empirical modes of communication.

Among psychologists of varying disciplines, there has been periodic interest in metaphor--mostly from a theoretical perspective. Stern (1931) stated that the function
of metaphor is to deemphasize certain comparisons and to highlight others, therefore agreeing with Black that metaphor acts as a perceptual filter. Stern conceptualized metaphor as the association of two common elements and the inhibition of other disparate characteristics. Supposedly, in the metaphor "man is a bear," man's brutishness becomes associated with that characteristic in the bear while irrelevant comparisons are suppressed. How such a selective process might operate in relation to other psychological functions is not explained, and it would seem that an associationistic explanation is too simple to account for so complex a linguistic event. However, Stern does say that "the metaphor gives the emotion directly, instead of talking of it; it does not describe, but makes us experience (p. 307)."

In summary, it would appear that metaphor is not only something which sorts and organizes perceptions but also something which can mobilize emotional responses. Brown (1958) has suggested that ultimately context determines whether or not a metaphor has a perceptual and emotional effect.

In a thorough review of literature on and related to the topic of metaphor, Anderson (1964) attempts to explain the psychology of metaphor through the application of various cognitive and physiological models. He suggests that individuals use metaphor in the process of both cognitively
structuring their world and reducing a high level of emotional arousal. He cites Bruner (1957) who states that people are able to go beyond the data at hand by the unique combinations of perceptions made possible by metaphoric thought. Berlyne (1960) is cited in reference to the organism's need for arousal-reduction. Berlyne emphasizes that organisms are motivated by tension-reduction. Anderson suggests that organisms seek both reduction and increase of tension, provided the increase is moderate. He states that, in humans, the dual functions of arousal increase and reduction is a characteristic of metaphor. The metaphor's novelty and appeal induces arousal, while its creation bridges the gap between two disparate ideas and this reduces tension. Anderson points out that, in Freudian terms, metaphoric language provides an acceptable outlet for libidinal discharge.

Review of Metaphor Research

Relatively little research on metaphor has been conducted, and, of the available studies, several treat metaphor only in a peripheral fashion. For example, Smith and Raygor (1956) found that relatively anxious individuals tend to verbalize more uncommon word-association responses than do control subjects. Miller and Isard (1963) in a study of semantic anomaly, utilized grammatically correct sentences ("Gadgets simplify work around the house") semantically anomalous but syntactically correct sentences ("Gadgets drill passengers from the eyes") and random strings of words
Subjects perceived semantically anomalous sentences through "white noise" more easily than they perceived random strings of words. Weinreich (1965) speaks of either increasing or decreasing ambiguity of meaning through the combinations of grammatical structures. Thus, some ambiguities would seem metaphorical and poetic while others would be perceived as nonsense.

Several studies have utilized metaphor or metaphorical devices in investigating other problems, but these studies have coincidentally shed some light on the nature of the metaphor. Davitz (1969) asked Ss to describe various emotional states. From their responses, he derived a listing of 556 emotional expressions which includes numerous metaphors. Fagan (1970) has investigated various modes of communication of emotional messages and suggests that intellectual intactness or integration is related to the ability to understand verbal metaphor as a communication of feeling. Other studies, such as Miller (1970), have used metaphorical projective devices to elicit the S's self-image.

A growing number of studies have investigated metaphor more directly. Sterzinger (1913) administered lists of metaphoric expressions to subjects and inferred from his results that the pleasure in metaphor comes from the forging of a new concept. Mawardi (1961) encouraged the use of metaphors in the resolution of cognitive impasses. She had
group leaders facilitate the evocation of feeling states by prompting individuals to express themselves in "feeling words." She concluded that this procedure evoked metaphors which, in turn, suggested creative solutions to group process problems.

A study by Knapp (1960) provides some information on the behavior of subjects when their task is to indicate metaphor preference. He found that on a preference scale from 1 to 7, Ss demonstrated fairly close agreement on metaphor preference. Most metaphors in his sample, drawn from literature and books of famous quotations, received mid-scale ratings with standard deviations ranging typically no more than one scale point either way. There were also no significant sex differences. In a factor analysis it was revealed that Ss tended to prefer metaphors which reflect dynamic activity rather than passive and oceanic expressions.

Koen (1965) approached metaphor using methodology from verbal learning studies. He concluded that the context of a sentence determines whether the reader will choose a metaphorical or literal word to fill a slot. For example: "The sandpiper ran along the beach leaving a row of tiny (stitches) in the sand." Some Ss were given with the sentence five literal associates to the word "marks," and another group was given metaphorical associates to the word "stitches." Ss given metaphorical associates chose the metaphorical response "stitches" 8.8 times out of 12 trials.
Of course, Koen's design seems to automatically call for this conclusion. An even more interesting study would be to see which word Ss choose under varying conditions without verbal associates present. However, a study by Michael (1970), on another level of inquiry, essentially supports Koen in stating that certain conditions or contexts must be present in order for Ss to perceive a metaphorical meaning in an utterance. In general, he states, the perception of metaphor is possible if it is capable of being translated by a literal equivalent.

Metaphor has also been approached from a developmental standpoint. Asch and Nerlove (1960) studied the language development of children and found that children first learn the literal meaning of a word and then separately learn to apply its metaphorical meaning. While the metaphoric usage is well learned by age nine, the understanding of the relationship between the physical term and its metaphoric use continues to develop until after age eleven. For example, children begin to understand that the word "sweet" can also refer to a personal attribute as well as a physical characteristic. Asch and Nerlove call such words "double-function terms."

Systematic clinical observations have also offered interesting information on metaphor. Ehrenwald (1966) concludes that a client's use of metaphor is an indication of repressed feeling--content of the metaphor is in itself
unimportant. In fact, he states that symptoms themselves are metaphoric communications of a problem. Lenrow (1966) suggests that the creative use of metaphor by therapists can unlock growth potential. A client's metaphors reveal his view of life and his assumptions on his role in the scheme of things. In this regard, Laffal (1965) analyzes the dominant metaphors expressed by therapy clients. Simkinson (1970), currently completing his dissertation on the occurrence of metaphor in psychotherapy, has noted that metaphor created between therapist and client is a way of sharing. He sees metaphoric utterances early in therapy as a distancing measure on the part of the client, but in later stages of therapy, therapist and client share a set of common experiences which may become expressed more intimately and humanly in metaphor. Finally, Ekstein (1966), too, sees the metaphor of schizophrenic communication as allowing distance from intense feeling while still allowing a type of communication. The metaphor is generated by primary thought process while therapy helps the client to integrate the feelings into secondary levels of thought.

Overall, studies of metaphor indicate that the metaphoric image not only arouses emotion (Lenrow, 1966; Sterzinger, 1913) but is also a product of emotional arousal (Davitz, 1969; Ehrenwald, 1966; Stern, 1931). Several studies (Craddick & Miller, 1970; Davitz, 1969; Fagan, 1970; Miller, 1970) have used metaphors to study the expression
and communication of emotion and self-concept. But studies by Koen (1965) and Michael (1970) suggest that metaphors are not evocative unless the metaphor is perceived as such. Thus, contextual variables, such as word associations or awareness of the literal antecedent to a metaphoric usage, are important. Another contextual variable may be that metaphor is not perceived unless the situation in which it occurs is emotionally involving one.

Studies by Knapp (1960) and Koen (1965) offer some descriptive data on metaphor, indicating that metaphors evoke widely differing individual responses and that it is possible to catalogue various types of metaphor. Koen names five conditions which produce metaphor: (1) A physical term used to describe psychological phenomena ("a green recruit."), (2) transposed psychological terms ("I'll buy that idea."). (3) a psychological term used to describe physical phenomena ("The dark clouds promised a storm."). (4) physical terms within a given sense modality transposed ("The meadow had a hem of daisies."). (5) use of synestheitic physical terms ("He wore a loud tie.") (p. 131). Thus, Koen emphasizes that metaphor involves the transposition of meaning from one sensory mode or dimension to another. This process is essentially what Asch and Nerlove (1958) called the "double-function term."

Research on metaphor consists of a relatively small number of studies, and, at this point, only suggestions of the nature of metaphor are available. Theoretical discussions
of metaphor, however, may offer some hints as to what direction a study of metaphor might take. Black (1962), Brown (1958), Embler (1966) and Stern (1931) generally agree that metaphor is a dynamic process which functions as a perceptual filter or as a vehicle for adjusting language to changing needs. In a broader scope, Cassirer (1970) emphasizes the metaphorical nature of language, saying that it is human to metaphorize experience. That is, we interpret and give form to environmental stimulation.

Anderson's theoretical article (1964) on metaphor essentially supports Cassirer and others but lends added clarity by discussing metaphor in terms of existing knowledge of psychological functions. As stated earlier, Anderson conceptualizes metaphor as a cognitive operation which serves to both arouse emotion and reduce tension. The production of metaphor is evidence of cognitive structuring activity.

What Anderson has realized is that, when those in psychological disciplines speak of metaphor as the putting together of two ideas to create a new concept, in psychological terms, they are talking about a cognitive activity. Stated metaphorically, Sterzinger (1913) referred to the cognitive activity as "forging" a new concept. But what is this forging of a concept like? What is the cognitive activity involved?

Overall, studies of metaphor seem to fall into two broad groups: those which study the conditions facilitating or inhibiting perception of metaphor and those which focus
on the conceptual process underlying expression of metaphor. The remainder of this chapter is devoted to forming a theoretical explanation of metaphor in an attempt to unite perceptual and expressive aspects of metaphor in terms of a cognitive model.

