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TEST STIMULI AND ITS RELATION
TO STIMULUS PREFERENCE

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1966

THE MEANING OF THE DRAWING COMPLETION
TEST STIMULI AND ITS RELATION
TO STIMULUS PREFERENCE

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CHAPTER I

INTRODUCTION

In the field of personality, the dynamic concept of "projection" as first conceptualized by Freud (1938, p. 854) carries vast implications relevant to the construction and employment of diagnostic and research tools. The projection concept was originally defined as the attributing to elements of the outer world a desire, trait, or feeling which, if acknowledged to be within one's own person, would cause pain to the ego or consciousness of one's self.

This special mechanism proved a boon to persons interested in understanding the dynamic personality and adjustment of the individual. The implication of the mechanism was that the individual shapes the world and creates within it meaning which bears the indelible stamp of his own personality. Formulating methods which would capitalize on the process of projection, thereby yielding significant information, was accomplished by presenting persons with

situations having limited structure and maximum ambiguity, then instructing them to organize the situation meaningfully.

Some of the earliest projective type tests devised were Cattell's (1936) test of disposition involving sentence-completion choice items, Murray's (1937) Thematic Apperception Test using descriptions of pictures, and Sears' (1936) test of anal-eroticism using a rating scale technique. Sears' investigation not only supported the phenomenon of projection but also indicated that it varied with the amount of insight the subject had into the projected traits.

These tests and many others developed later conform to the specific criteria of projection but the term has been broadened to include various forms of personality expression which technically do not meet the original definition. Kerlinger (1965, p. 531) has referred to such approaches to personality investigation as "expressive techniques."

Among the expressions which have been incorporated into the projection concept are an individual's characteristic gestures and postures, manner of speaking, style of dressing, walking, writing, and talking. Here the concern is that the person "projects" himself through isolatable behavior. With this kind of orientation, the task is to determine the relative meanings and implications of behavioral differences or test productions.

Until presently in the development of projective

techniques of personality testing, the two major variables of concern have been the individual characteristics of the projecting subject and, to a lesser degree, the formal attributes of the test materials involved. For example, on the Rorschach Test (1937) the use of color is a formal attribute which may have different diagnostic implications depending upon the manner in which it is handled and incorporated into responses. Other formal attributes usually found in projective techniques are simple reaction time, amount of productivity within specified categories, and time length of testing. Differential productions on projective type tests have been viewed predominantly as reflecting idiosyncratic characteristics within subjects.

More recently a third variable in projective type testing has come under exploration which is seen to intervene between the formal characteristics of the materials and the eventual response productions of the subject. This intervening variable is the general connotation or symbolic meaning of the test materials themselves which are considered critical determinants of responses. This notion is central, for example, to understanding certain responses to cards IV and VII of the Rorschach Test. It has been established both clinically and experimentally that card IV has a "father" connotation and card VII has a "mother" connotation so that more precision is introduced into the interpretation of Rorschach protocols.

To develop this example further, Kamano (1960 b) reasoned if Rorschach cards IV and VII have similar connotative meanings to the concepts "father" and "mother" respectively, a criterion measure of meaning applied to all four variables should reflect similarity. It was predicted that measures of concept similarity would show smaller differences between card IV and "father" than between card IV and "mother." Similar predictions were made for the relationships between card VII, "mother," and "father." Eighty college students were asked to rate the four variables on seven adjective scales having seven step intervals. The predictions were sustained at a high level of significance with no significant differences found when interaction between ratings and sex of subjects was tested.

Experimenters apparently have realized the increased richness of projective test results relative to understanding responses which a knowledge of the connotative or symbolic meaning of materials contributes. A statement made by Freidman, Johnson and Fode (1964) after concluding an investigation of the meaning of the Thematic Apperception Test cards is applicable to all projective stimulus research.

They state:

It seems evident that consensual descriptions of the cards offer a flexible and economical means to establish base-line data for the T A T. Rather than restricting the usefulness of this instrument, this kind of approach could contribute additional dimensions for the analysis and interpretation of T A T stories (p. 325).

The present study was performed with a similar orientation. Its purpose was twofold: first, to ascertain the symbolic meaning of the eight stimuli comprising the Drawing Completion Test (Kinet, 1952) in hopes of placing some of its assumptions on a firmer experimental basis; and secondly, to determine the relationship between affinity for stimuli (preference order) and a measure of femininity. The outcome of the study was expected either to enhance the experimental basis of the Drawing Completion Test resulting in wider acceptance, or to place some of its fundamental assumptions in doubt.

The semantic differential technique was chosen as the approach to the measurement of meaning. Because this technique is relatively new, a discussion of its development, experimental foundation, and research application follows.

The Semantic Differential Technique

The foremost experimental method for extracting meaning from projective materials was developed by Osgood (1952) termed the semantic differential technique. Osgood not only gave an acceptable definition of meaning but also made it operational in that a technique for its measurement was provided.

Osgood, Suci, and Tannenbaum (1957) stated the following concerning the meaning of meaning:

The meaning of "meaning" for which we wish to establish an index is a psychological one--

that process or state in the behavior of a sign using organism which is assumed to be a necessary consequence of the reception of sign-stimuli and a necessary antecedent for the production of sign-purposes. Within the general framework of learning, we have identified this cognitive state, meaning, with a representational mediation process and have tried to specify the objective stimulus and response conditions under which such a process develops (p. 9).

In developing an operation for meaning measurement which constitutes the semantic differential technique, the concept of "semantic space" was proposed. This concept is best clarified by the following:

We begin by postulating a semantic space, a region of some unknown dimensionality and Euclidean in character. Each semantic scale, defined by a pair of polar (opposite-in-meaning) adjectives, is assumed to represent a straight line function that passes through the origin of this space, and a sample of such scales then represents a multidimensional space. The larger or more representative the sample, the better defined is the space as a whole (Osgood, Suci, and Tannenbaum, 1957, p. 25).

The next step in developing the measurement operation was to determine the identity and minimum number of dimensions of semantic space which sufficiently exhaust its dimensionality. In other words, what primary dimensions are used in attributing meaning to concepts? Osgood, et al. (1957, pp. 33-38), gave one-hundred college students a list of fifty descriptive scales selected in terms of frequency of usage and instructed them to rate twenty varied concepts. Examples of some of the polar adjective pairs are: heavy-light, sweet-sour, and hot-cold. Concepts thought to be

diversified in meaning were rated on seven step scales separating all adjective pairs. The resulting data was factor analyzed and three major factors emerged which accounted for the majority of the data variance. The first factor was identifiable as "evaluative," the second as "potency," and the third as "activity." Examples of specific scales related to these three factors are, respectively, good-bad, strong-weak, and fast-slow. Figure 1 represents the actual structure of such scales as they appear to the subject. Judged meaning of a concept, usually printed at the top of the scale list, is indicated by placing a check mark within the interval thought most representative of its meaning. Thus, both intensity and direction of meaning are measured.

Figure 1

good	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	bad
weak	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	strong
fast	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	slow

For a clearer explication of the logic of the technique, Osgood (1952) listed the following hypotheses:

1. The process of description or judgement can be conceived as the allocation of a concept to an experiential continuum, definable by a pair of polar terms. An underlying notion in our research is that these "experiential continua" will turn out to be reflections (in language) of the sensory differentiations made possible by the human nervous system.
2. Many different experiential continua, or ways in which meanings vary, are essentially

equivalent and hence may be represented by a single dimension. . . . It is this fact about language and thinking that makes the development of a quantitative measuring instrument feasible.

3. A limited number of such continua can be used to define a semantic space within which the meaning of any concept can be specified (p. 227).

Other studies (Osgood, et al., 1957, pp. 39-75) using different adjective source methods and factor analyses of different concepts reinforced the preliminary findings regarding the identity and high loading of the three major factors.

With semantic or meaning space satisfactorily identified as to dimensionality, some quantitative measure of the similarity between concepts was needed. If two concepts are close together in terms of location along the factor coordinates of semantic space, they are alike in meaning for the group or individual rating them. Conversely, if two concepts are separated in semantic space, they differ, to some degree, in meaning.

Osgood and Suci (1952) developed such a measure represented by the generalized distance formula D which is defined by the distance between any two concepts in semantic space. D values are computed by taking the square root of the sum of the differences squared between the ratings given each concept along a number of scales.

Research Aimed at Testing the Assumptions
and Generalizability of the Semantic
Differential Technique

Cautioning that the semantic differential involves several assumptions about metric properties of individual bipolar scales which, if not met, would distort the underlying factor structure and meaning derived through factor analysis, Messick (1957) tested the assumptions of equal intervals within and between scales. The latter assumption is critical to legitimately computing distance measures over several scales. The psychometric method of successive intervals was applied to nine of the most frequently used scales. The author concluded that the assumptions were justifiable and that the scaling properties of the semantic differential have substance.

Kelly and Levy (1961) were concerned that use of the semantic differential implies a one-to-one ratio between meaning profiles of concepts generated by ratings and the connotative components of the concepts themselves. In other words, is the profile identical to the connotation of the concept? Thus, distances between two profiles were expected to vary directly with differences in connotative components of the referents. Distance between concepts was operationally defined as "discriminability" which permitted testing of the hypothesis that discriminability of concepts is an increasing monotonic function of the magnitude of D values. Seventy-five male and female subjects were given sixty

actual concept profiles accompanied by pairs of concepts which varied in similarity. Some concept pairs differed by small D values, some by medium D values, and some by large D values. The task was to select the concept represented by the profile. Selection accuracy was found to be a straight line function of the magnitude of the distance values between concepts. The larger the difference in similarity, the more accurate were the choices. The assumption that semantic differential profiles reflect meaning aspects of concepts was considered justified.

Flavell (1961 a) theorized that the D statistic used as a measure of the similarity between signs (the referent of a concept) measures the attributes within the referent itself but not attributes which are non-referent and present in the context or surround of the referent object. For Flavell, the meaning of a sign includes both classes of attributes giving rise to meaning; therefore, some estimate of non-referent attribute similarity would increase the precision of similarity measurements between signs. This estimation (1961 b) was operationally translated into the joint probability that any two signs of concepts will have identical non-referent elements in their experienced context. Probability estimates were obtained directly from subjects by having them judge the probability that given one sign, other signs would be present in its imagined context. For example, given the sign "dog," what is the probability that

the sign "cat" will appear and vice versa. Intercorrelations among D values, probability estimates, and an independent criterion of concept similarity ranged above .70. Flavell stated that "the present experiment can be in a sense construed as a second validation of the D score as a measure of semantic distance" (p. 326).

The next group of studies to be discussed are concerned with the generalizability of the semantic differential technique as meaningful for differing cultures, conceptual frameworks, verbal complexities of concepts, and scale types.

