

HALO BIAS, IMPLICIT PERSONALITY THEORY, AND COGNITIVE
COMPLEXITY: POSSIBLE RELATIONSHIPS AND IMPLICATIONS FOR
IMPROVING THE PSYCHOMETRIC QUALITY OF RATINGS

by

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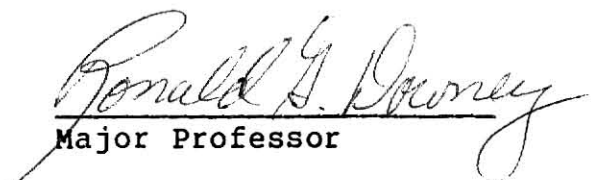
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Halo bias (Thorndike, 1920), implicit personality theory (Bruner & Tagiuri, 1954), and cognitive complexity (Bieri, 1955) are constructs which have been used to explain the organization and structure of an individual's descriptions of and feelings toward other people. Specifically, these constructs deal with the degree and kind of relationships found in ratings of traits, attributes, or behaviors of people. On the surface, it would appear that implicit personality theory, cognitive complexity, and halo bias may be different names for the same process or, perhaps, similar descriptions of different processes. The three constructs have developed out of different historical perspectives. The construct of halo developed from studies of performance appraisal whereas implicit personality theory and cognitive complexity developed from studies dealing with the general area of person perception. The primary difference is that person perception studies were conducted by social-personality psychologists to study personality traits whereas performance appraisal studies were conducted by applied psychologists to study human performance. Little effort has been directed at investigations studying the interrelations, similarities, and differences between these two approaches. If one wished to reduce halo in performance evaluations, would understanding of implicit

personality theory and/or cognitive complexity help in this process?

Many different approaches have been taken in attempting to cope with halo bias in ratings. These have included developing different rating formats (e.g., Smith & Kendall, 1963), training raters to reduce halo bias (e.g., Borman, 1975), and statistical controls such as the use of partial correlation techniques (e.g., Landy, Vance, Barnes-Farrell, & Steele, 1980). Perhaps information about individuals concerning the structure of their implicit personality theory and/or the degree of their cognitive complexity might enable one to infer something about an individual's tendency to exhibit halo bias. If a group of individuals with high tendencies to exhibit halo bias could be identified, perhaps they could be excluded from the rating process or given special training sessions. It might become more economical to provide intensive training sessions designed to reduce halo bias if individuals who would benefit most from such training could be identified.

A brief review of research associated with halo bias, cognitive complexity, and implicit personality theory follows. The review of halo literature has its focus on the present knowledge of the halo construct and the gaps and inconsistencies in the research. Literature associated with cognitive complexity and implicit personality theory was reviewed with emphasis on their relationship to performance ratings and halo bias. Possible influences

that cognitive complexity and/or implicit personality theory have in the reduction (or increase) of halo bias were examined.

Halo Bias

It appears that halo may not be a unitary construct relating to a single phenomenon but rather to an entire class of phenomena. It has been suggested that halo bias may take several different forms arising from many different sources (Cooper, 1981b; Nisbett and Wilson, 1977). However, regardless of the sources postulated for halo bias, it is generally agreed that the results of halo manifest themselves in terms of high correlations and/or low variance between the ratings of different performance dimensions.

The term "halo bias" was first coined by Thorndike in 1920. In an early study by Knight (reviewed by Thorndike, 1920) ratings of teachers on various dimensions were correlated. Ratings of general ability as a teacher and ratings of ability to discipline were found to correlate with ratings of intelligence ($r = .95$ and $.80$, respectively). However, the subjects' ratings of ability to discipline and ratings of general ability as a teacher were found to correlate no higher than $.30$ with scores on a standard intelligence test (Thorndike, 1920). Thorndike concluded that the high correlations between the rated

dimensions of teacher performance were due to an inability of the rater to "treat an individual as a compound of separate qualities and to assign a magnitude to each of these in independence of the others" (1920, p. 28). He named this type of rating error halo bias.

Other researchers have suggested that there may be more than one kind of halo. Nisbett and Wilson (1977) differentiated between two different types of halo, weak and strong. A weak type of halo is defined as a rating error that is due to an inference by the rater from known traits to unknown or ambiguous traits.

Thus, if we like a person, we often assume that those attributes of the person about which we know little are also favorable. (Politicians often seem to capitalize on this tendency by appearing warm and friendly but saying little about the issues.) Such a phenomenon could best be described as a deduction from an implicit personality theory holding that "nice people tend to have nice attributes and less nice people have less nice attributes" (Nisbett & Wilson, 1977, p. 250).