Stated once again, it is generally maintained that forming a metaphor involves a conceptual process of synthesizing two or more ideas in such a way as to suggest a certain attitude or impression. For example, Mawardi (1961) found metaphors useful in resolution of cognitive impasses. Suppose, in a similar manner, an individual was part of an interpersonal impasse. He might try to verbalize the conflict by saying, "It seems to me that we're building a wall of resentment between us." Following Koen's (1965) categorization of metaphors, the physical property of a wall, applied to the realm of a psychological phenomenon, leads one to perceive the conflict in a certain manner. That is, the metaphor emphasizes the physical and psychological separation and the lack of resolution between the two people in conflict. The metaphor is saying that, just as a wall divides, so does conflict. The cognitive activity involved seems to be one of selection of certain physical and psychological properties and one of integration of these properties into an image which captures how the person felt about the conflict.

Of what might the integration process consist? Cognitive functions have been conceptualized in a number of ways,
including the perceptual interpretation of Witkin (1962) or as cognitive controls (Garder & Moriarity, 1968). One of Guilford's (1967) contribution to the study of cognitive activity has been to separate cognitive skills into those which are divergent or convergent. According to Guilford, convergent intellectual skills involve the synthesizing of stimulus information and cataloguing of input into conceptual categories—such as tests of abstraction. Divergent thinking is that which is involved in creative thinking, where ability to be aware of alternative in problem-solving is desirable.

The creation of a metaphor may involve both divergent and convergent skills. To create the metaphoric image, the individual must first be able to select from alternative perceptions certain personally relevant dimensions and then be able to integrate these percepts into an image. Thus, metaphor would seem to be a highly complex function. The selection of percepts may be said to arouse emotion in that a state of ambiguity must be tolerated until the image is made comprehensible, at which point, a sense of pleasure or completion is felt concomitant with the reduction of tension and the formation of a personally meaningful image.

Other specific intellectual skills would seem relevant to metaphoric thought as well. For instance a person's vocabulary might influence the quality of metaphor, or a person with a highly differentiated vocabulary might use
less metaphor since he possesses numerous concepts for describing feelings and for encoding experience. Perceptual openness and awareness would also seem related to metaphoric thinking.

Given that cognitive development may be a matter of moving from conceptual undifferentiation to conceptual differentiation and integration or the development of convergent and divergent skills or the acquisition of cognitive controls, there still remains consideration of the way in which the individual makes use of such cognitive functions. In terms of a study of metaphor, it might be asked, "Which cognitive styles facilitate metaphoric thought and expression and which styles of conceptualizing tend to make a person speak in highly conventional or stereotypic modes?" If metaphor is a cognitive activity of selecting and integrating percepts, concepts and emotional experiences, then what factors would engender such complexity and conceptual flexibility in a person?

Anderson (1964) took the initial step of calling metaphor a cognitive function. Although not particularly concerned with metaphor, the work of Harvey (1961, 1966) in the area of cognitive style offers further possibilities of explicating the cognitive nature of metaphor. Cognitive style refers to the way in which individuals interpret environmental stimuli and, since metaphor has been hypothesized as a cognitive and interpretive activity, theories of cognitive
consistency will be briefly discussed while particular emphasis is given to Harvey's investigations.

Beginning with Kelly (1955), theories of cognitive style, in part, are an outgrowth of cognitive consistency theories. Kelly posited that people give structure and meaning to their experiences (perceptual, kinesthetic and cognitive). Individuals organize and selectively interpret stimuli from a myriad of possible interpretations and in accordance with their needs. These interpretations or personal hypotheses are called cognitive constructs. He further stated that individuals vary in degree of cognitive differentiation in certain areas of functioning. Kelly concentrated on interpersonal relationships and, with the Role Construct Repertory (REP) Test, found that some people possess many constructs about other people while some individuals construe personal relationships with few and global constructs (e.g., "all people are good or bad"). Thus people vary in terms of cognitive complexity. There have been numerous elaborations on Kelly's work, such as Bieri's (1966) investigations of cognitive complexity or Festinger's (1966) dissonance theory.

Cognitive style has been elaborated most comprehensively by Harvey (1961, 1963, 1966) in his Conceptual Systems Theory (CST). Harvey attempts to interrelate cognitive functions with a theory of motivation, a theory of affect, perceptual processes, and studies of value orientation. Based on the contention that it is human to give structure to experience,
Harvey goes on to define the self as that integration of constructs which are in the service of maintaining the individual's necessary level of emotional activation. Not only do individuals seek to avoid excessive stimulation, they also positively seek to avoid too much boredom. Harvey concludes that people who have low levels of activation develop cognitive styles which help the person avoid excessive stimulation or ambiguity. Maintaining the status-quo is necessary. However, individuals requiring higher levels of stimulation must maintain a more open cognitive system in order to allow ambiguity, new awarenesses, and change in the status-quo.

Harvey's model (1966) is also developmentally oriented. He states that one determinant of an individual's activation level is childhood, familial experiences. In brief, he finds that children raised in strict, emotionally restrictive and punitive homes tend to be more conforming and absolutistic than children from permissive environments. Children in permissive homes are freer to explore their world and thus tend to be more creative and cognitively complex. They are more likely to notice the unusual and to incorporate it into an ever growing and changing cognitive structure.

In using the term "complexity," Harvey means more than the number of cognitive constructs a person maintains on a given issue. Harvey (1966) writes of conceptual systems in terms of complexity of structure and by "structure," he means "the relationship amongst the various parts of a system
These parts are interrelated functionally, and change, reorganization or articulation of the parts or system processes depends upon resolution of "conflict between intra-system tendencies (p. 41)." How the person meets conflicting cognitive inputs, tendencies or attitudes is determined by the level of complexity of his conceptual system.

Harvey states that the complexity of a cognitive system is based on a process of differentiation and integration of system parts. By "part," it appears he means something like a constellation of attitudes or personal constructs on a topic such as "the American way of Life" or "sex" or "marriage." When a person encounters deviant attitudinal input, he may either ignore it or integrate it into his cognitive structure. For example, suppose an individual maintains a set of cognitive constructs on the concept of race. Very gross differentiation of the concept might be revealed by the person's statement, "All black people are lazy," or "All black people are either faithful or uppity." The concept is of low differentiated and complexity because it involves only bifurcated evaluation. A more complex concept of race might state that "Some blacks are not trustworthy when life experiences have taught them to be dishonest, but others may become individuals of high scruples because they wish to change a poor past." This concept is more complex because it involves fine differentiations in situations, motivation and intent.
Harvey dimensionalizes cognitive complexity in terms of concreteness--abstractness. The individual who makes bifurcated, absolutistic value judgements is concretistic in that he forms global, undifferentiated cognitive constructs. The absolutism is a way of avoiding the conflict which would be experienced from awareness of input deviant to his rather inflexible, simplistic view of an issue. More abstract conceptual systems are flexible and can tolerate deviant input because the individual relies on numerous cognitive constructs or interpretations of experience which transcend the fluctuation of daily events. Deviant input does not threaten a drastic change in his world view as it would threaten the individual who makes sense out of the environment with only a few concrete beliefs.

Harvey also delineates several properties of the dimension of concreteness--abstractness:

(1) Clarity--ambiguity: This property refers to the degree of stimulus discrimination in a cognitive construct. "All blacks are lazy" is indicative of poor discrimination since it ignores individual differences. Because of its generality, the statement is ambiguous.

(2) Compartmentalization--interrelatedness: A concept may be clearly differentiated but not interconnected with other concepts in the conceptual system. Many older indigenous Southern Americans remember a black nanny with affection. They knew her as a person who could sometimes scold and
sometimes be very loving. Yet, they may equally hate and mistrust blacks in general.

(3) Centrality--peripherality: Cognitive structures which hinge on one or two main constructs are rigid. They are rigid because the individual's self esteem is easily threatened if deviant input is allowed. A decentralized cognitive system, with the system parts carrying equal importance, is more flexible and stable. Self-esteem is based on many cognitive interpretations of experience.

As stated earlier, the degree of complexity of a cognitive system is largely determined by childhood experiences. Harvey sees cognitive development naturally progressing from a diffuse, global and concretistic structure to one which is more differentiated and flexible and less centralized. However, development can be arrested by environmental influence, and Harvey proposes four basic cognitive styles to represent levels of development in a conceptual system.

Cognitive level I functioning is equivalent to the most simplistic cognitive style. The level I individual tends to be concrete in his beliefs and absolutistic in his judgement. He is so rigid because his self esteem hinges on several highly centralized and undifferentiated cognitive constructs. In support, Harvey (1966) finds that level I individuals score the lowest on Kelly's REP Test, indicating they maintain fewer cognitive constructs than other system types. This means they have fewer interpretations and explanations
of other people's behavior. Level I individuals also are found to score highest on measures of dogmatism, authoritarianism and rigidity. Perceptually, they score the lowest on the Embedded Figures Test and also score lowest on tests of creativity. The level I individual tends to say, "All people should have a religion" or "Marriage is a sacred vow sanctioned by God, and sex should be saved till marriage." The level I individual comes from a home where diversity of opinion is not tolerated. Deviancy is severely punished and the child is rewarded for believing as he is told to believe.