Several studies are reported which obtained results in support of the generality of Osgood's three factor structure of meaning by means of factor analysis. Prothro and Keehn (1957) extracted three factors equal to Osgood's from ratings made of national groups concepts (Germans, Turks, and Italians) by English speaking Arab students. Osgood and Triandis (1958) compared the basic semantic dimensions used by Greek and American college students and found them very similar. The authors wrote that "certain aspects of human cognition are relatively independent of the structure of the language used to communicate" (p. 195).

Maclay and Ware (1961) presented Hopi, Zuni, and Navajo Indian groups with translation equivalent scales on which to rate familiar concepts such as coyote, horse, and rain. Ratings were noted to be in agreement with

anthropological data relevant to differing Indian group attitudes toward such concepts. In this sense, the device shows promise of utility in studies of covert culture.

The meaning structure of emotions was explored by Michon (1960) who discovered that the semantic differential technique was discriminatory and yielded again the same triad of meaning factors.

Smith (1961) reported the development of a semantic differential-type technique specifically for experimental research in theatre arts. The interest was in determining whether or not Osgood's principal dimensions of meaning (evaluative, potency, and activity) would hold for scales and concepts specific to this field. One hundred male and female subjects enrolled in speech and theatre were given the task of rating ten concepts along thirty scales. Examples of concepts used are acting, comedy, directing, stagecraft, and tragedy. The resulting data array was factor analyzed and produced four underlying factors based on intercorrelations of scales. The first three were found virtually equivalent to Osgood's and the fourth was labeled the "esthetic" factor. It was concluded that added support had been given to Osgood's contention of three principal and universal dimensions of meaning.

In an effort to test the differentiating effectiveness of the semantic differential against complex verbal concepts, Osgood, Ware and Morris (1961) had subjects rate

standard statements, one hundred words in length, of Morris' thirteen "ways to live." The fact that clear-cut factor structures emerged in both "ways to live" and scale analyses, despite the length and complexity of the concepts being judged, clearly indicates that complex verbal statements of this sort can be studied fruitfully.

A novel experiment devised by Mitsos (1961) was designed to test scale rigidity. He allowed subjects individually to choose scales felt to be most suitable to concepts being judged. His prediction that such scales would be more saturated with meaning than scales not chosen, yet not distort semantic space, was upheld.

Probably the best study of the capability of the semantic differential to reflect the attributes of a given concept was that ingeniously concocted by Solley and Messick (1957). One of the problems of validation is that the experimenter seldom can be certain of the identity of the referent attributes of the concept being rated. This obstacle was overcome by empirically creating a group of concepts whose attributes were not only specifiable but statable in exact probabilities of occurrence. The concepts invented were four tribes of "stick men" whose members were drawn on cards. Subjects were given experience with these tribes who pictorially differed on these dimensions: tall-short, happy-sad, fat-skinny, and black-white. Afterwards, subjects rated tribes along twenty scales of the semantic

differential. Comparisons were made between the known input probabilities of tribe attributes and subjects' ratings of them. These comparisons revealed that subjects were able to rate accurately the marginal characteristics of the tribes but were in error when rating the joint occurrence of specific combinations of attributes. That is, the characteristic "all tall stick men are black" (marginal) might be predicted adequately, but not the combinational characteristic of "some short, happy stick men are black." It would appear that the technique is valid for one statistical aspect of meaning but not necessarily for all aspects of meaning. However, considering the success the semantic differential technique has achieved in differentiating concepts, one wonders how pertinent other "statistical aspects" of meaning are to meaning differentiation.

Representative Research Using the Semantic Differential Technique

That Osgood's invention of a meaning measure has been widely accepted and employed in diverse research problems seems best attested by the number of studies reporting its use. Some one hundred experiments within fields as widely divergent as education, psychology, industrial relations, and art have transpired that explicitly have used the technique as a measure of meaning.

Triandis (1959) investigated the manner in which certain jobs and persons are perceived by various groups of

industrial subjects. Thirty-eight scales considered appropriate to differentiating the concepts "actual supervisor," "ideal supervisor," "a fellow you like," and "an effective manager you know well" were selected and served as a basis for ratings by one hundred fifty-six male subjects. Significant correlations were obtained between D values from "actual supervisor"- "ideal supervisor" pairings and how well subjects liked their supervisors.

In the field of art, Springbett (1960) tested the hypothesis that aesthetic experience is both a function of object and viewer, thus gaining meaning only in the communality of responses to an "art thing." Five groups of subjects, varying in formal art training from zero to five years, rated nine representative samples of non-objective art on twenty-four scales. D values computed between groups differing in training by one year, two years, etc., indicated that the greater the discrepancy in training, the greater the discrepancy in value placed upon the art. Intercorrelations within subject groups yielded higher values (more agreement) among trained groups than among non-trained subjects. Springbett concluded that there are common elements defining the class of non-objective art which are discernible only by the trained.

Kjeldergaard (1961) used the semantic differential technique in the area of communication as a selection and evaluation device in casting a new television news program.

Twenty adults received a preview of the program and rated three different newscasters immediately before, immediately after, and fifteen weeks after the preview. D values computed between newscasters helped in selecting the most effective newsman and were noted to remain reliable over the three rating sessions.

Also in the communication area was a study by Manis (1959) testing the hypothesis that effectiveness of statements can be measured in terms of the similarity between the communicator's views and the recipient's conception of those views. College students wrote short passages and rated them on nine scales. Passages were, in turn, read to other students who predicted on the same scales how the writer had rated his passage. Relationships between the writers' ratings of passages and those predicted by recipients were significantly in agreement, indicating that communication was effective.

Van de Castle and Spicher (1964) employed the semantic differential technique in an effort to obtain differing ratings between experimental and control subjects as an indicator of "subjective disturbance." The basis for ratings were the chromatic cards of the Holtzman Inkblot Test. High and low scoring groups on tests of anxiety and neuroticism were gleaned from a large subject pool of male college students. The results failed to support the notion that subjects classified as extremely neurotic or anxious by test

scores respond differently via the semantic differential to chromatic cards as opposed to achromatic cards.

An interesting experiment in perceptual theory was done by Taylor and Mangan (1962) in which subjects rated the concepts "face" and "claw" before and after visually presented drawings of the concepts were paired with mild electro-shock stimulation. As expected, after ratings were significantly shifted in a negative direction from before ratings. The authors interpreted this as evidence that changes in verbal meaning can accompany changes in perceptual organization produced by electro-shock punishment and that the semantic differential is sensitive to these induced changes.

Newbigging (1961) found that words rated "good" on the semantical differential have lower recognition thresholds than words rated "bad" and that response times to the latter are significantly longer.

In educational research, Cook (1959) explored the meaning of concepts such as "myself as a student" and "the ideal student" in relation to scholastic ability and achievement of college students. He found that meaning is highly related to achievement.

Public attitudes toward the mental health professions were evaluated with the semantic differential by Nunnally and Kittross (1958). Attitudes were discovered to be generally positive toward all professions with those identified with physical medicine obtaining highest positive

ratings.

The above selected survey of semantic differential technique research cutting across diverse fields and research methodology is evidence of the wide acceptance and utility of the method. As is apparent, the technique is on rather firm theoretical, experimental, and utilitarian grounds having filled a long yawning gap in psychological measurement for an acceptable technique of measuring meaning. It has been incorporated into the behavioral sciences as an almost standard instrument.

The following group of studies to be reviewed will help clarify its role as a research tool in the investigation of the dynamic functions of personality.

Feelings about one's self or the self concept have long been recognized as an important variable in adjustment and to differ in accordance with such factors as neuroticism and parental identification. Block (1958) theorized that certain individuals who have suppressed or repressed their true feelings about like-sexed parents should reveal these dynamics when manifest and disguised measures of identification are taken. Over one hundred college students rated the concepts "ideal self" and "like-sexed parent" for the disguised measure. The manifest measure involved checking each concept on an adjective check list. The prediction that repressed individuals would exhibit few differences between adjective checking of concepts, yet reveal wide discrepancies

between ratings for concepts was not substantiated because both measures correlated .94. Block suggested that the semantic differential technique is not sensitive to measure derived psychological functions. However, this notion appears questionable in that there was no guarantee that "repressed" individuals existed within the group, assuming that his notion of "ideal self"-"like-sexed parent" discrepancies and repression is accurate. Secondly, checking adjectives from lists and rating concepts on scales bounded by adjectives seem quite similar functions so that the disguised-manifest distinction is suspect. A study by Madden (1961) is supportive of this criticism. His results substantiated that descriptive terms chosen from lists by subjects as characteristic of self indeed do yield smaller D values in relation to self ratings than those not chosen. Thus, differential performance on Block's two measures does not seem an appropriate expectation.

Grigg (1959 a) tested self concepts and found a positive relationship between self-ideal self discrepancies and scores of maladjustment. In another experiment, Grigg (1959 b) had subjects rate self concepts and "neurotic" finding as hypothesized that normal persons show less distance between "ideal self" and "neurotic" than between "self" and "neurotic."

Luria (1959) used persons in therapy as experimental subjects and persons not in therapy as controls. Ratings of

significant persons indicated that persons in therapy rate concepts of self and parental figures less favorably than do non-therapy persons. This design was sharply criticized by Goldfried (1962) who argued that Luria's findings were not specific to self and parental figure concepts but were a reflection of therapy subjects' tendency to rate people in general less favorably. Had non-significant person concepts been rated, the appropriate explanation would become clear.

In a different vein, Moss and Waters (1960) attempted to relate self-ideal self discrepancy to clinical anxiety. D values were obtained between the two concepts from juvenile delinquents as well as other more confirmed measures of anxiety. Correlations between D values and other indices of anxiety were sufficiently low to rule against interpreting self-ideal self discrepancies on the semantic differential as anxiety.

In yet another investigation of self related concepts, Beitner (1961) gathered self and parental figure ratings from paranoid schizophrenics, neurotics, and controls. The paranoid group exhibited wide spread variability in-concept meanings but no evidence was found for sexual identity confusion as is theoretically assumed.

The most remarkable application of the semantic differential technique to dynamic problems of psychopathology was that reported by Osgood and Luria (1954). They collected ratings of person and conflict concepts important to therapy

from the celebrated "Eve White" case of multiple personality during dominance by each of her three personalities, "Eve White," "Eve Black," and "Jane." Based on derived semantic structures for each, highly accurate diagnostic and prognostic predictions concerning her current psychological status and progress in therapy were made and generally corroborated by her therapist. This was accomplished without having met the patient personally.

Several investigators have been concerned with differences in scale checking style as related to personality type. Mogar (1960) gave evidence that high authoritarian persons have a tendency to use the extreme ends of the scales. Zak and Gardiner (1964) extended this tendency to be typical of other groups. Chronic schizophrenics, maladjusted college students, and emotionally disturbed children utilized the extreme scale ends significantly more than control subjects. Spivack, Levine, and Brenner (1964) reported that, for males, those who tend toward sparse, overly general styles of verbalization show a preference for the end and neutral categories on the semantic differential.