The other possibility is a strong form of halo bias, resulting from a global perception which has enough influence to bias a rater's perception of even those traits which are observable and unambiguous. Nisbett and Wilson (1977) presented evidence for this stronger version of halo bias, and their results indicated that the subjects' global

assessment of an instructor (as being a warm or a cold person) influenced the subjects' perceptions of the attractiveness of the instructor's physical characteristics, mannerisms, and accent. When later questioned about their ratings, the subjects were found to be unaware that their global perceptions of the instructor had any effect on their ratings of the instructor's individual attributes and, in fact, attributed the causality in the opposite direction.

Cooper (1981b), in a review of the halo literature, identified six different potential sources of halo: undersampling, engulfing, insufficient concreteness, insufficient rater motivation and knowledge, cognitive distortions, and correlated true scores. Undersampling refers to a lack of sufficient information about a ratee. When raters lack sufficient information about a ratee it is suggested that they rely on inferences about how rating items covary. These inferences may contribute to halo bias. This source of halo appears to be comparable to what Nisbett and Wilson (1977) referred to as the weaker version of halo bias. Engulfing occurs when a single overall impression of a ratee blots out the rater's perceptions of the ratee's individual attributes. This source of halo appears very similar to Nisbett and Wilson's stronger version of halo bias. Insufficient concreteness refers to the qualities of the rating format. If the rating categories are not sufficiently specific and concrete the

rater may fail to distinguish between the categories. This could cause the rater to perceive the categories as more highly related than the format developer had intended, causing erroneously high category intercorrelations. Insufficient rater motivation and knowledge refers to errors made by raters due to their carelessness or their lack of awareness. Cognitive distortion refers to errors in ratings due to faulty memories which lose detail and distort observed data into assumed patterns of attribute covariance. Correlated true scores refers to that portion of the intercorrelations of rating categories that are due to actual covariance of a ratee's attributes.

If one can assume that halo bias is a multifaceted phenomenon, occurring for a variety of reasons, it might explain some of the difficulty researchers have had in developing operational definitions of halo. Saal, Downey, and Lahey (1980), in a review of the various methods of measuring halo bias, presented four "distinguishably different operational definitions of the halo effect" (p. 415-417): (1) Measuring intercorrelations among different rating dimensions of ratee scores over all raters, where higher correlations would indicate a greater degree of halo bias and therefore a lower degree of between-dimension discrimination; (2) Factor or component analysis of the "dimension intercorrelation matrix" (Saal et al., 1980, p. 415), where halo bias would be suspected if very few components or factors are found; (3) Measuring the

variance associated with a "particular rater's ratings of a particular ratee across all performance dimensions" (Saal et al., 1980, p. 416), where the lower the variance, the more likely a halo bias is operating; (4) Determining whether a significant Rater X Ratee interaction is accounting for a large proportion of the rating variance in a Rater X Ratee X Dimension analysis of variance. If the Rater X Ratee interaction is accounting for a large proportion of the variance, then it is likely that raters are exhibiting halo bias. Saal et al. cautioned that different operational definitions can lead to different results. One possible reason might be that the different operational definitions are measuring different types of halo bias.

In addition to possible conceptual problems, these operational definitions also have varying degrees of logical difficulties. One problem with judging whether or not halo bias exists by the degree of variance over rating dimensions is that there is always the possibility that a rater could be correct in his/her assessment. That is, it is conceivable that a ratee could have all positive traits, all negative traits, or even all mediocre traits. False indications of halo bias are less likely when computing halo by methods which allow comparison between the ratings of several different raters. Computing halo bias by measuring the intercorrelations of rating dimensions summed over a group of raters, however, does not measure the

degree of bias exhibited by an individual rater. Most definitions of halo bias imply bias caused by one individual's (the rater) inability to discriminate between various trait dimensions in rating a ratee. Saal et al. (1980) noted that there are some logical and analytical problems in using the Rater X Ratee X Dimension ANOVA method for operationally defining halo bias. In order to use this operational definition, one must assume "that the dimensions are not conceptually independent but are merely different levels of the same factor or treatment variable" (Saal et al., 1980, p. 424). Rating dimensions are usually considered to be qualitatively different aspects of the ratee's behavior. The Rater X Ratee X Dimension ANOVA approach, as an operational definition, treats dimensions as if they were a single factor. "The situation is analogous to treating height and weight as measures of the same dependent variable-- perhaps size" (Saal et al. 1980, p.424). Clear, precise conceptual and operational definitions of halo bias are essential to the progress of halo bias research.

There is some reason to believe that halo bias is a consistent characteristic of the individual rater, independent of the situation. Evidence indicates that an individual's halo bias is consistent across rating tasks. Results of one study (Borman, 1977) investigating consistency in rating errors indicated that the rating errors of leniency/severity, halo, and restriction of range

were reasonably consistent within a particular performance rating task. Halo bias was operationally defined as the standard deviation of the performance ratings across job dimensions for a particular ratee. Each subject rated eight different ratees for each of two different jobs. The degree of halo bias exhibited by raters was found to be consistent both within a particular job and across the two different job rating situations. If halo bias is a characteristic of an individual rater, then improving the rating situation may not be very helpful in the reduction of halo bias. Individual-centered remedies, such as rater training to reduce halo or selection of raters less disposed to make halo errors, might turn out to be more useful.