The level II individual is in rebellion against level I-type values. He is equally absolutistic and judgemental but in the opposite direction of the level I person. Both level I and II individuals come from restrictive home environments with the exception that level II individuals have experienced erratic and inconsistent parental guidance. Harvey finds that level II's score second lowest on the REP Test. Whereas level I's demonstrated high concern with religion, level II's show little concern. They also score very low on measures of authoritarianism yet are nearly as dogmatic and rigid as level I's. On the Embedded Figures Test, level II's scored second lowest. The level II person might complain, "All American institutions are corrupt."

The level III individual, instead of being excessively moralistic or stern, tends to be quite relativistic and acquiescent. Yet, he is aware of divergent viewpoints and
does not judge one as necessarily best. Thus, he is more cognitively complex because of greater differentiation and decentralization of his conceptual system. The level III might be heard saying, "Some people need organized religion and other's don't—it's probably an individual matter." The level III person comes from a more permissive home but one mainly permissive in the area of interpersonal relationships. The level III person is impressed more by demonstrations of expertise while level I and II individuals either subscribe to or rebel against institutional authority. Level III's are dependent on relationships while level I individuals see friendship as a commodity to possess.

Harvey finds that level III's score third highest on the REP Test. While level I's scored highest in concern with religion and authoritarianism, level III's scored second highest. However, level III's also score fairly low on dogmatism and rigidity. Perceptually, level III's score higher on the Embedded Figures Test than level I's or II's. Level III's also score slightly higher on tests of creativity than do level I's.

Level IV individuals are the most cognitively complex and most integrated cognitive type. Not only are they aware of and acceptant of divergent opinions, they are also willing to state their own beliefs. They tend to be the cognitive level most open to new information and, instead of being led by authority or expertise solely, they are able to
guide their actions by interpreting and evaluating conventional practices in light of their own personally determined value system. These individuals come from homes which encourage exploration of the environment so that fine differentiation of cognitive structures is allowed. The level IV person might say, "The American way of life is something not to crow about but to enjoy quietly and improve slowly where possible." Harvey finds that the level IV person scores highest on the REP Test. He scores lowest on measures of dogmatism, authoritarianism, and rigidity. He scores highest on the Embedded Figures Test and on tests of creativity.

At least one criticism of Harvey's system is also a criticism of all cognitive theories. The term "cognition" has almost as many meanings as there are research devices to measure cognitive activity. Perceptual studies of cognition speak of field dependence (e.g., Fiebert, 1967). Other studies speak of conceptual differentiation--integration (Gardner & Moriarity, 1968). Cognitive consistency theories are based on complexity or dissonance, so that there is no unified theory of cognition. Considering the multiplicity of constructs, it is to Harvey's credit that he has formulated a comprehensive model of cognitive functions and cognitive style which has the heuristic value of suggesting many research possibilities.

Returning to the area of metaphor, there are a number of instances where Harvey's theorizing shares close conceptual
proximity to previous discussions of metaphor. Harvey has found that the cognitively complex person is more open to the ambiguities of human experiencing. He is more likely to confront the contradictions of life and attempt to integrate these into a cognitive structure. The simplex person ignores—perceptually and cognitively—contradictions and fits his experiences into fewer and less differentiated cognitive constructs. He tends towards expression of generalities and superficialities.

Earlier, metaphor was defined as a process of selection of personally relevant percepts and integration of these into an image. In a cognitive system of relatively gross differentiation and integration of stimuli, metaphor would seem unlikely to occur. In the first place, metaphor would not be needed, since the individual relies on simplistic and narrow categorizations of experience. Subtleties of experience are ignored and thus the individual would not need a creative language to encode such information. Furthermore, it has been suggested that metaphor creates ambiguity in its attempt to create a conceptual category. In the metaphor, "man is a bear," the expression is somewhat ambiguous in that it both suggests likenesses between men and bears, and yet the reader knows that the statement is not to be taken wholly literally. The cognitively simplex individual, such as a level I type, should be intolerant of such ambiguity because of his rigid cognitive structure and
because of his tendency to categorize absolutistically. To the level I, man cannot both be like a bear and unlike a bear. Probably, this last statement is an exaggeration of the level I mentality, but it is made to express a stereotype, which is what each of Harvey's four cognitive styles is.

In a complex conceptual system with greater differentiation and integration of parts and more flexibility, stimulus ambiguity is more easily tolerated and more often encountered. For example, the level IV individual more often will encounter experiences which do not neatly fit existing conceptual categories. To account for deviant input, he must transcend categories and create new constructs to integrate information into his cognitive structure. To say that "man is a bear" is a complicated expression, but it is likely an expressive tool available to the level IV person since he can better tolerate its ambiguity. The level IV is more likely to use metaphor because he has more cognitive constructs which he can juxtapose and integrate into an image which suggests a new interpretation of experience.

The present study is an attempt to test several hypotheses to determine how cognitive skills (intelligence) and cognitive style (via CST) are related to perceptual and expressive preference for metaphor. Intelligence level was measured by use of the Shipley-Hartford Scale, and cognitive style was determined by use of Harvey's TIB. In choosing cognitive styles for the study's groups, cognitive level III's
were used instead of the level IV type. As discussed in more
detail in Chapter II, level IV's occur quite infrequently in
the population, but level III's comprise roughly 20% of the
sample. To investigate perceptual preference for metaphor,
a Metaphor Preference Schedule (MPS) was constructed. The
MPS is a paper-and-pencil task in which a S chooses what he
considers to be the best expression of feeling--either a
metaphor or a literal item. To explore expressive preference
for metaphor, Ss were also asked to write a Peak Experience
Essay. Both the MPS and the Peak Experience Essay are ex­
plained in detail in Chapter II.

The following hypotheses are proposed.

1. Cognitive level III Ss will score higher on the
Metaphor Preference Schedule than will cognitive level I Ss.

It has been stated that the more complex a person's
cognitive style, the more he should prefer metaphorical ex­
pressions. Harvey has stated that cognitive style III in­
dividuals have construct systems which are more highly dif­
ferentiated and integrated than those of cognitive style I
individuals. That is, level III persons utilize a greater
number of constructs in explaining situations or maintaining
beliefs, and their self-concept and self-esteem do not hinge
on maintaining a few key concepts. Deviant input to their
construct system or ambiguity in constructs can be tolerated
because the self is composed of many constructs. Level III's
not only can tolerate the ambiguity of metaphor but they also
should more often require metaphor as a means of resolving conflict among constructs than would level I individuals.

2. Higher IQ Ss will score higher on the MPS than will lower IQ Ss.

The possible role of intelligence level in metaphor preference has been presented. In general, the higher an individual's level of intelligence, the more likely he is to prefer metaphorical expressions. While cognitive style depends upon the extensiveness of conceptual differentiation and integration in maintaining a self-system, the ability to differentiate and integrate stimulus input is an intellectual function. The more proficient an individual is at differentiating and integrating stimulus information, the better he is at recognizing complex verbal stimuli such as metaphor. The MPS asks Ss to choose the expression most communicative of emotional meaning and, assuming that metaphor is the best communication of feeling, bright Ss should choose metaphor more than Ss of lower intellectual level.

3. There will be an interaction between IQ and cognitive style in S performance on the MPS.

Hypotheses 1 and 2 imply that cognitive level III, high IQ Ss will score the highest on the MPS.

4. Ss scores on the MPS will correlate positively with their scores on the Peak Experience Essay.

Exploring the relationship of perception and expression of metaphor involves two dependent measures of metaphor
preference. As a starting point for exploration, it is assumed that there will be a positive correlation between S performance on the MPS and S performance on the Peak Experience Essay. That is, if a S perceives metaphors as the best expression of feelings, he should also use metaphor in describing the emotional nature of his peak experience.

5. Higher IQ, cognitive level III Ss will demonstrate the highest positive correlation between MPS scores and Peak Experience Essay ratings.

Since it is suggested in hypotheses 1 and 2 that high IQ, cognitive level III Ss will score the highest on the MPS, they should also score the highest on the Peak Experience Essay.
CHAPTER II

METHOD

The first step in the study involved constructing the MPS, in order to determine whether or not perception of metaphors, as measured by a paper-and-pencil task, is meaningfully related to the independent variables. Initially, E collected a number of phrases or sentences thought to be either examples of metaphorical or non-metaphorical emotional expressions. The majority of items were selected from Davitz's (1969) research on the communication of emotional meaning. For example, a representative metaphorical expression was "I feel sure, accomplished, happy." Additional items were collected by E, with obvious cliches being excluded. A listing of cliche and non-cliche phrases provided by Lindauer (1968) served as a guide for excluding such well-known expressions.

Ten graduate students in English were given a list of 80 items—40 of which E had previously judged as metaphors and 40 of which he judged as literal expressions. Judges were instructed to define metaphor broadly, including any expression which they thought should not be interpreted at face value. The judges' task was to judge each item as metaphorical or literal. Of the 80 items, 59 received 80% agreement among the judges. Eighty percent agreement was established as a reasonable cut-off point, in that lower
percentages of agreement would be too close to chance. Of
the 59 items receiving 80% or better agreement, 30 expres-
sions obtained 100% consensus as to whether or not they were
metaphors or literals; of those 30 items, 14 were metaphors.