In a more practical context, Talbot (1961) studied the relation between self concept and work roles as they existed within a therapeutic community for both patients and personnel; Gordon and Groth (1961) determined meaning variables important to maintaining the wish to stay in the hospital on the part of hospitalized schizophrenics; and Wiener

and Ehrlich (1960) collected meaning data in an effort to cull superfluous psychotherapeutic terms as used in a hospital. They found that both patients and staff make few semantic distinctions between the concepts "values" and "goals" as related to treatment.

The Semantic Differential Technique Applied
To Projective Test Materials

Responses to projective tests of personality have been traditionally conceived to reflect, almost exclusively, the subject's private, idiosyncratic meaning and inner organization. However, Frank (1939) cautioned, during the inception of the projective test movement in psychology, that further experimentation and refinement of methodology would be necessitated "if it appears that the subject projects similar patterns or configurations upon widely divergent materials and reveals in his life history the sequence of experiences that make those projections psychologically meaningful for his personality" (p. 412). The implication is that, contrary to most assumptions, responses may be, in part, determined by the test materials themselves. More recently, Zak (1964) has stated that "there seems good reason now to question the notion that S's response is wholly a reflection of an inner process--personality" (p. 318).

Along these lines of thought, several studies have proceeded. Assessments of the stimulus meaning of four projective techniques are reported in the literature. These

are the Rorschach Test, the Bender-Gestalt Test, the Thematic Apperception Test (TAT), and human figure drawings.

Rabin (1959) projected each of the Rorschach cards onto a screen and obtained semantic differential ratings from male and female subjects. Scales were selected according to their suitability to the materials being judged. Using this data, meaningful descriptions based on scales achieving differentiating significance were possible. No sex related differences in attributing meaning to the blots were noted among subjects and there was high agreement as to meaning. Stimulated by Rabin's findings, Kamano (1960 b) designed an experiment to empirically test specific assumptions about the meaning of cards IV and VII on the Rorschach Test. Card IV has long been interpreted clinically as a "father" type card and card VII a "mother" type card. Subjects rated these cards plus the concepts "mother" and "father" on ten scales. Smaller differences were predicted between card IV and father and card VII and mother than between other pairings of concepts and cards. The hypotheses were supported and again no sex related differences in meaning emerged.

A similar experiment was conducted by Zak and Louiselle (1960) in which Rorschach cards were rated by subjects on twenty-one scales. Statistical analyses indicated distinctive perceptions of each card which were independent of the sex variable. Summaries of card meanings stated in terms of significant scales were possible.

In an attempt to test the relationship between meaning of Rorschach cards and subsequent responses to them, Borelli (1961) had subjects rate both cards and their responses. The major hypothesis that the meaning of the visual stimulus and responses to it would be significantly related was substantiated. Borelli, as did Zak and Louiselle (1960), found that chromatic blots were viewed in more positive terms than the achromatic.

McNamara and Fisch (1965) tested the hypothesis that meaning of nonsense objects is derived from the integration of a population of percepts with a population of meaning concepts. That is, meaning is largely determined by the distal stimulus. Subjects were instructed to look at Rorschach cards and write down one response. Subsequently, the cards were rated on semantic differential scales. After a twenty minute interval, responses were similarly rated. Several other concepts were rated which were expected to be discriminable as to meaning. Close agreement was evidenced between ratings of cards and responses. It was concluded that meaning of Rorschach responses is functionally related to well integrated meaning systems which reflect social and cultural similarities in perceivers. In this respect, doubt was cast on the proposition that attributed meaning is mainly an expression of specific personality characteristics.

The meaning of the Bender-Gestalt Test designs was first researched with the semantic differential technique by

Tolor (1960) who followed Rabin's experimental paradigm. When comparing general descriptions of the designs based on differentiating scales to previous interpretative hypotheses, some psychological connection was found in most instances.

Schulberg and Tolor (1962) explained differences in Bender-Gestalt Test performances as reflecting varying degrees of visual-motor functioning and integration. Their question was: are these differences which seem to hold for distinct psychiatric groups based primarily on attributed meaning of the designs? A twenty scale form was administered to groups of neurotics, functional psychotics, acute organic psychotics, and character disorders upon first admission to hospital. There were no significant differences found in attributed meaning to the designs between diagnostic classifications.

The TAT was investigated by Reeves (1954) in terms of the relation between meaning attributed to the pictures and story plots. Subjects giving similar story themes were predicted to differ on semantic differential ratings from subjects telling different themes. Themes were classified as gratifying, frustrating, or threatening. Ratings made by gratifying theme subjects differed significantly from frustrating and threatening theme subjects but threatening theme subjects did not differ from frustrating theme subjects.

Human figure drawings have long been considered to represent the feelings and attitudes the subject holds

toward himself. This theoretical assumption is central to the use of figure drawings as projective techniques and as a subtle means of personality assessment. Kamano (1960 a) attempted to found this important hypothesis upon experimental grounds. If valid, subjects were expected to attribute similar meaning to self concepts and human figures drawn. Institutionalized schizophrenic females rated their figure drawings and the concepts "my ideal self," "my actual self" and "my least liked self." Rank order correlations between individual D values for all concepts yielded a significant positive correlation between drawings and "my actual self;" whereas, low correlations were obtained between other concepts and drawings. The hypothesis was sustained.

In summary, it can be noted that semantic differential research designed to elucidate meaning of projective test materials has generally led to firmer assumptive bases pertinent to the tests in question, emphasis on stimulus value as related to responses, and increased assurance in diagnostic interpretations. For these reasons, the semantic differential technique of measuring meaning was selected as the criterion instrument in the present study of the Drawing Completion Test.

The Drawing Completion Test

The Drawing Completion Test is a projective technique for the investigation of personality which seeks to provide an interpretative basis for drawings. Its

experimental and theoretical background lies in Gestalt psychology. According to this branch of psychology, it is assumed that not only the object of experience but also the experiencing subject can be conceived as a "structure." The dynamic structure of the experiencing individual tends toward "form giving" or organizing whatever is available for experiencing. About this Gestalt orientation Kinget (1952) wrote the following:

Experience thus being, as it were molded by the individual structure, it follows that experience necessarily bears the marks of that structure; it must, therefore, be possible to infer the characteristics of the latter from those of the former. In ordinary life situations this imprint of the personal structure on experience--as expressed in activity--is not easily recognizable because material on which the activity is exerted lacks the necessary plasticity, or because the product of the activity has to conform to objective, prescribed standards. But in situations where the form-giving tendencies are freed from limiting factors attached to the material on which they operate, or to the goal which they have to achieve, the characteristics of the activity reveal the characteristics of the psychic structure (p. 3).

Based on such a view, the Drawing Completion Test was designed partially in its origination by Sanders. Later, Warteege modified the test materials into their present appearance and Kinget (1952) undertook to present an experimental rationale and objective scoring system for its use as a personality test.

The test itself consists of eight blanks printed on white paper each containing small signs or stimuli which

serve as the basis of drawings the subject is asked to make within each blank. The only requirement is that the subject number his drawings in the order of completion, then label them in spaces provided.

Experimental Studies Using the Drawing Completion Test

The most popular application of the Drawing Completion Test lies in its use as a research instrument from which to obtain measurable variables in the investigation of personality functions. Most studies reported have been concerned with fantasy production, creativity, or cross-cultural comparisons.

Murfett (1962), Harris (1963), Franklin (1962), and Pepper (1964) scored Drawing Completion Test protocols for either human content or human movement and interpreted them as a measure of fantasy activity. Human content and movement scores were predicted to significantly increase as a result of inducing inhibition in subjects. All studies were supportive generally of the hypotheses with the exception of Murfett's. A study by Swink (1965) challenged the reciprocity of human content on the Drawing Completion Test and human movement on the Rorschach Test as both measuring fantasy by yielding low correlations between them.

Jamison (1959) made cross-cultural comparisons between Navajo and white children within specified scoring categories. She obtained significant differences between

the two groups in mode of execution and affinity for stimuli, the latter indicating that white children have a greater affinity for "feminine" stimuli.

Laird (1964) administered the test to gifted and non-gifted high school students and scored it for creativity. His findings revealed that the gifted are significantly more creative on the Drawing Completion Test than are the non-gifted.

Reasoning that creativity is associated with feminine behavioral and personality characteristics, Wyche (1965) tested the relationship between creative productions on the test and two measures of femininity. One measure was number of "feminine" stimuli chosen as bases for drawings within the first four choices and the other was derived from a standardized test. No significant relation was found to exist among the three measures. As a check on the validity of translating order preference of stimuli into feminine scores, differentiation of sex of subjects by the scores was tested. Neither feminine score differentiated successfully.

CHAPTER II

PROBLEM

The present problem was to determine the meaning of the Drawing Completion Test stimuli and the relationship between femininity and order preference for stimuli with which to begin drawings.

The assumed qualities of the Drawing Completion Test stimuli are highly germane to interpreting drawing productions. Not only is the personality structure of the experiencing subject considered to influence drawings, but also the "physiognomic" qualities supposedly inherent in the stimuli are considered an influence.

Kinget (1952) clarifies this relation between the "physiognomy" of the stimulus and test performance when she writes:

The specific and main value of the stimuli lies, however, in their diagnostic potentiality. Each of the stimuli has a particular "physiognomy"; in other words, it is expressive of a certain number of qualities inherent in the particular form and structure--the Gestalt--of each of them (p. 35).

The term "physiognomy" refers technically to the physical appearance of the face which communicates the

inner, subjective qualities of the person making facial configurations. "Things" or inanimate objects are perceived physiognomically when their physical characteristics are given animation and interpreted to express some inner form of life by the perceiver (Werner, 1948, p. 69). Physiognomic perception is known to occur naturally in small children, primitive peoples, certain deteriorated mental states such as schizophrenia, and some persons whose work is artistic. Most persons can recall overhearing some small child remark tearfully, after bumping into a door, "that mean old door hit me!" In this case the inanimate object, door, is referred to in physiognomic terms.

Poets are thought to be particularly susceptible to physiognomic experience. Werner (1948, p. 71) cites the artist, Kadinsky, who described his palette as alive with colors whose qualities were interpreted in terms characteristic only of living objects.

Physiognomic perception can be experimentally demonstrated with normal, mature, non-artistically inclined adults. Krauss whose work is reported by Werner (1948, p. 70) provides a partial basis for Kinget's interpretation of the Drawing Completion Test stimuli. He investigated the expressive character of lines. Several graphically presented lines arbitrarily considered to represent gaiety, melancholy, sadness, rage, darkness and dawn, gold, iron, and glass were presented to subjects. Up to seventy per cent agreement was

found in matching lines to the ideas. In another experiment, subjects were given the task of choosing lines to match the supposed emotional content of the words silver, iron, and gold. Eighty per cent agreement was noted in matching lines to words.