However, the evidence suggests that individuals who exhibit halo bias may not be easily changed even with training. Bernardin and Walter (1977) found that rater training can significantly reduce halo bias. Other studies have not had as promising results. Borman (1975) found that training reduced halo bias but decreased interrater reliability. Results of a study by Bernardin (1978) suggested that the effects of rater training may only be short term. Borman (1979a) found that a training program that succeeded in reducing halo bias failed to bring about improvements in rating accuracy. Thus, it would appear, that if training does reduce an individual's tendency to exhibit halo bias, the results are not particularly strong,

long lasting, or simple.

If raters cannot be easily trained to reduce halo bias, and continue to exhibit this rating bias regardless of the rating task, even for unambiguous traits of the ratee, perhaps rating accuracy can only be improved by explicitly excluding those raters likely to exhibit halo bias. Exclusion of raters from the rating process would be a viable option in those rating situations in which many different raters rate a single ratee. One example of this type of rating situation is performance evaluations of instructors made by large groups of students. If exclusion of raters is impractical, perhaps rater training could be more effective and economical if intensive training were selectively administered to those raters with higher tendencies to exhibit halo bias. In order to do this, some way would have to be found to predict which raters are likely to exhibit halo bias. Predicting raters likely to exhibit halo bias, of course, will become possible only if more precise conceptual and operational definitions of halo bias are obtained and rater and ratee sources of halo are disentangled. Perhaps a better understanding of halo bias can be obtained by investigating the relationship between halo bias and the related constructs of implicit personality theory and cognitive complexity.

Implicit Personality Theory

Perhaps characteristics of an individual's implicit personality theory might provide some indication of the likelihood that an individual would exhibit halo bias. An individual's implicit personality theory is his/her perception of patterns of covariance among and between various groups of traits. For example, consider only two personality traits: kindness and honesty. An individual might have an implicit personality theory that leads him/her to expect that the traits of honesty and kindness usually occur together. Upon learning that a person is kind, an individual with this implicit personality theory would, without further information, also expect the person to be honest. A person believed to be unkind would also be expected to be dishonest under this theory of personality. Other traits such as intelligence might be considered unrelated to kindness or honesty but might be considered strongly related to impulsiveness or cultural sensitivity.

Koltuv (1962) found that people tended to perceive stronger interrelationships between traits of people about whom they knew little than between the traits of people they knew well. This would suggest that one's implicit personality theory may have the most influence over one's perception of others when one is without sufficient information to rate others. This situation is called rater

undersampling using Cooper's (1981b) terminology or weak halo using Nisbett and Wilson's (1977) terminology. Trait groupings or structures have been found even when raters have little or no information upon which to base their ratings (Norman & Goldberg, 1966; Passini & Norman, 1966). Lack of information may cause one to rely more heavily on one's implicit theories of personality which may lead to perceptual distortions. A rater's implicit personality theory may even be potent enough to distort the rater's perception of those traits which are readily observable. This situation is called engulfing using Cooper's (1981b) terminology or strong halo using Nisbett and Wilson's (1977) terminology. Does possession of an implicit theory of personality make it more likely that one will exhibit perceptual distortions such as halo, or do perceptual distortions arise from only erroneous implicit theories of personality? If erroneous implicit personality theories cause perceptual distortions, would less conformity to IPT factor structure aid perception? Some disagreement exists among researchers as to whether implicit personality theories serve as an aid or as a hindrance to raters.

Some researchers believe that implicit personality theories act as a distorting influence for raters. It has been suggested (Muliak, 1964) that the factors of an individual's implicit personality theory may have more to do with the linguistic properties of the words used to describe trait items (their conceptual similarity) than

with the behavioral characteristics of the ratee. Cooper (1981a) stated that conceptual similarity between categories (dimensions) of performance rating items may be one source of illusory halo. He found that the interdimension correlation matrices of actual performance ratings made for three different jobs (telephone company engineer, retail store department manager, and university professor) were highly related to the mean of rated estimates of conceptual similarity between performance dimensions for the three jobs. "Mean interdimension conceptual similarity scores were correlated with the corresponding rated behavior correlation values. The resulting intermatrix correlations were $r = .92$ ($p < .001$) for the professional engineers and $r = .57$ ($p < .01$) for the department managers and the university professor" (Cooper, 1981a, p. 304). Cooper (1981a) suggested that raters may use their implicit beliefs about which performance dimensions are likely to be related when rating someone for whom they have incomplete information (undersampling). If they are rating someone whose performance they have not observed for some time, decay of memory might result in what Cooper (1981b) calls cognitive distortion, where the raters use their beliefs about interdimension covariance to supplement their faulty memories.