From the 59 items, E selected 19 metaphors and 19 lit-
eral expressions to construct a preliminary MPS. Twenty-one
items were discarded for various reasons: according to E's
judgement, some expressions contained very negative content
("My brain is just a jungle of junk.") while others were con-
sidered by E to be too close to sounding cliche. ("There's
a lump in my throat.") In selecting the 38 items, E at-
ttempted to roughly match metaphorical expressions with lit-
eral equivalents. Thus, one metaphor, "There is an inner,
warm glow," had a literal counterpart, "There's a sense of
intense well-being." There was also an attempt to maintain
a balance between emotionally positive and negative expres-
sions.

Each of twelve positive metaphors was paired with each
of twelve positive literal items, giving 144 paired compar-
isons of positive emotion expressions. In a separate section
of the MPS, each of seven negative metaphors was paired with
each of seven negative literal items, yielding 49 paired com-
parisons of negative emotion expressions. These 193 items
were collected into booklet form.

Seventeen females and 10 males in a sophomore Introduc-
tory Psychology class were asked to choose the expression in
each pair of items which they preferred as a way of expressing oneself. One week later, the Ss were retested. Reliability coefficients were calculated for each item on the schedule. Moderate correlations were expected since metaphor seems to be related to emotional arousal, and thus some variability would seem reasonable. In fact, coefficients ranged from .44 to .92 (see Appendix 1), all significant at the .05 level of confidence. The test-retest coefficient for the total scores was .71. Upon retest, Ss were asked to indicate how much boredom they experienced with the large number of forced-choice items and how much they relied on memory of the first testing. On a seven-point scale, Ss indicated low to moderate boredom and moderate recall. Thus, the reliability coefficients seem to be reasonably reflective of the stability of test items.

Another class of Introductory Psychology students was given the preliminary MPS items and asked to rate each on the following dimensions: originality of the expression, effectiveness of the expression in communicating meaning, personal preference for the item, and degree to which the item personally described the rater. All dimensions were rated on a five-point scale, "one" meaning a low rating and "five" meaning a high rating. Responses were grouped by age in order to control for the possible effects of age increases on metaphor preference patterns. The 26 raters
ranged in age from 18 to 50 years (Mean Age = 27.5). Table 1 gives the median ratings for the items. Upon inspection of Table 1, it can be seen that there is little difference between age groups in regard to median ratings for the items.

In the final revision of the MPS (see Appendix 2), eight metaphors and eight literal expressions were selected and roughly matched in terms of the dimensions discussed above. Only positive metaphors were paired with positive literal items and only negative metaphors were paired with negative literal items, but negative pairings were not placed in a separate section. All pairs were randomly distributed. The revised MPS thus consists of 32 paired-comparisons. The S is asked to choose the expression in each pair which he thinks best communicates feelings. An MPS example pair, "(a.) want to hold back time and capture the moment or (b.) I feel sure, accomplished, happy," was presented in the instructions. Since the items are those which judges considered neither particularly trite nor unusually original, the S's choice between a metaphor or literal items should be largely determined by the personal appeal of the expression itself. In view of the 32 paired-comparisons, a metaphor preference score of 0 to 32 is possible, a score of 32 indicating strong metaphor preference.

The second dependent measure, used to generate metaphor in Ss, is the Peak Experience Essay (see Appendix 3). Ss were asked to write a brief paragraph describing an
TABLE 1
Median Ratings of MPS Items

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Dimensions</th>
<th></th>
<th></th>
<th></th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Originality</td>
<td>Effectiveness</td>
<td>Preference</td>
<td>Descriptiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 30</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>23-30</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>18-22</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Negative Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 30</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>23-30</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>18-22</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>
emotionally significant event in their life, thus indicating in a written task their expressive preference for metaphor.

The peak experience was taken as an index of the S's ability to express himself metaphorically, based on Maslow's discussion of the nature of peak experiences. Maslow (1956) stated that the peak experience is a cognitive process, and the genuine peak experience evidences what he calls B-cognition. B-cognition is a perceptual-conceptual process in which the usual modes of conceptualizing objects are set aside and persons, events, or places are seen in a new perspective. In B-cognition, an object is valued for itself. In B-cognition, the typical dichotomies of language and thought are transcended and the person perceives himself at one with his world. Maslow further contrasts B-cognition to D-cognition, which is the instrumental conceptual process. D-cognition catalogues experience into the usual and pragmatic categories of meaning. Objects are not valued for themselves but are given a label and class and are perceived only as such. B-cognition leads one to see the fresh and unusual in life, much like a drug experience may cause one to perceive and cognize events in novel ways. B-cognizers are conceptually flexible and emotionally open to new ways of perceiving. They are simultaneously able to abstract without giving up concreteness.

Maslow's description of B-cognition is strikingly similar to the definition of metaphor as a cognitive activity.
Both B-cognition and metaphor are complex cognitive processes requiring ability to both abstract and integrate percepts into a communicable image. Both B-cognition and metaphor lead one to discover novel ways of interpreting events. Thus, the rated level of a S's peak experience was used as an indicator of his ability to express himself metaphorically, since to express a transcendent experience requires transcendent language.

To assess intelligence, using a quick-scoring intelligence test, the Shipley-Hartford Scale (1940) was chosen. The Shipley was originally developed as a measure of cognitive inefficiency due to the effects of various behavior disorders: psychoses, neuroses, brain-damage. It consists of a multiple choice vocabulary test and an abstraction test. On the abstraction test, Ss must determine the logic in a series of numbers, letters, or words and provide the next logical response in the sequence. Each subtest is loosely timed with as much as ten minutes allowed for each test. Although originally devised to detect intellectual impairment, it also yields an estimate of present level of intellectual functioning (Wright, 1946).

Paulson and Lin (1970) report a correlation of .78 between the Shipley and the WAIS, thus supporting other studies of the Shipley's correlation with other intelligence measures. They also support the general finding that the Shipley is a good estimator of intelligence level for Ss.
with average and above average intelligence. In more extreme intelligence levels, Shipley scores become unreliable.

The second independent factor hypothesized to be related to metaphor behavior is cognitive style. The measure of cognitive style in the present study was Harvey's This I Believe (TIB) Test. It consists of a page of instructions, followed by nine pages in booklet form. Each page begins with the caption, "This I believe about ______" which is followed by one of nine topics: people, the American way of life, religion, marriage, myself, sin, friendship, immortality and compromise. In the present study, the topic of "sex" was substituted for "compromise." The TIB instructions are as follows:

In the following pages you will be asked to write your opinions or beliefs about several topics. Please write at least two (2) sentences about each topic. You will be timed on each topic at a pace that will make it necessary for you to work rapidly. Be sure to write what you genuinely believe. You must write on the topics in the order of their appearance. Wait to turn each page until the experimenter gives the signal. And once you have turned a page, do NOT turn back to it. PLEASE DO NOT OPEN THIS BOOKLET UNTIL YOU ARE INSTRUCTED TO BEGIN.

The TIB includes extensive scoring criteria and sample responses. The S's response to each topic is judged on the basis of whether it is a cognitive level I, II, III, or IV type statement. If six out of nine topics are scored as representing one level, then the person is classed as that cognitive style. In cases where no cognitive level dominates
a S's responses, the protocol is scored as a mixed type. Common mixed types are I-II or I-III mixes.

Extensive research with the TIB, as surveyed and reported by Greaves (1970), indicates that the TIB does differentiate individuals along various dimensions such as degree of authoritarianism, dogmatism, cognitive complexity and rigidity. Although scoring criteria are complex and difficult to apply at times, high inter-scorer reliability is not difficult to achieve.

After selection and construction of the various independent and dependent measures, a testing procedure was developed. Initially, 192 Ss were given a battery of items including the instruments of the present study. Ss were tested in groups ranging in size from 4 to 25 persons. The testing procedure generally required 60 to 75 minutes. Each item in a S's battery was identified only by social security number, age and sex, and tests were administered in the following order: the Metaphor Preference Schedule, the Shipley Scale, the This I Believe Test and finally the Peak Experience Essay. In addition, the A-B Scale was added to the battery as a dummy measure to insure that Ss did not guess the rationale behind the test measures. The sequence of tests was arranged to avoid any order effects or other extraneous factors. Testing in large numbers progressed smoothly, and most Ss seemed to reasonably enjoy the several tasks.
In the present study, Shipley total raw scores were converted to estimated WAIS verbal IQ's by means of the regression equation, $Y' = (\text{verbal} + \text{abstraction score}) (1.0586) + 61.1764$ (Smith, 1971). All the This I Believe protocols were next scored by E. An inter-scorer reliability estimate was obtained by submitting a sample of 25 TIB's (randomly selected) to another graduate student with experience in scoring the measure. The second scorer did not have prior knowledge of the distribution of cognitive style levels in the sample of 25 protocols. In an initial comparison of agreement between the two sets of scorings, 80% agreement was achieved. Of the five disagreements, three were due to simple arithmetic or scoring errors, thus raising agreement to 92%. On the remaining two disagreements, E and the second judge reviewed scoring criteria for TIB's. It was discovered that these two were protocols scored when E was still learning the criteria and had mistakenly not been rescored at a later time. Thus, reliability was raised to 100%.

All Peak Experience Essays were also rated first by E. Essays received a score from one to five, with "one" meaning trite and "five" meaning a genuine peak experience. Scoring criteria were developed at Georgia State University by Breed (1964) and are reported in Appendix 4.