It should be noted that none of these studies employed line configurations identical to those on the Drawing Completion Test and for this reason, they can be considered only as relatively vague, non-empirical guidelines in Kinget's interpretations of her stimuli. In the opinion of many reviewers of Kinget's Test, most of her interpretations hinge on the use of rather intuitive clinical insights instead of objective, empirical bases.

Kinget gives a complete qualitative description for each stimulus of the manner in which they are perceived by subjects. The rationale for these descriptions was based on spontaneous remarks made by many subjects which is hardly sufficient for validation purposes.

The specific qualities of each of the eight Drawing Completion Test stimuli are described by Kinget (1952, pp. 35-36) as follows:

Stimulus 1, the dot, has the characteristics smallness, lightness, roundness, centrality. In itself this is unimposing and could be easily overlooked by the less perceptive or less sensitive subject.

Stimulus 2, the wavy line, suggests something lively, mobile, loose, fluttering, growing, or flowing.

Stimulus 3, the three vertical regularly increasing lines, expresses the qualities of rigidity, austerity, regularity, order, and progression.

Stimulus 4, the block square, appears heavy, solid, massive, angular and static and evokes concrete materiality.

Stimulus 5, the two opposed slanting lines, expresses predominantly the idea of conflict and dynamism.

Stimulus 6, the horizontal and vertical lines, has a strictly matter-of-fact, sober, rigid, dull, and uninspiring aspect.

Stimulus 7, the dotted half-circle, suggests something very fine, delicate, round and supple that is at the same time appealing and a little puzzling because of its complex, bead-like structure.

Stimulus 8, the broadly curved line, has the organic qualities of roundness and flexibility of stimulus 7, but whereas 7 has something irritating in its complexity and smallness, stimulus 8 appears restful, large, fluent, and easy to deal with.

Further, the stimuli are classified into two rather distinct groups. Four are considered to be feminine or "organic" in nature, and four are classified as masculine or "technical-constructive" in quality.

The four feminine stimuli are purported to be stimuli 1, 2, 7, and 8 which share the physical characteristics of curvilinearity and relative lightness of line. Stimuli 3, 4, 5, and 6 are interpreted as masculine in nature and their most commonly shared characteristics are linearity and angularity of line configurations.

The importance of stimulus values and classification

of the eight stimuli is that diagnostic use is made by examining the affinity a subject indicates for the stimulus qualities. The order of completing drawings using the stimuli is taken as a measure of affinity. In terms of affinity, a subject is said to possess qualities implied by the stimuli and "resonate" to them. In other words, a relationship should exist between order preference for stimuli and the subject's "closeness" or similarity to the stimuli.

These two aspects of the Drawing Completion Test, stimulus value or meaning and the implications of drawing order, are the major areas of investigation in the present study. If such relations hold as indicated by Kinget, it may be possible to make valid inferences about the personalities of persons tested with the Drawing Completion Test based on stimuli choices. For example, the test may be diagnostically useful with persons troubled by sexual identification problems.

As previously discussed, Wyche's (1965) attempt to find a relationship between two measures of femininity and order preference for stimuli 1, 2, 7, and 8 met with insignificant results. Measures of femininity used were femininity scores derived from the Guilford-Zimmerman Temperament Survey along with sex of subject. Two major shortcomings exist for explaining her negative findings which the present study was able to avoid. One is the fact that an individual is female as to sex is no guarantee that

femininity qualities are actually possessed. The second is the fact that there was a priori acceptance of the theory of feminine identity of stimuli 1, 2, 7, and 8. The problem as to whether subjects high in femininity choose feminine stimuli earlier in taking the Drawing Completion Test remains unanswered.

A study done by Cohen (1959) at the University of Hamburg, Germany, bears some similarity to the present study, but his experimental methodology is suspect. The purpose of the study was to determine the meaning commonalities obtaining for a variety of projective materials. Four different groups of twenty-four subjects rated on the semantic differential either Rorschach cards in standard position, Rorschach cards in upside-down position, Z-Test cards, or Wartegg test blanks which comprise the Drawing Completion Test. Subjects ranged in age from sixteen to seventy years. The results enabled Cohen to summarize the meanings of each stimulus, but he went beyond his research findings in stating that stimuli 1, 2, 7, and 8 were essentially feminine and stimuli 3, 4, 5, and 6 were masculine because measures of the concepts "masculine" and "feminine" were not included in his design. The generality of the results of his study is also suspect as a result of the small number of subjects. Further, although a control for age was intended apparently by including such a wide age range, no statistical tests of the age levels variable were reported.

Attempted solution to the two-fold problem of meaning of the Drawing Completion Test stimuli was an experiment designed such that semantic differential ratings of each of the stimuli were obtained from a subject sample homogeneous as to sex. In order to provide a method of comparison, ratings of the supposed symbolic identity of the stimulus classifications were gathered on the basis of the concepts "femininity" and "masculinity."

In answer to the problem of the relationship between personality characteristics and order preferences, an independent estimate of femininity was used. This estimate involved distance between individual ratings of the concepts of "femininity" and "myself."

Such an experimental design yields meaning profiles for stimuli and concepts which are amenable to intercorrelation and similarity estimate methods crucial to determining meaning commonalities of stimuli.

Several hypotheses were generated by the discussion of the meaning of the Drawing Completion Test stimuli and the relationship between femininity and order preference. It was hypothesized that:

1. Stimuli 1, 2, 7, and 8 on the Drawing Completion Test will form a common meaning cluster including the concept "femininity."

2. Stimuli 3, 4, 5, and 6 on the Drawing Completion Test will form a common meaning cluster including the

concept "masculinity."

3. Smaller differences between ratings will be found among stimuli 1, 2, 7, and 8 than between these same stimuli and stimuli 3, 4, 5, and 6.

4. Smaller differences between ratings will be found among stimuli 3, 4, 5, and 6 than between these same stimuli and stimuli 1, 2, 7, and 8.

5. A significant positive relationship exists between degree of femininity and preference for stimuli 1, 2, 7, and 8.

6. A significant positive relationship exists between degree of femininity and preference for stimuli judged most similar to the concept "femininity."

7. A description of the individual meaning of the eight Drawing Completion Test stimuli obtained from significant semantic differential ratings will agree with Kinget's qualitative statements about each of the stimuli.

CHAPTER III

METHOD

Subjects

Similar investigations of projective test stimuli using the semantic differential technique have indicated that sex of subjects is not significantly related to attributed meaning (Rabin, 1959; Kamano, 1960 b; and Zak and Louiselle, 1960). For this reason, and because female subjects were more readily available, only female subjects were sought for testing in this study. Undergraduate classes in education at the University of Oklahoma provided subjects relatively homogeneous as to life age.

Administration of the Drawing Completion Test

The Drawing Completion Test was group administered to all subjects. Sufficient space was provided between subjects to minimize the opportunity for copying from neighbors and standard Kinget instructions (Kinget, 1952, pp. 28-29) were read aloud. See Appendix A for an actual test form.

Administration and Make-up of Semantic
Differential Scale List

Subjects were given the semantic differential task prior to taking the Drawing Completion Test in order to prevent possible contamination of stimuli ratings by drawing productions based on them. As a further control of contamination, a twenty-four hour interval was interposed between semantic differential ratings and the Drawing Completion Test.

The semantic differential scale list was composed of a total of eighteen scales judged to be appropriate to rating stimuli and concepts. Each meaning factor of evaluation, potency, and activity as derived by Osgood, Suci, and Tannenbaum (1957, pp. 36-38) was represented by six scales highly loaded on a particular factor. The order of appearance of a factor represented by a scale was evenly alternated down the list of scales in order to preclude the occurrence of "response sets" toward the scales. The opportunity for subjects to evolve "scale position sets" toward scales was controlled by evenly distributing high and low scale positions across right and left sides of the list. See Appendix B for an example of the actual construction of the list.

Subjects rated individually each of the eight Drawing Completion Test stimuli and the concepts "femininity," "masculinity," and "myself." Eleven page booklets, one scale list for each stimulus or concept to be rated, were

passed out to subjects along with blank Drawing Completion Test forms whose stimuli frames were numbered 1 through 8 along the margins for identification purposes. At the top of each page in the booklet a concept or number representing a stimulus was printed. Stimuli were identified as "Design 1," "Design 2," "Design 3," and so forth. After instructing subjects to match each design number in the booklet with the appropriate stimulus number on the Drawing Completion Test form, in order to make ratings, standard semantic differential instructions (Osgood, Suci, and Tannenbaum, 1957, pp. 83-85) were read aloud.

The order of appearance of stimuli throughout the booklet was randomized with the concept set "femininity" and "masculinity" alternated with the concept "myself" on either end of the eight randomized stimuli pages. This arrangement provided maximum separation between the concept "myself" and the other two concepts. Such organization was preferred in order to insure against possible tendencies for subjects to check their ratings of the ego-involving concept "myself" with ratings of "femininity" and "masculinity."

Statistical Procedure

The raw data were based on the position of semantic differential scale checks made by subjects for all stimuli and concepts. The seven intervals on each scale were given consecutive values 1, 2, 3, 4, 5, 6, and 7 in the direction toward the positive end representing the highest value of

the particular factor on any given scale. Once the checked intervals had been identified with the appropriate value, ratings for each stimuli and concept were tabulated across all scales for all subjects. Mean ratings were computed for stimuli and concepts on all scales. These operations yielded meaning profiles of each stimulus and concept.

Hypotheses 1 and 2 predict common meaning clusters between certain specified stimuli and concepts. Tryon's (Fructer, 1950, pp. 13-20) cluster analysis statistic B was applied to the array of intercorrelations of meaning profiles resulting from computing the Spearman rank-difference correlation statistic rho (Townsend, 1953, pp. 161-163) between all possible pairings of stimuli and concepts.

Hypotheses 3 and 4 predict smaller mean difference values, D (Osgood and Suci, 1952), among certain groups of stimuli than between the same stimuli and stimuli outside the group. Mean D values were computed from D values obtained between all possible pairings of stimuli within specified groups and all possible pairings between the same stimuli and stimuli outside the group.

Hypotheses 5 and 6 predict significant relationships between femininity scores and preference for certain stimuli. Femininity scores were statistically translated as D values between ratings of the concepts "femininity" and "myself" computed for all subjects. It is assumed that possession of the quality "femininity" is a negative

function of the size of D values, hence, the smaller the D value, the greater the possession of "femininity." Preference for certain groups of stimuli was statistically defined as the choice of three or more of the particular stimuli as a basis for drawings occurring in the first four choices. D values were dichotomized into high and low categories by placing the upper quarter of values ranked in order of increasing magnitude in the low category. The lower quarter of values was placed in the high category. The Chi-square statistic, X^2 , for tests of the independence between classifications based on two discrete variables (Walker and Lev, 1953, p. 89) was computed to test the relationship between femininity scores and stimulus preferences. The criterion of statistical significance for X^2 was placed at the .05 level of probability.