Some researchers have suggested that implicit personality theories may aid a rater in rating unobserved

traits based on inferences made from known traits (Reed & Jackson, 1975). It has also been found (Striker, Jacobs, & Kogan, 1974) that judgments made about how traits covary tend to correlate with factor analyses of self reports using the same trait items. It is not clear what this finding indicates. Is the relationship between beliefs about trait covariance and factor analyses of self reports indicative of the accuracy of implicit personality theory or is it evidence that self reports are riddled with cognitive distortions such as halo bias? If a rater exhibits halo bias when rating others, it is not inconceivable that this rater might also exhibit halo bias when rating him/her self.

A contradictory study (Mirels, 1976) found a nonsignificant relationship between estimated and empirically generated probabilities of covariance of personality test items. In a follow-up study (Jackson & Chan, 1979), results indicated that the lack of a significant relationship between judgments of how personality items will covary and the empirically generated probabilities of personality item co-occurrence found in Mirels' (1976) study may have been due to the use of a "conditional probability index as a measure of empirical co-endorsement" (Jackson & Chan, 1979, p. 1). Mirels (1976) measured conditional probability by determining the percentage of subjects who endorsed one personality item (e.g., "My greatest desire is to be independent and free.")

who also endorsed another personality item (e.g., "If I have a problem I like to work it out alone."), (p. 472). Another method used to measure conditional probability was by asking subjects "Of 100 men who answer true to item 'a' how many would also answer true to item 'b'?" (Mirels, 1976, p. 472). "Using Mirels' data as well as new data, an appreciable and highly significant association between judgments of behavioral co-occurrences and empirical coendorsement was found when the latter was measured by correlational-type indices instead of conditional probability" (Jackson & Chan, 1979, p. 1). Correlational indices were determined by correlating scales of paired personality items (Jackson & Chan, 1979).

Implicit personality theory research and halo research have tended to focus on different types of rater perceptions. Past research in implicit personality theory has generally involved ratings of personality items (traits). The whole spectrum of traits thought to be factors of personality have been included, for example: jealousy, crudeness, interest in the opposite sex, etc. (Levy & Dugan, 1960; Passini & Norman, 1966; Tupes & Christal, Note 3). Research in the area of halo bias has generally (but not exclusively) included qualities which directly pertain to job performance, for example: completes assignments, communicates effectively, etc. (Landy et al., 1980). Despite the differences in the focus of research studying these two constructs, there does

appear to be some relationship between them.

There are a number of ways that implicit personality theory might relate to halo bias. There might be no relation at all. Individuals might not have developed implicit personality theories which take into account performance related qualities. This is probably unlikely because many of the personality qualities researched in studying implicit personality theory (e.g., agreeableness, dependability, emotional stability) would appear to have some bearing on an individual's job performance. Rating scales designed for performance evaluation have frequently included items such as dependability (Cascio & Valenzi, 1977) and conscientiousness (Smith & Kendall, 1963) which could easily be thought of as personality qualities.

Another possibility might be that all performance rating items might be contained within one personality quality grouping (factor) in an individual's implicit personality theory. If this is true, then all performance rating items should be viewed as having a high probability of co-occurrence. This would contribute heavily to halo bias in ratings of performance. Individuals that have implicit personalities structured in this manner would tend to have relatively high halo bias. If halo bias is actually a name for a number of related phenomena associated with perceptual distortions, as Cooper (1981b) suggests, perhaps implicit personality theory is related to one type of halo, and totally unrelated to another type.

Perhaps one's implicit personality theory only influences one's tendency to exhibit halo bias when engulfing, undersampling, and/or cognitive distortions occur.

Research (Pedersen, 1965) in implicit personality theory has indicated that there are differences in the ways in which individuals structure their implicit personality theories. It is possible that there are individual differences in how performance rating items are structured. Perhaps some people have several different groupings for performance related qualities while others have only one. If this is the case, it would seem likely that individuals with several different groupings of performance related items (people who have more complex implicit personality theories) would be less likely than individuals with simpler implicit personality theories to exhibit halo bias because they would view performance as being composed of several different components. However, it is possible that even individuals with relatively complex implicit personality theories might still have high average overall correlations of rating items. If this is the case, implicit personality theories would have little or no relationship to halo bias.

There have been a number of studies that have investigated whether individual differences in structure of implicit personality theories are reflected in different personality types of the people who hold these personality theories (Pederson, 1965; Steiner, 1954; War & Sims, 1965).