E rated the essays without knowledge of the Ss' cognitive style. However, to insure against any possible
experimenter bias and to establish inter-scorer reliability, a random sample of 20 peak experiences were selected and given to an English graduate student interested in the psychological aspects of language. The English student was given ten practice essays, and both E and the second judge discussed any ambiguities concerning the peak experience scoring criteria. Although the graduate student knew the research concerned metaphor, he was not aware of the relationship of the essays to the total study. The degree of correlation between E and the second judge's ratings was .68 (significant at the .001 level with \( t = 4.73, df = 26 \)).

From the pool of 192 Ss, the test results of 60 Ss were selected to satisfy the requirements of the study's design. Selection of the 60 Ss was guided by several practical considerations and some limitations imposed by the independent measures. First, even though 192 Ss were tested, only 29 Ss were found to represent cognitive level III (15%). There were also 100 cognitive level I's (52%), three level II's (2%), one level IV (1%) and 59 mixed level types (30%). The distribution of cognitive levels in the study's sample is somewhat different from the distribution reported by Harvey (1966). Out of 1400 Ss tested at the University of Colorado, he reports 30% were level I's, 15% were level II's, 20% were level III's, 7% were level IV's and 28% were mixed types. However, in a sample of Georgia State University students in Introductory Psychology
classes, Greaves (1970) reports a distribution roughly equivalent to that of the present sample. Thus, Georgia State students seem to be predominantly level I or mixed types.

Since the group of cognitive level III Ss had to be divided between two intelligence levels, the N for each group was set at 15. The one cognitive level IV S was added to the cognitive level III group. For the sample of cognitive level I Ss, high and low IQ scores were chosen to match the two IQ groups of cognitive level III's on the basis of mean IQ scores. Tables 2 and 3 present a further description of the sample.

The sample of 60 Ss, 32 females and 28 males, was composed of students from classes at Georgia State University, West Georgia College and Oxford College. Thirty-four Ss from Introductory Psychology classes and 9 Ss from introductory and upper division philosophy courses came from Georgia State. Fourteen Ss came from West Georgia College, some of whom were in Introductory Psychology and some of whom were in advanced courses. Three Ss came from Oxford College. In addition to meeting the requirements of the independent variables, an attempt was made to equally represent both sexes and to roughly match mean ages across groups.

The study's design is as follows: hypothesis 1, 2 and 3 were tested by means of a 2 x 2 factorial analysis of variance, fixed effects model (Edwards, 1966), with IQ scores
TABLE 2

Mean Age, Range and Distribution of Sexes in Each Group

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Males Low IQ</th>
<th>Males High IQ</th>
<th>Females Low IQ</th>
<th>Females High IQ</th>
<th>Males &amp; Females Low IQ</th>
<th>Males &amp; Females High IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Age</td>
<td>24.4</td>
<td>22.9</td>
<td>18.4</td>
<td>18.3</td>
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</tr>
<tr>
<td>Mean</td>
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<td>19.6</td>
<td>22.0</td>
<td>22.4</td>
<td>25.0</td>
</tr>
<tr>
<td>Range</td>
<td>19-37</td>
<td>18-42</td>
<td>18-22</td>
<td>18-30</td>
<td>18-37</td>
<td>18-42</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
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<td>7</td>
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<td>15</td>
</tr>
<tr>
<td>I and III</td>
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<tr>
<td>Mean</td>
<td>24.8</td>
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<td>19.0</td>
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<td>22.1</td>
<td>22.2</td>
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<tr>
<td>Range</td>
<td>19-37</td>
<td>18-42</td>
<td>18-22</td>
<td>17-30</td>
<td>18-37</td>
<td>17-42</td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>12</td>
<td>14</td>
<td>18</td>
<td>30</td>
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TABLE 3
Mean Estimated WAIS Verbal IQ Scores for Low and High Groups and Cognitive Styles I and III

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Males Low IQ</th>
<th>Males High IQ</th>
<th>Females Low IQ</th>
<th>Females High IQ</th>
<th>Males &amp; Females Low IQ</th>
<th>Males &amp; Females High IQ</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>I</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>105.63</td>
<td>3.60</td>
<td>108.14</td>
<td>1.46</td>
<td>106.80</td>
<td>3.08</td>
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<tr>
<td>SD</td>
<td>114.50</td>
<td>1.87</td>
<td>115.57</td>
<td>.73</td>
<td>115.00</td>
<td>1.55</td>
</tr>
<tr>
<td>III</td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>108.00</td>
<td>4.21</td>
<td>110.29</td>
<td>1.67</td>
<td>109.10</td>
<td>3.47</td>
</tr>
<tr>
<td>SD</td>
<td>115.75</td>
<td>.83</td>
<td>114.82</td>
<td>1.47</td>
<td>115.10</td>
<td>1.39</td>
</tr>
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<td>I and III</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>106.81</td>
<td>4.10</td>
<td>109.21</td>
<td>1.90</td>
<td>107.93</td>
<td>3.47</td>
</tr>
<tr>
<td>SD</td>
<td>114.92</td>
<td>1.71</td>
<td>115.11</td>
<td>1.29</td>
<td>115.03</td>
<td>1.47</td>
</tr>
</tbody>
</table>
estimated from the Shipley test scores and cognitive style level as the independent factors. The two levels of each factor were low and high estimated IQ scores for the first factor and cognitive levels I and III for the second factor. The dependent variable was MPS scores.

Hypotheses 4 and 5 were tested by use of the correlation ratio (Bruning & Kintz, 1968) in which MPS scores were correlated with Peak Experience Essay scores. For all hypotheses, the null hypothesis was rejected at the .05 level of confidence (one-tailed).
CHAPTER III

RESULTS

The mean MPS scores for the low and high IQ groups of cognitive level I and level III Ss and of the low and high IQ groups for both cognitive levels combined is presented in Table 4. To investigate the first three hypotheses postulated in this study, a 2 x 2 (level x IQ) analysis of variance was computed. This analysis, shown in Table 5, shows intelligence as the only significant main factor with no interaction effect. Thus, hypothesis 1, stating that cognitive level III Ss would score higher on the MPS than cognitive level I Ss, was not supported. High IQ Ss scored significantly higher on the MPS than did low IQ Ss, thus supporting hypothesis 2 at the .05 level of confidence. Hypothesis 3, that there would be an interaction between intelligence level and cognitive style, was not supported.

Since intelligence level was found to be significantly related to mean MPS scores, the extent of this relationship was more thoroughly explored by correlating IQ and MPS scores for each group and for the total N. Table 6 presents the various coefficients which were all found to be non-significant. Thus, while high IQ Ss scored significantly higher on the MPS than did low IQ Ss, it cannot be said that the higher a S's level of intelligence, the greater his preference for MPS metaphor.
TABLE 4
Mean Scores on the MPS

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Low IQ</th>
<th>High IQ</th>
<th>Low and High IQ</th>
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<tbody>
<tr>
<td>I</td>
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<tr>
<td>Mean</td>
<td>14.27</td>
<td>17.53</td>
<td>15.90</td>
</tr>
<tr>
<td>SD</td>
<td>5.25</td>
<td>3.63</td>
<td>4.80</td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>14.93</td>
<td>16.67</td>
<td>15.80</td>
</tr>
<tr>
<td>SD</td>
<td>5.72</td>
<td>4.98</td>
<td>5.43</td>
</tr>
<tr>
<td>I and III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>14.60</td>
<td>17.10</td>
<td>15.85</td>
</tr>
<tr>
<td>SD</td>
<td>5.50</td>
<td>4.38</td>
<td>5.12</td>
</tr>
</tbody>
</table>

Note.--The variances were tested and found homogeneous.
TABLE 5

Summary of Analysis of Variance of the MPS Scores
(Cognitive Style X IQ)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Style</td>
<td>1</td>
<td>.150</td>
<td>.006</td>
</tr>
<tr>
<td>IQ</td>
<td>1</td>
<td>94.350</td>
<td>4.356*</td>
</tr>
<tr>
<td>Style X IQ</td>
<td>1</td>
<td>8.216</td>
<td>.379</td>
</tr>
<tr>
<td>Error</td>
<td>56</td>
<td>1472.933</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
TABLE 6

Pearson Coefficients of Correlation Between IQ and MPS Scores

<table>
<thead>
<tr>
<th></th>
<th>Level I</th>
<th>Level III</th>
<th>Level I and III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low IQ</td>
<td>High IQ</td>
<td>Low IQ High IQ</td>
</tr>
<tr>
<td></td>
<td>(N = 15)</td>
<td>(N = 15)</td>
<td>(N = 15) (N = 15)</td>
</tr>
<tr>
<td></td>
<td>.14</td>
<td>.02</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The mean MPS score for Ss under each Peak Experience Essay rating is presented in Table 7 by group and for the total N. It is noted by inspection of the means in Table 7 that the relationship between MPS scores and peak experience ratings appears to be non-linear in each group, with the exception of the low IQ cognitive level I group. In this group, there appears to be no relationship between performances on the two dependent measures. However, there is a clear trend between groups for essay ratings to rise as intelligence and cognitive levels increase.

This trend is seen more clearly in Table 8, which presents the frequencies of each essay rating obtained by each cognitive level group. As seen in Table 8, there is a tendency for cognitive level III Ss to score toward the upper end of the rating scale and for cognitive level I Ss to score toward the scale’s lower end. It is suggested that cognitive level III Ss reported more experiences of a transcendent nature and utilized more metaphorical imagery than did cognitive level I Ss. Level I’s tended to report common or trite experiences and thus expressed themselves in conventional language and dead metaphor.