Hypothesis 7 involved the finding of significant terms with which to validly describe the various stimuli. Descriptive terms were obtained from the adjective identity of scale ends chosen with frequency to a statistically significant degree for each concept and stimulus. Ratings on scales for each stimulus and concept were dichotomized according to placement toward one or the other adjective on the scale which define the end points. Ratings made at the mid-points of scales, the neutral four category, were evenly divided between ends. Chi-square, X^2 (Townsend, 1953, p. 156), was then computed to test the significance of the

obtained frequencies with which either scale side was used in rating each concept and stimulus. The criterion of statistical significance was placed at the .01 level of probability.

CHAPTER IV

RESULTS

A group of sixty-nine female subjects was obtained at the University of Oklahoma from two undergraduate education classes. This group ranged in age from nineteen years to twenty-four years, with the mean age being 19.9 years. The standard deviation of age expressed in whole years was .96 or less than one year which indicates that the subject sample was highly homogeneous in age range. The precision and validity of the experimental results were considered enhanced as a result of the homogeneity of sex and age variables.

The statistical results relevant to each of the seven hypotheses are presented in order.

Hypotheses 1 and 2 predicted that two distinct clusters would be identified by B coefficient cluster analyses of intercorrelations of meaning profiles of all stimuli and concepts. One cluster was hypothesized to contain the concept "femininity" and stimuli 1, 2, 7, and 8; the other cluster was hypothesized to contain the concept "masculinity" and stimuli 3, 4, 5, and 6. An array of intercorrelations

between all stimuli and concepts is presented in Table 1. Cluster analysis operations performed on the data yielded two disparate clusters which included nine of the eleven concepts and stimuli. Cluster 1 includes stimuli 3, 4, 5, and 6 and attained a B coefficient of 9.14. The second identified cluster, Cluster 2, is composed of stimuli 2, 8, and concepts "myself," "femininity," and "masculinity." Cluster 2 attained a B coefficient of 5.06.

An estimate of the degree of association among variables within clusters is based on the fact that a B coefficient of 1.00 means variables within a cluster correlate no more highly among themselves than with variables outside the cluster. The variables within the two clusters are not consistent with those hypothesized, therefore Hypotheses 1 and 2 are rejected. Figure 2 presents graphically the interrelations among clustered variables.

Hypothesis 3 predicted a significantly smaller mean D value among stimuli 1, 2, 7, and 8 than between these same stimuli and stimuli 3, 4, 5, and 6. A t test of the significance of difference between means was computed for a mean D value of 5.14 among stimuli 1, 2, 7, and 8 and 5.27 between these same stimuli and all other stimuli. The obtained t was .18 which is not statistically significant at the .05 level of probability with 20 degrees of freedom. This result leads to rejection of hypothesis 3. Table 1 gives all D values between variables.

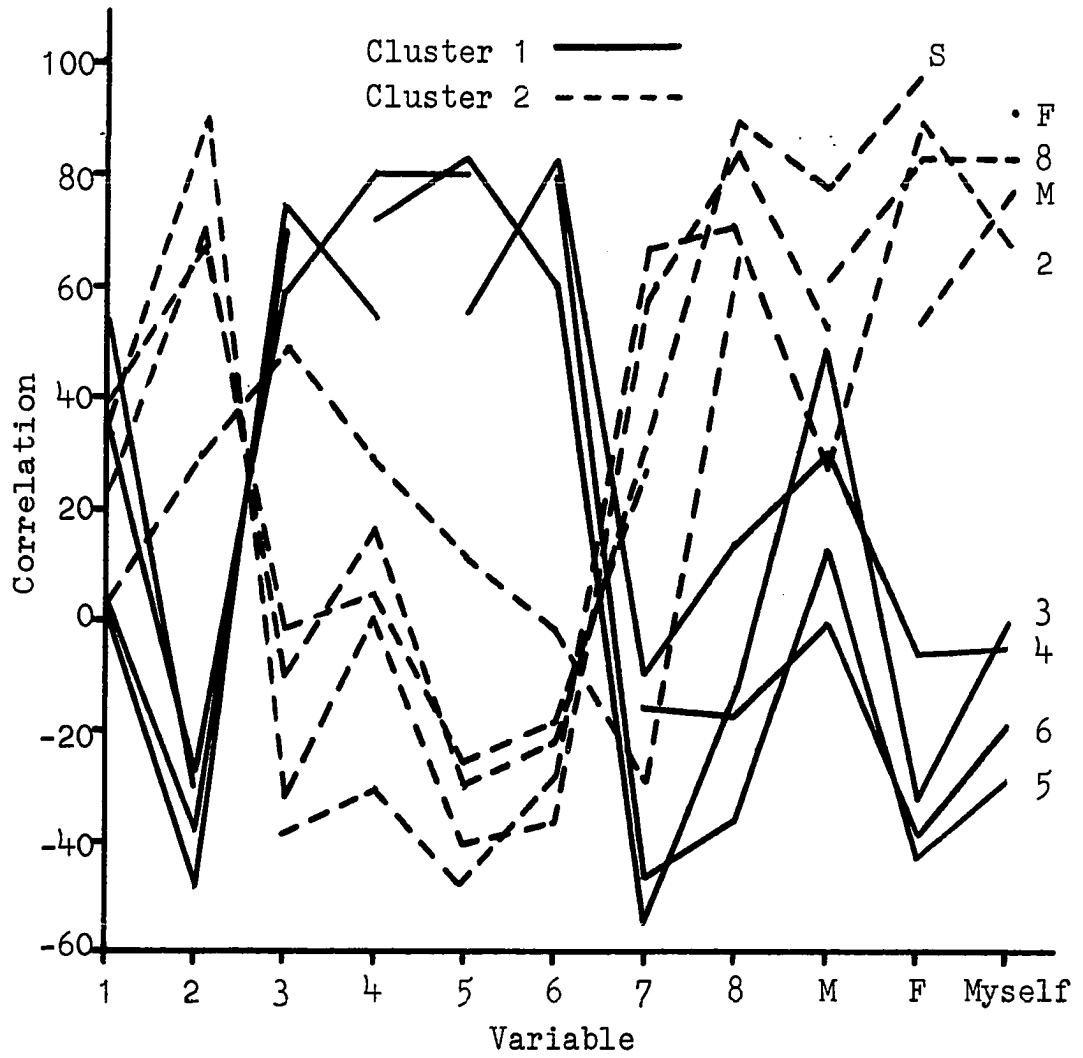
TABLE 1
INTERCORRELATIONS AND D VALUES AMONG ALL VARIABLES

		D Values										
		1	2	3	4	5	6	7	8	M	F	Myself
Correlations	1		4.97	5.08	3.28	4.38	3.47	5.18	5.23	8.68	7.48	5.87
	2	.14		7.67	5.69	6.05	5.07	2.41	5.72	8.72	7.05	6.41
	3	.04	-.39		3.36	2.55	3.91	8.36	4.72	5.18	8.59	5.55
	4	.52	-.30	.69		2.26	1.77	6.05	4.30	6.70	8.14	5.56
	5	.02	-.48	.82	.50		1.89	6.28	4.76	6.97	8.83	6.01
	6	.33	-.29	.58	.80	.80		5.06	5.16	7.97	8.84	6.40
	7	.22	.65	-.56	-.15	-.43	-.13		7.34	11.03	9.05	8.15
	8	.22	.69	-.10	.18	-.35	-.19	.30		4.13	4.96	2.63
	M	.03	.30	.49	.30	.10	.02	-.35	.56		7.19	4.64
	F	.35	.89	-.32	-.08	-.45	-.39	.50	.83	.46		3.75
Myself	.39	.67	-.09	.07	-.28	-.23	.27	.83	.72	.86		

5

Figure 2

Graph of variable interrelationships



Hypothesis 4 predicted a significantly smaller mean D value among stimuli 3, 4, 5, and 6 than between these same stimuli and stimuli 1, 2, 7, and 8. A t test was computed for a mean D value of 2.59 among stimuli 3, 4, 5, and 6, and 5.34 between these same stimuli and all other stimuli. The resulting t was 4.72 which is beyond the value of t needed for significance at the .05 level of probability with 20 degrees of freedom. Hypothesis 4 was sustained.

Hypothesis 5 predicted subjects dichotomized into high and low D value groups on the basis of distance between individual ratings of concepts "myself" and "femininity" would exhibit a statistically significant preference for the theoretically feminine stimuli 1, 2, 7, and 8 in favor of the low D value group. The upper and lower quarters of D values ranked in increasing order of size constituted, respectively, the low and high D groups. An N of 17 was obtained for the low D value group and an N of 18 for the high D value group. Preference for stimuli was defined as the inclusion of three or more of the stimuli 1, 2, 7, and 8 within the first four choices of stimuli with which to begin drawings. The low D value group exhibited a preference frequency of 7 for stimuli 1, 2, 7, and 8. The high D value group indicated a preference frequency of 3. A Chi-square test of independence between preference and D value groups resulted in a X^2 of 2.57. This X^2 did not achieve statistical significance at the .05 level of probability with

one degree of freedom although the data on which it is based is in the predicted direction.

Hypothesis 6 predicted that subjects dichotomized into high and low D value groups would indicate a significant preference for stimuli observed to be closest to the concept "femininity" on the basis of D values computed between mean ratings of the concept "femininity" and all eight stimuli. See Table 2 for obtained D values.

TABLE 2
D VALUES RANKED IN INCREASING ORDER OF SIZE
BETWEEN CONCEPT "FEMININITY" AND STIMULI

Stimuli	D Value
8	4.96
2	7.05
1	7.48
4	8.14
3	8.59
5	8.83
6	8.84
7	9.05

As observable in Table 2, the stimuli rated most similar to the concept "femininity" were stimuli 8, 2, 1, and 4, in that order. These four stimuli provided the basis for determining preference frequencies of high and low D value groups. High and low groups for testing Hypothesis 6 are the same as those described above in Hypothesis 5.

Similarly, preference was defined as the inclusion of three or more of the stimuli 8, 2, 1, and 4 within the first four choices with which to begin drawings. The low D value group exhibited a preference frequency of 7 for stimuli 8, 2, 1, and 4. The high D value group indicated a preference frequency of 3 for the same stimuli. A Chi-square test of independence between preference and D value groups resulted in a χ^2 of 2.57. This Chi-square does not achieve significance at the .05 level of probability for one degree of freedom although the data on which it is based is in the predicted direction. See Appendix C for D values and preference scores.