Pederson (1965) identified three different structures of perceived personality trait covariance, one of which was strongly related to authoritarianism. War and Sims (1965) also found differences in implicit personality theories related to authoritarianism, and Steiner (1954) found differences in implicit personality theories which related to ethnocentrism. Steiner (1954) found that highly ethnocentric subjects made more extreme inferences that were highly related to the desirability of traits than did subjects who were lower in ethnocentrism. In a review article of implicit personality literature, however, Schneider (1973, p. 305) stated:

It is relatively easy to show that individuals differ in their implicit personality theory, but there has been limited success relating such differences to traditional personality variables. This may, of course, be more damaging to traditional personality variables than implicit personality theory.

Although individual differences in implicit personality theories do not appear to reflect underlying personality differences, perhaps implicit personality theories do reflect differences in the tendency to exhibit rating errors such as halo bias. If implicit personality theories actually aid a rater's perception of traits, and if halo bias and implicit personality theory are not different names for the same phenomenon, perhaps having a well structured implicit personality theory might make a

rater less subject to rating biases such as the halo effect. If, on the other hand, implicit personality theories are simply a source of cognitive distortions, then individuals with less structured, more flexible implicit personality theories should be the more accurate raters and should tend to exhibit less halo. If implicit personality theories are primarily a characteristic of the individual raters and not the rating task, perhaps the degree of halo bias an individual exhibits can be measured by measuring the qualities of an individual's implicit personality theory.

Cognitive Complexity

Cognitive complexity is another construct that has been related to halo bias. "An interpersonal cognitive system will be relatively complex if it contains a large number of interpersonal constructs, and if these constructs are hierarchically integrated to a relatively high degree" (Crockett, 1965, p. 49). Crockett related differentiation to the number of constructs within a cognitive system. The more constructs available, the greater the differentiation. Hierarchic integration is defined as the degree of complexity of the relationships among constructs, "and to the degree to which clusters of constructs are related by superordinate, integrating constructs" (Crockett, 1965, p. 50). Attempts to find a relationship between halo and the integration component of cognitive complexity have so far proved unsuccessful (Kuhnert & Saal, Note 2). Most studies which have related cognitive complexity to implicit personality theory or halo bias have emphasized the differentiation component of cognitive complexity. Differences in the number of independent dimensions within an individual's implicit personality theory have been suggested to correspond to the degree of cognitive complexity of the individual. "...High relationships among traits can be taken as evidence for relatively low complexity since high relationships probably reflect fewer dimensions or lower independence of dimensions" (Schneider,

1973, p. 300). Schneier (1977), in a study that investigated the relationship between cognitive complexity and halo bias, defined cognitive complexity as "the degree to which a person possesses the ability to perceive behavior in a multidimensional manner" (p. 541).

Results of studies investigating the relationship between cognitive complexity and halo bias have been disappointing. In one of the earliest efforts, Schneier (1977) found that cognitively complex subjects exhibited less halo than cognitively simple subjects. Cognitively complex subjects also preferred a more complex rating format (behavioral expectation scales) to a simpler format and exhibited less leniency and restriction of range when using the complex format. Cognitively simple subjects preferred the simpler format. Although these results seemed promising, they have not been successfully replicated. More recent studies (Bernardin, Cardy, & Carlyle, 1982; Borman, 1979b; Lahey & Saal, 1981; Bernardin & Boetcher, Note 1; Kuhnert & Saal, Note 2) were unable to find a relationship between cognitive complexity and the degree to which subjects exhibit halo bias. The evidence from these studies strongly suggests no relationship between a rater's cognitive complexity and his/her tendency to exhibit halo bias.

However, there does appear to be stronger evidence for a relationship between cognitive complexity and implicit personality theory (Halverson, 1970; and Steiner, 1954).

Halverson (1970) found that when traits were equal in social desirability, individuals with low cognitive complexity were more likely to perceive co-variance between traits than were individuals with high cognitive complexity. When traits were unequal in social desirability, individuals with low cognitive complexity were less likely to perceive covariance between traits than were more cognitively complex individuals. Halverson (1970) concluded that individuals with low cognitive complexity tended to tolerate less disharmony and inconsistency than individuals with higher levels of cognitive complexity. Steiner (1954) found that highly ethnocentric subjects' judgments about the covariance of traits were largely related to their desirability, suggesting a lower independence of dimensions. Highly ethnocentric subjects were more likely than subjects with lower ethnocentrism to perceive traits with equal desirability as having a high probability of co-occurrence and to perceive traits of unequal desirability as having a low probability of co-occurrence.

Cognitive complexity may be a much more global phenomenon than implicit personality theory or halo bias. Crockett (1965) indicated that he believed that "cognitive processes are similar for all domains of content, and that the formal aspects of cognition with respect to other people also characterize cognition with respect to all classes of objects" (p. 48). It is possible that cognitive

complexity, implicit personality theory and halo bias may represent different levels of the same phenomenon. At the most global level, cognitive complexity is the ability of an individual to discriminate among dimensions of perceived stimuli, a small subset of these dimensions being personality qualities. Implicit personality theory could be a narrower construct concerning the ability of an individual to discriminate among personality qualities, a small subset of which might be the performance related qualities which are of concern in halo bias research. Perhaps one reason why it is hard to find relationships between cognitive complexity and halo bias is that cognitive complexity is too global a concept, covering far more variables than personality qualities. How one perceives personality qualities (one's implicit personality theory) may be a more useful predictor as to how one rates the performance-related qualities that are studied in halo bias research.