To investigate the fourth hypothesis, that MPS scores would bear an overall positive relationship to peak experience essay scores, correlation ratios (Nyx) were calculated and are presented in Table 9. None of the correlation ratios in Table 9 reached the .05 level of significance.
### TABLE 7

Mean MPS Score for Each Peak Experience Rating

<table>
<thead>
<tr>
<th>P.E. Rating</th>
<th>Total</th>
<th>Level I Low IQ</th>
<th>Level I High IQ</th>
<th>Level III Low IQ</th>
<th>Level III High IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td>( \bar{X} )</td>
<td>( \bar{X} )</td>
<td>( \bar{X} )</td>
<td>( \bar{X} )</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>2 14.5</td>
<td>0 -</td>
<td>0 -</td>
<td>0 -</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>5 14.6</td>
<td>7 19.6</td>
<td>2 20.5</td>
<td>0 -</td>
</tr>
<tr>
<td>3</td>
<td>32</td>
<td>7 14.7</td>
<td>6 15.5</td>
<td>8 13.0</td>
<td>11 17.6</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>0 -</td>
<td>1 15.0</td>
<td>4 18.3</td>
<td>3 11.7</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>0 -</td>
<td>0 -</td>
<td>0 -</td>
<td>1 12.0</td>
</tr>
<tr>
<td>Cognitive Style</td>
<td>Essay Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I (N = 28)</td>
<td>2</td>
<td>12</td>
<td>13</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>III (N = 29)</td>
<td>0</td>
<td>2</td>
<td>19</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

Note.--Three Ss did not write scorables essays.
TABLE 9

Correlation Ratios (Nyx) Between Ss' MPS and Peak Experience Essay Scores

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Low IQ</th>
<th>High IQ</th>
<th>Low and High IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>.10</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>.57</td>
<td>.32</td>
<td></td>
</tr>
<tr>
<td>I and III</td>
<td></td>
<td></td>
<td>.26</td>
</tr>
</tbody>
</table>
Thus, hypothesis 4 is not supported. Similarly, hypothesis 5, which states that cognitive level III high IQ Ss would achieve the highest positive correlation, is also not supported.

The lack of relationship between MPS preference and essay ratings raises the question of how Ss performed on the essay task differently from their performance on the MPS. To answer this question, the median essay rating for each group was computed and is presented in Table 10. Tests for significant differences were performed by use of the Median Test (Siegle, 1956). For N's under 20, the Median Test must be completed by use of Fischer's Exact Probability Test. As a group, cognitive level III Ss achieved a median rating (mdn. = 2) demonstrated by cognitive level I Ss. There were, however, no median differences between the low and high IQ groups. Although intelligence was the significant factor in MPS preference, cognitive style became the dominant factor in essay performance.

It became apparent at this point in the study that the estimated IQ scores may be too crude a measure of intelligence, especially since metaphors are complex expressions. Subsequently, to further explore possible reasons for the lack of correlation between intelligence and metaphor preference, MPS scores were correlated with raw scores from the Shipley's Vocabulary Test, Analogies Test and the total raw scores for each cognitive style and intelligence level.
TABLE 10

Median Ratings on Peak Experience Essays

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Low IQ</th>
<th>High IQ</th>
<th>Low and High IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>I and III</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Note.—Median test on ratings between levels I and III yielded $p = .01$. 
Separating the Shipley total score into its two component parts should permit the investigation of a S's metaphor preference in relation to not only extent of vocabulary but also extent of analogical-conceptual ability. Assuming that solution of analogies measures the more complex differentiation-integration aspects of intelligence, analogical ability may be a more discriminating variable for the hypotheses generated in this study than simply the total raw score or vocabulary scores only.

Means and standard deviations for the Shipley subtests and total raw scores are presented in Table 11. Correlations computed between these raw scores and MPS scores are shown in Table 12. As seen in Table 12, among level I Ss, regardless of intelligence level, vocabulary correlated positively and significantly (p < .01) with metaphor preference but analogies did not. Conversely, among level III Ss, it was analogical ability which correlated significantly but negatively with MPS scores, and there was no significant relationship between vocabulary and metaphor preference. Thus, the above analysis indicates that hypothesis 1 again failed to be supported. In fact, level III analogical skill was negatively related to MPS scores. Also, in view of the above results, the support of hypothesis 2, which stated that high IQ Ss would score significantly higher on the MPS than low IQ Ss, cannot be considered conclusive. Finally, although there was a lack of interaction between intelligence level and cognitive
TABLE 11

Means and Standard Deviations of Shipley Vocabulary, Analogy and Total Raw Scores for Each Group

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Low IQ</th>
<th></th>
<th></th>
<th>High IQ</th>
<th></th>
<th></th>
<th>Low and High IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V</td>
<td>A</td>
<td>T</td>
<td>V</td>
<td>A</td>
<td>T</td>
<td>V</td>
</tr>
<tr>
<td>I Mean</td>
<td>27.40</td>
<td>27.87</td>
<td>55.27</td>
<td>32.93</td>
<td>34.80</td>
<td>67.73</td>
<td>30.17</td>
</tr>
<tr>
<td>SD</td>
<td>2.39</td>
<td>3.90</td>
<td>3.53</td>
<td>1.88</td>
<td>2.29</td>
<td>1.57</td>
<td>3.50</td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>III Mean</td>
<td>29.60</td>
<td>29.33</td>
<td>58.93</td>
<td>35.00</td>
<td>34.13</td>
<td>67.73</td>
<td>32.30</td>
</tr>
<tr>
<td>SD</td>
<td>2.68</td>
<td>4.54</td>
<td>5.20</td>
<td>2.61</td>
<td>2.58</td>
<td>1.57</td>
<td>3.78</td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>I and III Mean</td>
<td>28.50</td>
<td>28.60</td>
<td>57.10</td>
<td>33.97</td>
<td>34.47</td>
<td>68.43</td>
<td>31.23</td>
</tr>
<tr>
<td>SD</td>
<td>2.77</td>
<td>4.29</td>
<td>4.81</td>
<td>2.50</td>
<td>2.46</td>
<td>2.15</td>
<td>3.80</td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>
TABLE 12

Pearson Coefficients of Correlation Between MPS Scores and Shipley Vocabulary, Analogy and Total Raw Scores for Each Group

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Low IQ</th>
<th>High IQ</th>
<th>Low and High IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V</td>
<td>A</td>
<td>T</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.32</td>
<td>.26</td>
<td>.50*</td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.17</td>
<td>-.67**</td>
<td>-.50*</td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>I and III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>.24</td>
<td>-.25</td>
<td>-.08</td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

*p < .05
**p < .01
style, the correlations in Table 12 suggest a possible interaction of the type of cognitive skill with the S's cognitive style in relation to MPS preference. The use of a global intelligence measure may have obscured sources of variance which could be partitioned out with measures of specific cognitive abilities.

In light of the further analysis of intelligence level and MPS preference and its consequence to this study, it was decided that further investigation of the assumption that the Peak Experience Essay is in fact a measure of metaphor expression seemed necessary. It was assumed earlier that a S will need metaphor to express a peak experience. Thus, the more transcendent the person's experience, the more he will use metaphorical expressions. To explore this assumption, the Peak Experience Essays were rated for poetic quality of metaphor. A Psychology graduate student, who is interested in poetry in psychotherapy, was asked to rate each essay on a scale from one to five, with "one" meaning a cliche and mundane written style and "five" meaning an original, imaginative and poetic written style. Her ratings were correlated with E's original ratings on level of peak experience, and the Pearson coefficient of correlation obtained was .52 (p < .005). Inter-judge reliability was obtained by asking an English graduate student, who writes poetry, to rate a random sample of 25 essays on their poetic quality. The inter-judge reliability coefficient was computed to be .57 (p < .005). A
correlation of .52, as well as the inter-judge coefficient of .57, is acceptable, considering the vagueness of rating "poetic quality" of the metaphor in the essays.

In summary, the additional analyses of the study's data indicate:

1. that there are differences in the way level I Ss and level III Ss view input data, i.e., the MPS. That is, the higher the level III's ability to solve analogies, the less he demonstrates preference for MPS metaphor. However, level I Ss apparently prefer MPS metaphor more as vocabulary increases. This suggests that the level I positive correlation is due to a common factor, such as reading skill, between the vocabulary test and the MPS.

2. that the Peak Experience Essay task does in fact reflect the expression (output) of metaphor as previously assumed. Furthermore, the data suggest that rating of as complex a dimension as "poetic quality of metaphor" can be achieved at a significant level of reliability. The initial finding that level III Ss express themselves more metaphorically than level I's is supported.
CHAPTER IV
DISCUSSION

The results of the present study are more clearly interpreted if discussed within the context of the task requirements of the dependent measures. The first task requirement was the MPS, which asked Ss to choose the expression of feeling which they felt best communicated emotion. The MPS items were derived from the statements of individuals other than those in this study and thus are not personal expressions of the Ss. When Ss chose test items, they were indicating not so much personal preferences as they were subjectively choosing the most appropriate expression of feeling. The strength of their preference for the appropriate expression was indicated by the number of times they chose a metaphor in lieu of a literal statement.