Hypothesis 7 predicted that a description of the individual meanings of the eight stimuli in terms of statistically significant adjective scale ends used by subjects in rating each stimulus would agree qualitatively with Kinget's interpretation of each stimulus. Scale ratings for each stimulus were dichotomized according to whether check marks were placed toward one adjective end or the other. Check marks falling at the mid-point of scales were equally divided between each adjective end. Chi-square values were computed to determine the significance of the frequencies with which each side of scales was selected to rate each stimulus. As there were eighteen scales and eight stimuli, there were 144 Chi-square computations for the set of stimuli. In order to obtain additional information, the same

operations were performed on the ratings of each concept. This added fifty-four Chi-square computations and brought the total to 198. One hundred and eight Chi-square values reached significance at the .01 level of probability with one degree of freedom. See Appendix C for a table of Chi-square values. Table 3 identifies adjective ends significantly chosen to rate each stimulus. Table 4 identifies adjective ends significantly chosen to rate concepts.

Stimulus 1 is significantly described by subjects as clean and tasty on the positive side within the evaluative dimension; passive and cold on the negative side within the activity dimension; and soft (loud-soft) on the negative side within the potency dimension. Though this stimulus is evaluated rather positively, it is perceived as inactive and impotent. Kinget describes this stimulus as having the qualities of smallness, lightness, roundness, centrality, unimposingness, and material insignificance. These two sets of descriptions seem psychologically equivalent in that both imply passivity and unimportance.

Stimulus 2 is significantly described by subjects as weak, soft (hard-soft), soft (loud-soft), shallow, and yielding on the negative side within the potency dimension; slow, dull, and relaxed on the negative side within the activity dimension; and unpleasant on the negative side within the evaluative dimension together with kind on the positive side. Kinget describes stimulus 2 as suggesting something

TABLE 3

SIGNIFICANT ADJECTIVE DESCRIPTIONS OF DRAWING COMPLETION TEST STIMULI

	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
good			*	*				*	bad								
strong			*	*	*			*	weak		*						*
fast			*		*				slow		*						*
beautiful			*					*	ugly								*
hard			*	*	*	*			soft		*						*
active			*		*				passive	*							*
clean	*		*	*	*	*		*	dirty								
loud			*		*				soft	*	*						*
hot								*	cold	*							*
tasty	*							*	distasteful								*
deep			*					*	shallow		*						*
sharp			*					*	dull		*						*
kind		*						*	cruel								
tenacious			*						yielding		*					*	*
tense			*	*		*			relaxed		*						*
pleasant								*	unpleasant		*						
severe			*		*				lenient							*	
excitable									calm								*

* $p < .01$ level

TABLE 4
SIGNIFICANT ADJECTIVE DESCRIPTIONS OF CONCEPTS
"FEMININITY," "MYSELF," AND "MASCULINITY"

Femininity Myself Masculinity			Femininity Myself Masculinity		
good	*	*	*	bad	
strong		*	*	weak	
fast		*	*	slow	
beautiful	*	*	*	ugly	
hard			*	soft	* *
active	*	*	*	passive	
clean	*	*	*	dirty	
loud			*	soft	*
hot	*	*	*	cold	
tasty	*	*	*	distasteful	
deep	*	*	*	shallow	
sharp	*	*	*	dull	
kind	*	*	*	cruel	
tenacious				yielding	*
tense				relaxed	* *
pleasant	*	*	*	unpleasant	
severe				lenient	* *
excitable				calm	

* $p < .01$ level

lively, mobile, loose, fluttering, growing, and flowing. The highly active, inherently potent qualities implied by Kinget decidedly does not fit the observed descriptions because they connote highly impotent, inert qualities.

Stimulus 3 is significantly described as strong, hard, loud, deep, tenacious, and severe on the positive side within the potency dimension; fast, active, and sharp on the positive side within the activity dimension; and good, clean, and beautiful on the positive side within the evaluative dimension. These terms generalize into highly potent, active, and rather positive evaluation qualities. Kinget describes stimulus 3 as rigid, austere, regular, and implying qualities of order and progression. Although the highly potent qualities implied by Kinget are reflected in the results, the high positive ratings on the activity and evaluative dimensions seem a contradiction of the rather evaluatively negative and inactive terms rigid and austere.

Stimulus 4 is significantly described as good and clean on the positive side within the evaluative dimension; and strong and hard on the positive side within the potency dimension. The lack of significance for any of the scales within the activity dimension indicates the stimulus is viewed neither active nor passive. Kinget describes stimulus 4 as heavy, solid, massive, regular, static, completely inorganic, and inert. The rather potent qualities evidenced in the results augur well with Kinget's description although more significant potency dimension scales were expected than were obtained. The conspicuous lack of significance for activity scales seems consonant with the term "static" used by Kinget.

Stimulus 5 is significantly described as strong, hard, and severe toward the positive end within the potency dimension; active and fast in positive reference to the evaluative dimension; and clean on the positive end within the evaluative dimension. Kinget describes stimulus 5 as expressing the ideas of conflict, dynamism, and opposition. Parts of this interpretation seem in agreement with the high ratings within the potency and activity dimensions, but the scale (tenacious-yielding) which best carries the idea of dynamic conflict did not achieve significance so that the agreement is questionable.

Stimulus 6 is significantly described only on two scales--hard on the positive side within the potency dimension and clean on the positive side within the evaluative dimension. Kinget interprets this stimulus as sober, rigid, dull, and uninspiring. Scales best suited to express this interpretation (dull-sharp, passive-active, distasteful-tasty, and shallow-deep) did not achieve significance. However, the paucity of significant scales differentiating this stimulus may be construed as related to Kinget's interpretation of uninspiring.

Stimulus 7 is significantly described as weak, soft (loud-soft), soft (hard-soft), shallow, yielding, and lenient on the negative side within the potency dimension; slow, passive, cold, dull, and calm on the negative side within the activity dimension; and ugly and distasteful on the negative side within the evaluative dimension. Kinget describes stimulus 7 as being fine, delicate, round, supple, appealing, puzzling, and somewhat irritating. The significant tendency

to perceive stimulus 7 as extremely impotent, passive, and evaluatively negative seems in agreement with Kinget's interpreted qualities. The fact it was rated negatively on all the scales found significant may be psychologically equated with the interpreted qualities of irritating and puzzling advanced by Kinget.

Stimulus 8 is significantly described as good, beautiful, clean, tasty, kind, and pleasant on the positive side within the evaluative dimension; strong, deep on the positive side together with yielding on the negative side within the potency dimension; and hot, sharp on the positive side together with relaxed on the negative side within the activity dimension. Thus, its most outstanding attributes generally seem to be positive evaluation and slight potency and activity. Kinget describes this stimulus as restful, large, fluent, expansive, vast, and easy to deal with. This interpretation seems to connote high positive evaluation with strength or potency somewhat in reserve. Construed in this manner, the large number of evaluative scales which achieved significance in the positive direction suggests that the theoretical and obtained descriptions are in relatively high agreement.

Results applicable to Hypothesis 7 are summarized as follows: agreement between theoretical and observed meaning qualities was noted for stimuli 1, 4, 6, 7, and 8; disagreement was noted for stimuli 2 and 3; and the comparison made for stimulus 5 was inconclusive. Hypothesis 7 is considered to be partially supported.

See Table 4 for statistically significant adjectives describing concepts "femininity," "myself," and "masculinity."

CHAPTER V

DISCUSSION

Considering that six out of the seven hypotheses were not supported by the data, the validity of the theoretical meaning of the Drawing Completion Test stimuli seems to be questionable. Any such interpretation of the results necessarily must rest upon the adequacy and appropriateness of the semantic differential technique to the stimuli and its ability to reflect meaning differences. In any research aimed at testing theoretical assumptions, validity of results is also tempered by the adequacy of the hypotheses intended to relate theoretical givens to specifiable conditions and results. Current acceptance of the technique as an approach to meaning measurement and previous use of the instrument in projective materials research argue for its appropriateness as employed in this study.

The failure to find the two theoretically predicted clusters of stimuli and concepts through cluster analysis suggests that within the limits of the experimental design, the theoretically underlying factors "femininity" and "masculinity" were not significantly influencing perceptions of

the stimuli as measured. Whenever a set of variables cluster, some systematic factor is obviously operating to create the integrating relationships. This notion is fundamental to the use of cluster analysis. The subsequent problem is to determine the factors responsible for the emergence of the obtained clusters in that the qualities predicted-- "femininity" and "masculinity"--to underlie clusters do not obtain. Such a determination is essentially a problem of inferring operant factors from qualities common to clusters.

Cluster 1 included stimuli 3, 5, 6, and 4; cluster 2 included stimuli 2, 8, and concepts "femininity," "myself," and "masculinity." The occurrence of concepts "femininity" and "masculinity" within the same cluster was completely unexpected. These two concepts were thought to represent the ends of a continuum whose dimension is sexual identity. However, "masculinity" was the last variable includable in the cluster, therefore, the least associated with the cluster and its components. The extent of this association is observable from inspection of Figure 2. The statistical bases of its belonging in cluster 2 are its relatively high intercorrelations with stimulus 8 (.56), concept "myself" (.72), and concept "femininity" (.46).

It seems significant that cluster 2 contains all the concepts rated. Their most distinguishing characteristics when compared to all variables seem to be "organicity" and "life-relatedness." The only stimuli found in cluster 2--2

and 8--are described by Kinget as being organic in nature. Viewed in these terms and within the limits of the design, the results seem to support partially the theoretical grouping of the stimuli with the exception of stimuli 1 and 7 which were not significantly related to components of either cluster.

Stimulus 1 obtained highest correlations with stimulus 4 (.52). Stimulus 7 correlated highest with stimulus 2 (.65) and concept "femininity" (.50). Stimulus 7 correlates highly with cluster 2 variables with the exception of the concepts. Most notably, it correlated negatively (-.35) with concept "masculinity" and somewhat low (.27) with concept "myself." Its negative correlation with concept "masculinity" effectively served to exclude it from cluster 2. Again, such a consideration of the data seems supportive of the theory and indicates that stimulus 7 is more associated with "femininity" and organicity than with "masculinity."

Cluster 1 composed of stimuli 3, 4, 5, and 6 failed to satisfy the demands of the hypothesis because concept "masculinity" was not included. Assuming that the logic of the above explanation of the high association found between concepts is valid, cluster 1 is highly supportive of the stimulus meaning theory. Of both clusters, cluster 1 is the most definitive in terms of exclusively high intercorrelations. The statistically significant test of difference between mean D values computed among stimuli 3, 4, 5, and 6

and values between these same stimuli and all others is supportive of the associational integrity of cluster 1. Importantly, its constituent variables correlated negatively with concept "femininity" and relatively low with concepts "myself" and "masculinity" with the exception of stimulus 3. Stimulus 3 correlated .49 with concept "masculinity."

The characteristics most common to cluster 1 involve its statistically significant ratings on the positive end of all meaning dimensions. Table 3 reveals that no significant ratings were found for stimuli 3, 4, 5, and 6 falling within the negative sides of the dimensions, whereas stimuli 2, 8, and 7 were most often significantly rated toward the negative side of scales. The only scale exceptions involved were those tapping the evaluative dimension and included scales clean-dirty, tasty-distasteful, and kind-cruel. Thus, the outstanding differences between stimuli of cluster 1 and stimuli 2, 8, and 7 are that the former is significantly rated potent and active whereas the latter is significantly rated impotent and inactive. On an inferential basis there does seem to be some validity in classifying stimuli 3, 4, 5, and 6 as "technical-constructive" and stimuli 2, 8, and 7 as "organic" assuming that "technical-constructive" qualities imply more potency and activity than do "organic" qualities.