If one is dealing with Nisbett and Wilson's (1977) strong version of halo bias (bias that distorts even unambiguous, readily observable traits), then one will not be able to reduce halo bias simply by providing more information about the ratee to the rater. Reduction of halo bias may require exclusion of individuals who are most likely to exhibit halo bias or, if exclusion is impractical, identification of halo-prone individuals for intensive training programs. In order to do this, some way

of predicting which individuals are likely to exhibit halo bias would have to be found. Measuring the amount of halo inherent in any given set of ratings is problematic because at this time it is difficult in a field setting to discriminate between rated trait covariance that accurately indicates a ratee's tendency to perform uniformly well or uniformly poor and trait covariance due to the rater's perceptual and cognitive distortions (halo). Perhaps measures of an individual's cognitive complexity and/or implicit personality theory would enable one to predict his/her tendency to exhibit halo bias.

Purpose of the present study:

If cognitive complexity enables an individual to differentiate dimensions of complex stimuli, then individuals with high cognitive complexity should exhibit greater variance than individuals with lower cognitive complexity in their ratings of the personality quality items studied in implicit personality research. This is because subjects with higher cognitive complexity should be able to discriminate between fine shades of meaning of the personality trait rating items. Greater discrimination between the rating items should allow more degrees of freedom for ratings to vary. If ratings made by individuals with high cognitive complexity are more veridically accurate than ratings made by individuals with

lower cognitive complexity, then their ratings should reflect reality. In other words, cognitively complex individuals should have high variance in their ratings of ratees who are highly variable in their performance, but should have relatively low variance in their ratings of ratees with little variance in their performance. If cognitively complex raters have high variances in their ratings of all individuals, regardless of the actual variance in the ratee's performance, then cognitively complex raters are simply exchanging halo bias for another rating bias. This other rating bias (negative halo?) would probably not be any more desirable than halo bias.

If implicit personality theories are an accurate reflection of reality and not just a cognitive distortion, then the closer an individual's ratings conform to the factors found in implicit personality research (Levy & Dugan, 1960; Passini & Norman, 1966; Tupes & Christal, Note 3), the less likely the individual will be to exhibit halo bias. One way to measure the degree to which an individual's ratings conform to the factors of implicit personality theory would be to compute the variance of rating items within each of the five factors found in implicit personality theory research. Individuals with low mean within-factor variance would have a high degree of conformity with the factors found in IPT research. If an individual's conformity with the factor structures found in IPT research enables him/her to rate others more

accurately, then his/her ratings should reflect reality. Ratings of individuals with high variance in their performance should have a high variance, however, ratings of individuals with little variance in their performance should have a low variance. "Negative halo" would be just as undesirable as halo bias.

If the factors of IPT are a reflection of reality then the amount of variance between the factors of IPT would be another measure of halo. If halo bias is a consistent characteristic of individuals, then individuals who exhibit halo bias (low variance between dimensions on performance related items) should also exhibit low variance over rated factors of IPT. If individuals who exhibit relatively high variance between IPT factors tend to provide accurate ratings on performance dimensions, then their ratings should be consistent with reality. Persons with high variance in their performance should receive ratings with high variances, but persons with low variances in their performances should receive ratings with low variances.

Do individual differences in cognitive complexity, implicit personality theory, and halo bias represent meaningful differences in a rater's ability to perceive others accurately, or do they merely represent habitual patterns of responding that are somehow unrelated to accurate perception? If the latter is true, then the utility of the constructs of cognitive complexity, implicit personality theory, and halo bias for improving the quality

of rating data would be minimal at best. The proposed study requires subjects to rate an instructor with one of three types of performance: uniformly good, generally good with a few negative performance behaviors, and moderately poor, approximately half positive and half negative performance behaviors. If individuals with high cognitive complexity, and/or strong implicit personality theories are superior raters, then they should have high variance in their ratings of the instructor with high performance variance, low variance in their ratings of the instructor with low performance variance and intermediate variance in their ratings of the instructor with medium performance variance. However, if the level of cognitive complexity or structure of implicit personality theory that a rater may have are unrelated to rating accuracy, then one must question the usefulness of these constructs.

Method

Subjects

The subjects were 117 students, 50 male and 67 female, in introductory psychology who volunteered for course credit. The ages of the subjects ranged from 17 to 37 although the majority of the subjects (76%) were between the ages of 18 and 20.