Under MPS conditions, intelligence level was demonstrated to be the only significant factor involved in a S's choice of metaphorical or literal items. High IQ Ss preferred metaphor significantly more than the low IQ Ss, suggesting that recognition of, or perception of, metaphor as an appropriate expression of feeling is a function of intelligence. The Shipley Scale, it will be recalled, is an indicator of intellectual efficiency on two covert dimensions: vocabulary and analogies. In the subsequent analysis of MPS scores and Shipley Vocabulary raw scores, it was suggested that reading ability is a salient factor for level I's but not for level
III's. Instead, level III Ss achieved a significant but negative correlation between MPS and analogies scores. This result may be interpreted as indicative of the approach of level III Ss to simple reading tasks. That is, the better their ability to solve analogies, the less likely they were to select an MPS metaphor, suggesting that the better a level III S is at understanding solutions to analogies, the more critical he becomes of conceptually vague expressions.

Perception of MPS metaphor bore no significant relationship to cognitive style. As stated above, a cognitively complex S does not seem to prefer MPS metaphor, a lack of preference which may be a function of the MPS items themselves. That is, they are neither unusually commonplace nor unusually poetic. Yet, under the essay task requirements, it was level III Ss who produced more metaphorically expressed essays. This finding suggests that they do indeed discriminate the quality of metaphors, since they are able to create their own metaphor.

Looking more closely at the Peak Experience Essay task, it can be seen that metaphor expression was quantified indirectly by judging the level of transcendence of the experience. In a more direct manner, each essay was also rated in terms of its poetic and metaphoric qualities. The highly significant correlation between the two sets of ratings suggests that the same process of metaphorization is being judged. Thus, cognitive level III Ss are prone toward
more transcendent peak experiences and more metaphoric expression than are cognitive level I Ss. Therefore, expression of metaphor appears to be a function, in general, of the stylistic and personality variables which Harvey has integrated into the cognitive style construct.

In summary, the present study suggests that both a complex cognitive style and high level cognitive skills (such as analogical reasoning) militate against preference for vague and impersonal metaphors created by others. On the other hand, it is cognitively complex Ss who excel at creating their own metaphors in expression of a transcendent experience.

The results of this study raise interesting conjectures as to the relationship between metaphor expression and perception to different intellectual skills and levels of cognitive complexity. Because a S can perceive metaphor as an expression of feeling does not imply that he can create metaphor in his communications. Likewise, lovers of music and poetry are not necessarily skillful at composition.

Specifically, the study suggests that one should use several tests of cognitive skills in exploring metaphor preference. Possibly, Guilford's (1967) model of intellect could be used to relate metaphor preference to a number of cognitive operations.

In future research, alternative instruments for obtaining indices of metaphor preference might be considered. For
example, the peak experience is an event which has taken place in the past, but metaphor may be more easily elicited by description of one's own immediate, emotional state. It is also suggested that future research should address itself to expressive measures of metaphor preference since measures of metaphor perception, such as the MPS, appear to be confounded by the emotionally non-involving nature of such tasks. It might also be wise to pursue different ways of determining levels of cognitive complexity. For example, Ss could be categorized on the basis of level of conceptual abstraction rather than level of cognitive complexity.
CHAPTER V

SUMMARY

In the present study, perception of and expression of metaphor have been studied within the framework of cognitive processes. Metaphor was defined as a conceptual process in which two or more ideas are synthesized in such a way as to suggest a new concept or image. It was postulated that the synthesizing activity requires both skill in cognitive differentiation and integration and a cognitive style which facilitates experiencing abstract events.

In order to clarify the relation of metaphor perception and metaphor expression in the synthesizing process, two dependent measures of metaphor preference were devised. Perception of metaphor as an expression of feeling was measured by the MPS, a paper-and-pencil task in which a S choose literal or metaphorical items. Ability to express oneself metaphorically was indirectly measured by use of the Peak Experience Essay, a task in which the S writes an account of an emotionally significant event.

With two independent variables (intelligence level as measured by the Shipley-Hartford Scale and cognitive style as measured by Harvey's This I Believe test) and two dependent variables (the MPS and the essay task), the following hypotheses were tested.

1. Cognitive level III Ss will score higher on the MPS than will cognitive level I Ss.
2. Higher IQ Ss will score higher on the MPS than will lower IQ Ss.

3. There will be an interaction between IQ and cognitive style in S performance on the MPS.

4. Ss' scores on the MPS will correlate positively with their scores on the Peak Experience Essay.

5. Higher IQ, cognitive level III Ss will demonstrate the highest positive correlation between MPS scores and Peak Experience Essay ratings.

The results indicated that perception of metaphors as expressions of feeling is primarily an input task, possibly related to size of vocabulary. In contrast, the ability to communicate in metaphor is, within the limits of the sample's intellectual level range, primarily a function of the cognitive style construct as explicated in Harvey's Conceptual Systems Theory.

It was decided that more information could be gained if Shipley-Hartford estimated IQ's were converted back to the vocabulary and analogy raw scores and correlated with MPS scores. In result, it was found that cognitive level I Ss scored higher on the MPS as vocabulary increased, but there was no correlation between their MPS and analogies scores. In contrast, it was found that as level III Ss scored higher on the analogies test, they preferred MPS metaphor less. Yet, it was level III Ss who also wrote the most metaphorical essays. It was suggested that level III Ss disliked MPS
metaphor because of greater ability to discriminate quality in metaphoric expressions.

In conclusion, results of the study were used to suggest future research. In particular, it was suggested that the processes underlying metaphor expression should be given more attention and that exploration of the underlying processes might include a number of tests of specific cognitive skills such as those suggested in Guilford's (1967) model of intelligence.
REFERENCES


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Fagan, J. *Personal Communication.* 1970


APPENDIXES
### Appendix 1
MPS Test-retest Correlation Coefficients

<table>
<thead>
<tr>
<th>Positive Metaphor</th>
<th>r</th>
<th>(\overline{x}) Rating</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a floating, soaring . . . .&quot;</td>
<td>.66</td>
<td>4.27</td>
<td>3.13</td>
</tr>
<tr>
<td>&quot;A wave of warmth . . . .&quot;</td>
<td>.66</td>
<td>5.19</td>
<td>3.61</td>
</tr>
<tr>
<td>&quot;I'm in tune with . . . .&quot;</td>
<td>.63</td>
<td>3.81</td>
<td>2.56</td>
</tr>
<tr>
<td>&quot;I'm in an ebb and flow . . . .&quot;</td>
<td>.85</td>
<td>3.35</td>
<td>3.32</td>
</tr>
<tr>
<td>&quot;There's an inner, warm . . . .&quot;</td>
<td>.70</td>
<td>5.96</td>
<td>3.36</td>
</tr>
<tr>
<td>&quot;completely wrapped . . . .&quot;</td>
<td>.60</td>
<td>5.00</td>
<td>2.42</td>
</tr>
<tr>
<td>&quot;My mind expands . . . .&quot;</td>
<td>.79</td>
<td>2.58</td>
<td>3.08</td>
</tr>
<tr>
<td>&quot;My anticipation stands . . . .&quot;</td>
<td>.69</td>
<td>1.96</td>
<td>2.12</td>
</tr>
<tr>
<td>&quot;I want to hold back . . . .&quot;</td>
<td>.63</td>
<td>6.23</td>
<td>3.33</td>
</tr>
<tr>
<td>&quot;Happiness floods my . . . .&quot;</td>
<td>.83</td>
<td>4.69</td>
<td>3.37</td>
</tr>
<tr>
<td>&quot;A new feeling blossoms . . . .&quot;</td>
<td>.44</td>
<td>4.50</td>
<td>2.78</td>
</tr>
<tr>
<td>&quot;There's no separation . . . .&quot;</td>
<td>.62</td>
<td>2.85</td>
<td>3.07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive Literal</th>
<th>r</th>
<th>(\overline{x}) Rating</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;a general release and . . . .&quot;</td>
<td>.59</td>
<td>6.15</td>
<td>2.71</td>
</tr>
<tr>
<td>&quot;I feel peaceful . . . .&quot;</td>
<td>.79</td>
<td>8.85</td>
<td>2.81</td>
</tr>
<tr>
<td>&quot;There's a sense of . . . .&quot;</td>
<td>.73</td>
<td>8.27</td>
<td>2.71</td>
</tr>
<tr>
<td>&quot;There's a carefree . . . .&quot;</td>
<td>.67</td>
<td>7.73</td>
<td>2.77</td>
</tr>
<tr>
<td>&quot;I feel very pleased . . . .&quot;</td>
<td>.78</td>
<td>7.23</td>
<td>2.29</td>
</tr>
<tr>
<td>&quot;I feel excited and . . . .&quot;</td>
<td>.65</td>
<td>8.42</td>
<td>2.37</td>
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<tr>
<td>&quot;I feel self-aware but . . . .&quot;</td>
<td>.80</td>
<td>6.00</td>
<td>3.49</td>
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<tr>
<td>&quot;sure, accomplished, happy . . . .&quot;</td>
<td>.81</td>
<td>8.23</td>
<td>3.14</td>
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<tr>
<td>&quot;There's a lessening of . . . .&quot;</td>
<td>.71</td>
<td>7.00</td>
<td>2.80</td>
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<tr>
<td>&quot;I feel more friendly . . . .&quot;</td>
<td>.78</td>
<td>8.42</td>
<td>3.33</td>
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<tr>
<td>&quot;slowly becoming aware . . . .&quot;</td>
<td>.67</td>
<td>7.63</td>
<td>3.21</td>
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<tr>
<td>&quot;I'm keenly aware of . . . .&quot;</td>
<td>.76</td>
<td>7.35</td>
<td>3.55</td>
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<table>
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<tr>
<th>Negative Metaphor</th>
<th>r</th>
<th>(\overline{x}) Rating</th>
<th>SD</th>
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<tbody>
<tr>
<td>&quot;The world is a vast . . . .&quot;</td>
<td>.68</td>
<td>2.96</td>
<td>2.01</td>
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<tr>
<td>&quot;I'm adrift . . . .&quot;</td>
<td>.83</td>
<td>2.54</td>
<td>1.89</td>
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<tr>
<td>&quot;My heart sinks . . . .&quot;</td>
<td>.49</td>
<td>3.62</td>
<td>1.59</td>
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<tr>
<td>&quot;There's a hot, red . . . .&quot;</td>
<td>.75</td>
<td>2.65</td>
<td>2.20</td>
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<tr>
<td>&quot;There's an icy . . . .&quot;</td>
<td>.92</td>
<td>2.58</td>
<td>2.10</td>
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<tr>
<td>&quot;Everything inside me . . . .&quot;</td>
<td>.60</td>
<td>3.31</td>
<td>1.88</td>
</tr>
<tr>
<td>&quot;The feeling seizes me . . . .&quot;</td>
<td>.79</td>
<td>3.73</td>
<td>1.91</td>
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</table>