Stimulus 1 appears to be unique and unrelated to the rest of the stimuli with few scales reaching statistical significance. In this respect, it may be said to mobilize

few consensual agreements as to its qualities. Within scales employed in the study, it is relatively meaningless although it was rated somewhat positively within evaluative scales and somewhat negatively within potency scales.

The above discussion ameliorates considerably the lack of support given to the cluster hypotheses and the less than unanimous agreement found between theoretical and observed descriptions of each of the stimuli. The theoretical meaning of stimuli involving "organic" and "technical-constructive" classifications of stimuli is at least partially supported in the case of some stimuli. Classification based on "feminine" and "masculine" categories appear to be conclusively unsubstantiated in terms of the way in which meaning is attributed to them by the semantic differential technique.

The results do support the idea that the Drawing Completion Test stimuli possess "physiognomic" qualities. No two stimuli exhibited identical significant scale patterns on ratings so that it may be concluded that the stimuli possess rather individual qualities. In this respect, it is interesting to note that there were few contradictions between the direction of significant scales representing particular dimensions. That is, if a particular stimulus was significantly rated negatively within the potency dimension, for example, generally no significant scales were found in the opposite direction within the same dimension.

Only three exceptions to this "rule" were noted. These exceptions involved stimulus 2 and stimulus 8. Stimulus 2 was significantly rated both negatively (unpleasant) and positively (kind) within the evaluative dimension. Stimulus 8 contradicted the two dimensions of potency and activity. It was significantly rated both positively (strong, deep) and negatively (yielding) within the potency dimension; and both positively (hot, sharp) and negatively (relaxed) within the activity dimension. These three exceptions are extremely infrequent considering the large number of contradictions that might have occurred. These events give added support to the purity of Osgood's major dimensions of meaning and provide further experimental evidence that the meaning of ambiguous projective test stimuli is reducible to three primary factors. This is consistent with the conclusions of previous investigations of projective materials employing the semantic differential technique.

Furthermore, it suggests that subjects given the task of rating such graphic material do not approach the rating operation in random fashion. Underlying factors comprised of the integration of stimulus characteristics and subjective associations to them form the bases for ratings. The relatively large number of statistically significant frequencies with which one scale side is chosen in opposition to the other suggests that the meaning of such stimuli is in high consensual agreement.

The lack of support given to hypotheses predicting a significant relationship between "femininity" of subject and stimuli preferred as earlier bases for drawings argues against inferring subject characteristics from the theoretical qualities of stimuli chosen. These findings are in agreement with results obtained by Wyche (1965). Thus, the cumulative experimental evidence seems invalidating of such proposed relationships. More importantly, the results indicate that making diagnostic inferences about personality characteristics on the basis of stimulus choices and assumed stimulus qualities is not fully justified. Thus, stimulus choice does not seem explained completely by the theory that subjects choose stimuli earlier to which they "resonate" and with which they share common qualities. This may be reason for altering the interpretative bases of Drawing Completion Test protocols.

The results indicate that the Drawing Completion Test stimuli possess rather individual physiognomic qualities although these do not necessarily agree with those theoretically attributed. These stimuli are not validly classified in terms of "femininity" and "masculinity" qualities but are amenable to classification according to "organic" and "technical-constructive" considerations as suggested by Kinget. Stimuli 3, 4, 5, and 6 appear to be "technical-constructive" in quality but not necessarily "masculine," and stimuli 2 and 8 appear to be "organic" in

quality but not necessarily "feminine."

There is some suggestion in the data that stimulus 7 is appropriately classified as "organic," but stimulus 1 decidedly does not belong within this classification.

To the extent that meaning ratings of projective test stimuli have previously and consistently been found to be independent of sex of subject, the results of the present study in this area are considered to be generalizable to college age students.

The relationships between stimulus qualities, preference for stimuli, and "femininity" as defined by this study are not statistically significant although in the predicted direction.

The relationship between preference for stimuli judged closer to "myself" and "femininity" of subjects as defined by this study is not statistically significant although in the predicted direction.

The results in this area should not be generalized outside female, college age subjects.

The following conclusions seem warranted by this study.

As currently constructed and interpreted, the adequacy of the Drawing Completion Test as a diagnostic device of personality is questionable. This conclusion is based on the failure to find conclusive support for some of its theoretical assumptions.

The most useful application of the Drawing Completion Test seems to lie in its employment as a source of specific research variables and not in its utilization as a means of obtaining dynamic and general personality descriptions.

Personal choice behavior is not fully explainable simply as an affinity for those things most like ourselves.

The semantic differential technique is a useful means for investigating the meaning of projective test stimuli.

Suggestions for Further Research

It became obvious in attempting to qualitatively compare the theoretical and observed stimulus meanings that a more direct basis for comparison would involve a semantic differential scale list composed of adjectives specifically employed by Kinget in describing the Drawing Completion Test stimuli. Adjectives opposite in meaning to Kinget's would constitute the other half of each pair. For example, the adjective "unimposing" is used by Kinget to describe stimulus 1. This adjective, along with its opposite "imposing," would be included in the scale list. Similar construction of other scales would be possible.

Another seemingly profitable experiment could be designed to test the relationship between stimulus meanings and subsequent drawing productions relative to stimuli. The present study indicates that a statistically significant relationship does not hold between possession of stimulus

qualities by subjects and preference for stimuli. Such a relation may hold for drawing productions on stimuli judged closer to the self.

Stimulus meaning may be related to subsequent drawing productions. For example, do subjects draw "organic" figures in response to the "organic" stimuli? If answered affirmatively, it would be further evidence that the meaning of stimuli on the Drawing Completion Test is a crucial determinant of drawings.

Another research problem involves the relationship between stimulus meaning and the meaning of drawings produced with them.

Such questions remain unanswered. In order to increase the generalizability of results related to stimulus preference-drawing production-personality relations, it is suggested that the experimental design include both sexes.

CHAPTER VI

SUMMARY

This experiment was designed to study the meaning of the eight Drawing Completion Test stimuli and its relation to choices of stimuli with which to begin drawings.

Kinget (1952) gives complete interpretative descriptions of each of the eight stimuli and utilizes these theoretical meanings to infer personality characteristics of subjects on the basis of preference for stimuli. Theoretically, subjects choose stimuli whose qualities closely approximate their personality characteristics.

The semantic differential technique for measuring meaning was chosen because of its established validity in relation to problems of meaning. The experimental precedent of such a technique in investigating the meaning of projective test stimuli is well substantiated in the literature.

Previous studies of preference for certain Drawing Completion Test stimuli and its relation to personality characteristics were based apparently on a priori acceptance of the theoretical meaning of the stimuli as proposed by Kinget. The present study avoided the possibility of such

an error by providing a check on the validity of their theorized meaning.

Undergraduate college students rated each of the Drawing Completion Test stimuli and the concepts "femininity," "myself," and "masculinity" on an eighteen item semantic differential scale list composed of adjective pairs considered relevant to the task. These scales were equally divided among the evaluative, activity, and potency dimensions found to be basic to meaning differentiation.

In general, it was hypothesized that the intercorrelations of meaning profiles of all variables, based on mean ratings by subjects, would exhibit two distinct clusters. One cluster was predicted to contain the theoretically interpreted "feminine" stimuli, 1, 2, 7, and 8, plus the concept "femininity." Another cluster was predicted to contain the theoretically interpreted "masculine" stimuli, 3, 4, 5, and 6, plus the concept "masculinity." The theoretical interpretations of individual stimuli were predicted to be in agreement with observed descriptions based on statistically significant adjective scales used to rate stimuli.

Subjects high in "femininity," as defined by D values between individual ratings of concepts "myself" and "femininity" were predicted to prefer the theoretically "feminine" stimuli, 1, 2, 7, and 8. Similarly, high "femininity" subjects were predicted to prefer stimuli observed

to be rated closest to the concept "femininity." These stimuli were 8, 2, 1, and 4 in that order.

Two distinct clusters of variables emerged from the data, but their components were not as predicted. Cluster 1 contained stimuli 3, 4, 5, and 6. Cluster 2 contained stimuli 2, 8, and concepts "femininity," "myself," and "masculinity." These results do not support the classification of Drawing Completion Test stimuli as "feminine" and "masculine." Evidence was presented for classifying stimuli 3, 4, 5, and 6 as "technical-constructive" in quality and stimuli 2, 8, and 7 as "organic" in quality. Stimulus 1 does not fit either classification and appeared rather "meaningless."

A qualitative comparison of individual theoretical and observed descriptions of stimuli suggested that Kinget's interpretations of stimuli 1, 4, 6, 7, and 8 have some basis, but that stimuli 2 and 3 are not adequately interpreted.

The relationship between the personality characteristic "femininity" and preference for theoretically "feminine" stimuli was not statistically significant although in the predicted direction. Likewise, the relationship between "femininity" of subjects and preference for stimuli observed to be closest to the concept "femininity" was statistically insignificant but in the predicted direction.

The use of stimulus preference as a basis for

inferring personality characteristics of subjects was challenged as well as the notion that subjects prefer stimuli that share qualities similar to those within themselves.

Some limitations to the generality of the results were specified and suggestions for further research were given.