Format Development

In a preliminary study aimed at instrument development, a total of 42 subjects were asked to rate three people; their general psychology instructor, Governor Ronald Reagan (pre-election), and Senator Edward Kennedy using 40 trait items used in previous studies of implicit personality theory (Levy & Dugan, 1960; Passini & Norman, 1966; Tupes & Christal, Note 3), (see appendix A). Eighteen of the bipolar adjectives (trait items) were reversed to control for position response bias. All rating items had a seven-point semantic differential scale format. Subjects also rated each of the personality items for usefulness in measuring performance (see appendix B).

Variances, over items, for each individual subject's ratings were computed separately for each of the three ratees. The subject's variances were then correlated

across ratees. An estimate of reliability was computed by randomly selecting half of the personality items from each of the five factors found in Tupes and Christal's (Note 3) research in implicit personality theory (see appendix C) and correlating the variance of half the items with the variance of the other half. This was done for each of the three ratees. The resultant correlations were adjusted using the Spearman-Brown Prophecy Formula (Guilford, 1954). The factor structure found by Tupes and Christal (Note 3) has been successfully replicated (Norman, 1963) and has even been found when raters lack sufficient information to rate ratees (Passini & Norman, 1966).

Six of the 40 items were rated by the subjects to be highly unimportant in assessing ratee performance (e.g. degree of interest in the opposite sex). These six rating items were deleted from the analysis. The adjusted coefficients of reliability were $r(40) = .86, p < .001$; $r(40) = .88, p < .001$; $r(40) = .82, p < .001$ for Reagan, Kennedy, and psychology instructor, respectively.

As Table 1 indicates, the correlations between the variance scores (34 items) were as follows: for Reagan and Kennedy, $r(40) = .56, p < .001$; for Kennedy and psychology instructor, $r(40) = .51, p < .001$; and for Reagan and psychology instructor, $r(40) = .35, p < .02$. When all 40 personality items were used correlations were slightly higher in all areas.

A seven point graphic rating scale designed by

Table 1
Means, Standard Deviation, Reliability, and Intercorrelations
of Variance Scores for Each Ratee
(N = 42)

	\bar{X}	S.D.	<u>Intercorrelations</u>		
			1	2	3
1. Reagan's Variance Score	1.77	.93	(.86) ^a ***		
2. Kennedy's Variance Score	2.23	1.25	.56***	(.88) ^a ***	
3. Psychology Instructor's Variance Score	1.70	1.05	.35*	.51***	(.82) ^a ***

* $p < .05$

*** $p < .001$

^a Adjusted (by the Spearman Brown-Prophecy Formula) reliability estimates.

Note: This data was collected as part of a preliminary study to develop the IPT measure.

Kirkeide (1980) was used to measure teaching performance (see appendix D) on nine dimensions. Both the 34 item IPT measure and the 9 dimension performance measure were used in this study.

Developing Standard Ratees

Three different sketches were created, each designed to last approximately eight minutes (see appendix E). The sketches were intended to show three types of instructors. Respectively, they were instructors with little variance, intermediate variance, or high variance in performance qualities of teaching. The sketches were designed to reflect the dimensions specifically used by Kirkeide (1980). Since the Kirkeide (1980) study had also developed behaviorally anchored scales (see appendix F), the behavioral anchors were used in the development of the sketches. The low variance sketch portrayed an instructor with all positive performance dimensions, the medium variance sketch portrayed an instructor with two negative and seven positive performance dimensions, and the high variance sketch portrayed an instructor with four negative and five positive performance dimensions. The performance of the instructor in all three sketches was recorded on videotape for presentation to the subjects and the same actor was used in all three sketches. Two manipulation checks were made of the ratings to determine if they

coincided with the intended performance levels and are reported in the results section. Sketches were considered acceptable when the ratings on the performance dimensions which varied across sketch conditions yielded significantly different performance ratings for different levels of performance (sketches). No difference in performance ratings were expected for performance dimensions which did not vary over sketch conditions.