<table>
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<th>r</th>
<th>(\overline{x}) Rating</th>
<th>SD</th>
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<tbody>
<tr>
<td>&quot;My hands and legs are . . . .&quot;</td>
<td>.71</td>
<td>2.92</td>
<td>2.37</td>
</tr>
<tr>
<td>&quot;I get very, very mad . . . .&quot;</td>
<td>.84</td>
<td>3.46</td>
<td>2.56</td>
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<tr>
<td>&quot;I hold my breath . . . .&quot;</td>
<td>.61</td>
<td>3.73</td>
<td>1.85</td>
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<tr>
<td>&quot;I feel disappointment . . . .&quot;</td>
<td>.80</td>
<td>5.04</td>
<td>2.08</td>
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</tbody>
</table>
"I just look at people . . . ."  0.82  4.27  2.12
"My hands begin to . . . ."  0.77  3.15  2.23
"physically and emotionally . . . ."  0.74  4.69  2.22
Appendix 2
PREFERENCE SCHEDULE

Inside are a number of expressions of emotional experiences which are paired with each other. For each pairing, please indicate which item you prefer the most by blacking out the letter "a" or "b" on your answer sheet.

Let your preference decisions be based on the following criterion: if you were trying to express your emotions to a close friend, which expression of each pair would you consider the most communicative of meaning?

Please make your judgments on this basis even though some of the phrases or sentences may not describe you personally at this time.

EXAMPLE:

1. a. want to hold back time and capture the moment
   b. I feel sure, accomplished, happy

   Of the two expressions, which one would you choose as the most communicative of emotional meaning?

   When you begin, please work steadily, without taking too much time on any one pair of items.
Preference Schedule

1. a. completely wrapped up in the moment
   b. I feel self-aware but not self-conscious.

2. a. My hands and legs are cold and yet I sweat.
   b. The world is a vast panorama I'm viewing from outside.

3. a. A wave of warmth travels my body.
    b. a general release and lessening of tension

4. a. I just look at people without saying anything.
    b. The world is a vast panorama I'm viewing from outside.

5. a. A new feeling blossoms in my mind.
    b. There's a carefree feeling.

6. a. My hands and legs are cold and yet I sweat.
    b. There's an icy burning inside.

7. a. completely wrapped up in the moment
    b. There's a lessening of inner conflict.

8. a. I hold my breath and listen intently.
    b. The feeling seizes me, takes over.

9. a. There's a carefree feeling.
    b. completely wrapped up in the moment

10. a. The world is a vast panorama I'm viewing from outside.
    b. I hold my breath and listen intently.

    b. A wave of warmth travels my body.

12. a. The feeling seizes me, takes over.
    b. I just look at people without saying anything.

13. a. There's a carefree feeling.
    b. There is an inner warm glow.

14. a. My hands and legs are cold and yet I sweat.
    b. The feeling seizes me, takes over.

15. a. There is an inner warm glow.
    b. I feel self-aware but not self-conscious.
16. a. Everything inside me has stopped.
   b. I hold my breath and listen intently.

17. a. a general release and lessening of tension
   b. completely wrapped up in the moment

18. a. Everything inside me has stopped.
   b. I just look at people without saying anything.

19. a. There's a lessening of inner conflict.
   b. There is an inner warm glow.

20. a. The feeling seizes me, takes over.
   b. My hands begin to shake and my stomach trembles.

21. a. There's a lessening of inner conflict.
   b. A new feeling blossoms in my mind.

22. a. My hands begin to shake and my stomach trembles.
   b. The world is a vast panorama I'm viewing from outside.

   b. I feel self-aware but not self-conscious.

24. a. My hands and legs are cold and yet I sweat.
   b. Everything inside me has stopped.

25. a. There is an inner warm glow.
   b. a general release and lessening of tension

26. a. There's an icy burning inside.
   b. I just look at people without saying anything.

27. a. There's a carefree feeling.
   b. A wave of warmth travels my body.

28. a. There's an icy burning inside.
   b. My hands begin to shake and my stomach trembles.

29. a. There's a lessening of inner conflict.
   b. A wave of warmth travels my body.

30. a. There's an icy burning inside.
   b. I hold my breath and listen intently.

31. a. a general release and lessening of tension
   b. A new feeling blossoms in my mind.

32. a. Everything inside me has stopped.
   b. My hands begin to shake and my stomach trembles.
Appendix 3

EXPERIENCE SURVEY

In the space below, I would like you to write a brief paragraph about an experience in your life which you consider to have been very significant for you.

See if you can recall the most wonderful (meaningful, stirring, thrilling, deeply moving, ecstatic, overwhelming) experience of your life; when you were deeply touched, transported, overjoyed, enraptured, transfixed.

After you have recalled the experience and thought about what you want to say, please describe the experience as though you wanted to communicate to a friend the experience's impact on you: how did it make you feel?
Appendix 4

Peak Experience Essay Scoring Criteria

<table>
<thead>
<tr>
<th>Rating</th>
<th>Nature of the Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>A genuine peak experience.</td>
</tr>
<tr>
<td>4</td>
<td>A very important, meaningful but not quite peak experience.</td>
</tr>
<tr>
<td>3</td>
<td>An obviously special event but one which is experienced by many people.</td>
</tr>
<tr>
<td>2</td>
<td>An event of special meaning, but of pedestrian or routine quality.</td>
</tr>
<tr>
<td>1</td>
<td>A trite, banal, ordinary experience.</td>
</tr>
</tbody>
</table>

EXAMPLES

5

"I first let myself experience myself as I really was. This consisted of letting myself be held as a little child is held and treated on a completely childlike level. The feelings associated cannot adequately be put into words. Closeness, oneness, transcendence, and most of all the ambiguous all-encompassing love. It is an experience I have treasured always and never have been able to recapture in quite the same way."

4

"I was hiking in the mountains and became lost. While searching for my way back, I came across a ridge and suddenly before me lay the most beautiful valley I have ever seen. A stream with falls lay just below me. Birds were singing everywhere, and no signs of human existence were in evidence for miles around. The anxiety over being lost escaped me and was replaced by the ethereal quality of having been transported from a world of greed and avarice back to a Garden of Eden."

4

"The same type of experience has occurred several times and I cannot separate them. They were all concerned with music. Both hearing a large symphony and singing with a huge group brought about these experiences, so the size of the group seems important. I felt lifted up and
a part of the whole group. My only thought was that we were doing something great together, and nothing else mattered in the world. When the symphony was playing, the music has always been loud and big. Then I wanted very much to either play with them or actively respond in some way."

"I knew the meaning of the word love versus respect. I felt love in a strong but gentle, complete sense. I found love to mean one's entire self."

"I was a student nurse of pediatric affiliation. A baby, approximately sixteen months old, had been critically ill for several days. I asked permission to take the child from the bed and hold her and this permission was granted. I held and rocked the child for several minutes before she responded. After a while she began to stir and open her eyes and the next day she was almost well. It gave me a wonderful feeling to think perhaps these few minutes of love and warmth to this sick child helped her to get well."

"The experience that stands out most clearly in my mind would have to be termed meaningful and deeply moving rather than exciting. The experience came at the age of nine when I decided to follow Christ. That decision has given my life meaning and despite doubts and searchings, I have never regretted it."

"I left for Paris, France. I was so excited that I slept very little the last few days before leaving. It was a dream-like period. It was special because it was a chance to live and study abroad and because it offered a chance to travel. This was to be a Junior year abroad. It was a chance to move into the adult world and meet different people."

"I graduated from high school. My mother had to quit school early and go to work, but she always impressed upon me the value of an education and the social atmosphere that would help in maturing. Graduation was a milestone--though many other experiences rate along with it, perhaps it is the most enduring."
"Once when I was playing little league baseball, my single in the last inning won the game. Everyone was happy about it and it made me feel good to know that I had won the game."

"I was about ten years old and my parents and I went to the beach for a vacation."

"The sharpest guy I knew asked me out. All the other guys I have dated were about average."

"I joined the Baptist Church. At the time I was nine years old and was pleased to realize that I could take an active, responsible part in a worthwhile organization."