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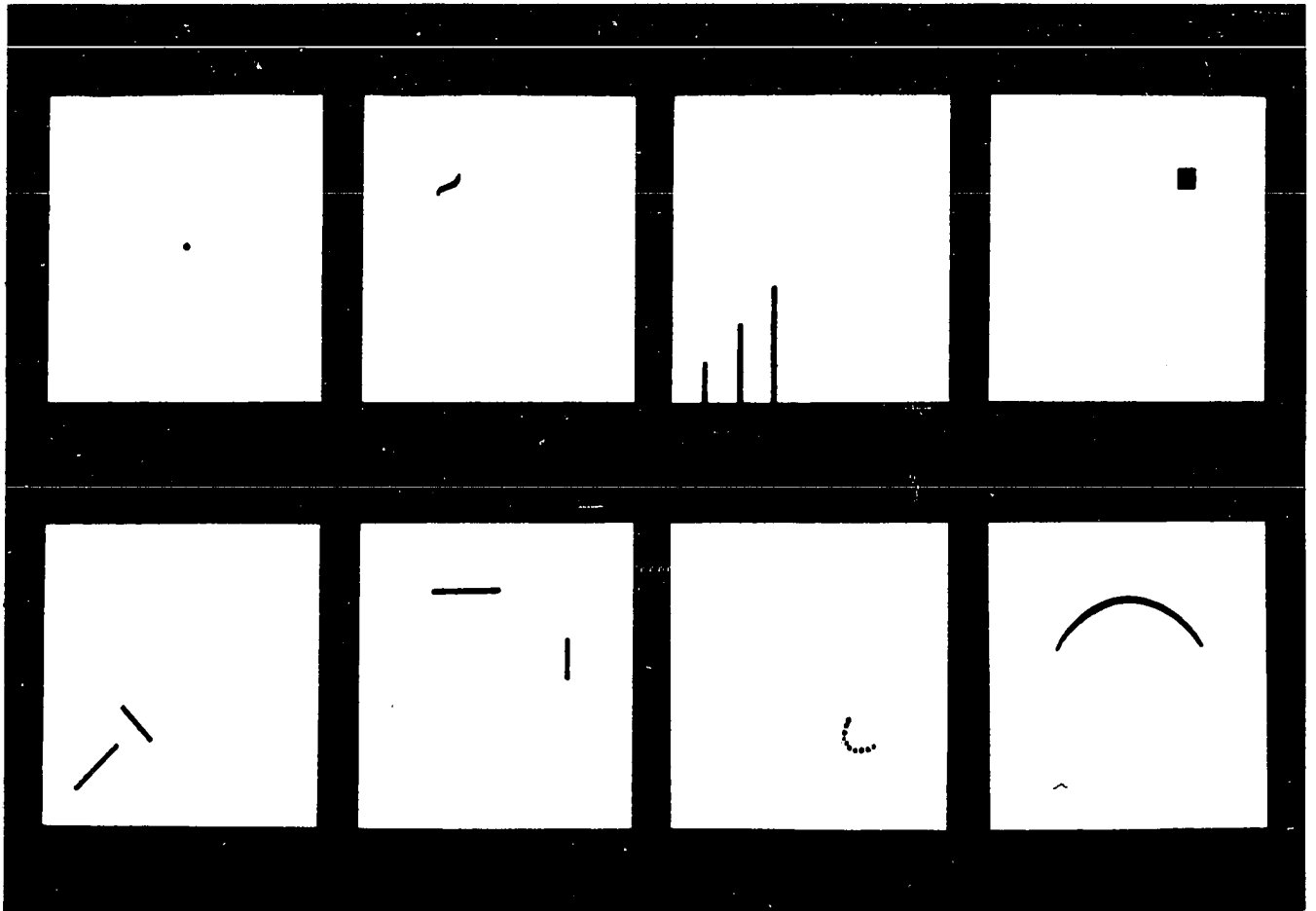
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APPENDIX A. DRAWING COMPLETION TEST FORM



APPENDIX B. SEMANTIC DIFFERENTIAL LIST

good____:____:____:____:____:____:____bad
 weak____:____:____:____:____:____:____strong
 fast____:____:____:____:____:____:____slow
 ugly____:____:____:____:____:____:____beautiful
 hard____:____:____:____:____:____:____soft
 passive____:____:____:____:____:____:____active
 clean____:____:____:____:____:____:____dirty
 soft____:____:____:____:____:____:____loud
 hot____:____:____:____:____:____:____cold
 distasteful____:____:____:____:____:____:____tasty
 deep____:____:____:____:____:____:____shallow
 dull____:____:____:____:____:____:____sharp
 kind____:____:____:____:____:____:____cruel
 tenacious____:____:____:____:____:____:____yielding
 relaxed____:____:____:____:____:____:____tense
 unpleasant____:____:____:____:____:____:____pleasant
 severe____:____:____:____:____:____:____lenient
 calm____:____:____:____:____:____:____excitable

APPENDIX C. DATA TABLES

TABLE 5

FEMININITY SCORES AND PREFERENCE SCORES FOR ALL SUBJECTS

Subject	Femininity Score	Preference Scores	
		1, 2, 7, 8	1, 2, 4, 8
1	2.65	2	3
2	4.36	3	2
3	13.60	2	1
4	5.92	3	2
5	6.08	2	1
6	12.20	3	3
7	3.61	4	3
8	11.27	2	2
9	12.60	2	2
10	8.60	2	3
11	9.38	2	1
12	4.69	2	3
13	9.11	2	2
14	6.40	2	2
15	5.20	2	2
16	10.77	3	2
17	10.30	3	2
18	10.86	2	3
19	6.56	-	-
20	10.20	2	2
21	6.78	3	3
22	8.19	1	1
23	7.75	2	3
24	7.94	3	3
25	8.94	1	2
26	3.87	2	1
27	4.69	3	2
28	4.58	3	3
29	8.78	2	1
30	7.28	3	3
31	10.34	2	3
32	9.80	2	1
33	3.46	2	1
34	8.19	2	3
35	5.91	2	1
36	5.57	2	3
37	6.40	2	2
38	3.87	3	2
39	7.21	2	2
40	12.88	1	1
41	5.10	2	2
42	7.62	2	1

TABLE 5--Continued

Subject	Femininity Score	Preference Scores	
		1, 2, 7, 8	1, 2, 4, 8
43	7.81	2	3
44	11.05	2	2
45	7.14	2	2
46	9.59	2	2
47	11.79	1	1
48	9.80	1	2
49	5.74	3	2
50	12.37	2	2
51	6.25	2	3
52	4.58	2	3
53	8.74	3	1
54	5.91	2	2
55	8.78	2	2
56	7.68	2	3
57	5.10	3	3
58	7.21	3	4
59	5.20	2	2
60	9.06	2	1
61	6.16	2	3
62	6.00	2	2
63	3.16	2	3
64	7.14	3	1
65	7.55	1	2
66	11.14	2	1
67	6.32	2	1
68	6.25	3	2
69	8.89	2	2

TABLE 6
MEAN SEMANTIC DIFFERENTIAL RATINGS FOR ALL VARIABLES

	Masculinity	Femininity	Myself	1	2	3	4	5	6	7	8
1	6.58	6.59	5.81	4.46	4.00	5.33	5.00	4.18	4.26	3.38	5.74
2	6.75	3.73	5.29	3.13	2.75	5.51	4.81	4.76	4.07	2.31	5.13
3	6.01	4.04	4.86	3.72	3.36	5.19	3.60	4.71	3.84	2.90	4.42
4	5.68	6.43	5.09	3.93	3.96	4.68	4.08	3.94	3.65	2.99	5.20
5	5.67	1.65	2.88	4.18	2.99	5.62	5.46	5.13	5.18	3.00	4.06
6	6.45	4.96	5.28	3.16	3.82	5.51	3.69	4.81	3.81	2.91	4.68
7	6.07	6.75	6.44	5.81	4.73	5.29	5.39	5.29	5.33	3.99	5.86
8	5.32	1.97	3.36	3.17	2.84	5.10	4.42	4.64	4.53	2.68	4.48
9	5.23	4.96	4.71	2.09	3.73	4.29	3.51	3.90	3.72	3.24	5.03
10	5.57	5.96	5.32	4.97	3.75	4.52	4.24	3.93	3.60	3.12	5.33
11	6.19	5.36	5.58	5.40	3.10	4.87	4.75	3.90	4.04	2.96	5.04
12	6.09	5.54	5.38	4.15	2.94	5.48	4.55	4.63	3.90	2.60	4.88
13	5.80	6.57	6.17	4.43	4.48	3.55	4.21	3.71	3.85	4.38	5.14
14	3.74	2.81	3.75	4.65	2.71	5.06	4.53	4.59	4.57	2.99	3.65
15	2.81	2.00	3.44	4.35	2.87	4.83	4.67	4.94	4.71	3.66	3.00
16	6.30	6.59	5.87	3.77	4.15	4.45	4.09	3.81	3.69	3.62	5.33
17	4.06	2.51	2.88	4.34	2.51	4.99	4.57	4.93	4.60	3.15	3.54
18	3.28	3.46	4.22	3.38	2.91	4.48	4.08	4.60	4.01	3.40	3.42

TABLE 7

CHI-SQUARE VALUES FOR DICHOTOMIZED
RATINGS OF ALL VARIABLES

	Mascu- linity	Femi- ninity	Myself	1	2
1	+45.94	+65.06	+49.30	+ 4.70	+ .06
2	+69.00	- .91	+34.74	- 6.28	-22.70
3	+55.70	+ 1.44	+12.18	- .72	- 8.60
4	+45.44	+65.06	+43.84	+ .01	+ .01
5	+40.65	-57.54	-24.36	+ .24	-16.26
6	+65.06	+10.56	+30.66	-11.52	- .24
7	+50.44	+63.08	+69.00	+39.76	+ 2.92
8	+26.40	-50.44	- 4.70	-10.72	-24.50
9	+33.40	+32.03	+13.04	-14.14	- 1.20
10	+43.84	+55.76	+48.76	+12.36	- 1.50
11	+61.22	+20.92	+45.68	- .14	-18.24
12	+45.72	+42.26	+43.84	0.0	-21.54
13	+36.24	+63.08	+57.50	+ 5.88	+14.32
14	+ 6.38	-25.58	- 4.70	+ 5.88	-16.26
15	-23.18	-48.76	- 3.72	+ .58	-18.28
16	+61.22	+69.00	+65.06	+ .72	+ .14
17	+ .54	-45.68	-20.92	+ .94	-22.10
18	+ 4.70	- 2.46	+ .54	- 3.76	- 6.58

+ positive end of scale dimension

- negative end of scale dimension

TABLE 7--Continued

3	4	5	6	7	8
+22.04	+13.44	+ 2.48	+ .72	- 2.48	+48.76
+28.06	+ 7.78	+11.52	- 1.48	-33.88	+13.92
+17.76	- 1.50	+11.52	- 3.72	-19.06	+ .72
+12.18	+ 1.80	+ .06	- 4.24	-13.24	+34.80
+42.46	+31.58	+23.52	+35.30	-18.02	- .06
+28.06	- 1.20	+11.54	- .14	-19.06	+ 6.38
+30.66	+32.96	+23.52	+25.94	+ .14	+50.44
+20.72	+ 3.34	+ 7.12	+ 7.12	-28.48	+ .94
+ 3.26	- 3.76	- 2.12	- .24	- 8.48	+16.76
+ 5.24	+ 2.48	+ .36	- 3.20	- 8.48	+14.90
+11.36	+ 5.88	+ .14	- .52	-15.06	+12.18
+30.66	+ 5.38	+ 6.48	- .52	-25.94	+10.56
+ .06	+ .68	- 1.80	- .52	+ 3.76	+26.80
+17.76	+ 4.84	+ 5.30	+ 6.48	-16.02	-13.92
+ 7.02	+ 6.68	+ 1.48	+14.14	- 2.48	-15.20
+ 4.18	+ .14	- .70	- 1.78	- 1.48	+33.38
+13.04	+ 5.88	+16.02	+ 5.30	-13.00	- 5.24
+ 3.72	+ .38	+ 5.88	- .02	- 8.48	- 4.70