Procedure

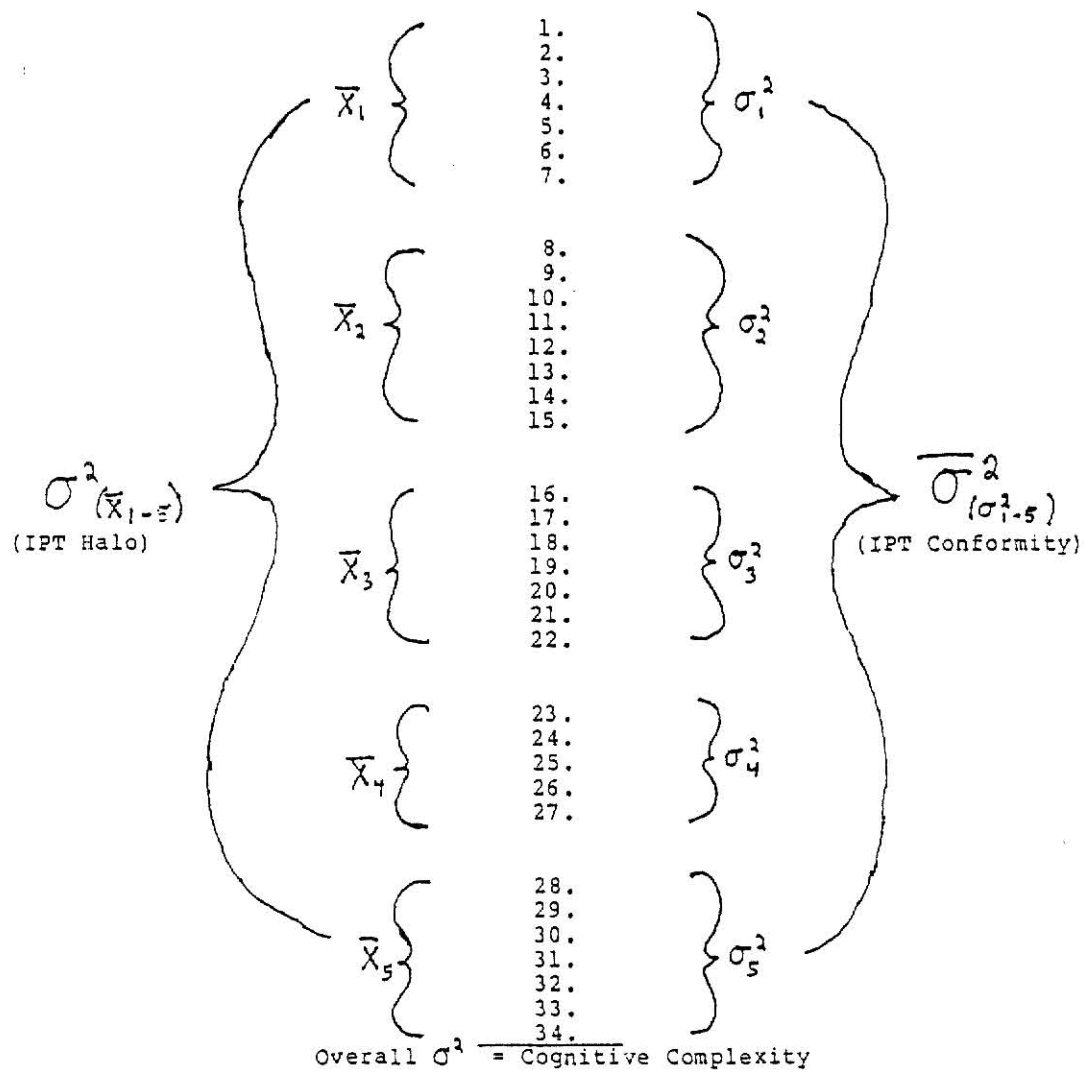
The subjects were randomly assigned into one of three groups. Each group viewed a different videotaped instructor's performance (high, intermediate, or low performance variance). The subjects then rated the instructors using Kirkeide's (1980) graphic rating scale designed to measure teacher performance and the 34 implicit personality theory items.

After the ratings were completed the subjects were classified three different ways according to the manner in which they rated the instructor using the 34 IPT items. The first rater classification measure was the subjects' degree of cognitive complexity. Cognitive complexity was operationally defined, in this study, as the degree of variance over all of the ratings of the 34 IPT items for each subject (see figure 1). The second rater classification measure was the degree of conformity (IPT

Figure 1

Derivation of Cognitive Complexity, IPT Conformity
and IPT Halo

IPT ITEMS
(5 Factors)



Note: IPT Conformity = mean of factor variances
 IPT Halo = variance of factor means
 Cognitive Complexity = overall variance

conformity) with the factor structure found in Tupes and Christal's (Note 3) research. IPT conformity was defined as the average within factor variance of IPT item ratings for the five IPT factors found in Tupes and Christal's (Note 3) research (see figure 1). IPT conformity was measured by computing the variance of IPT rating scores for each of the five IPT factors and then taking the mean of the five factor variances. The third rater classification was called IPT halo and was defined as the degree of variance between the item means of the five IPT factors (see figure 1). The third classification method was called IPT halo; if the factors of IPT represent dimensions of personality, then the variance between the factor means would be a measure of halo analogous to the measure of halo computed from performance ratings by taking the variance between performance dimensions.

Analysis

This experiment consisted of six different ANOVAs. The first three analyzed variance over the performance dimensions of Kirkeide's (1980) graphic rating scale as the dependent variable. Performance ratings were standardized within dimensions to control for mean differences between rating dimensions that are artifacts of the particular dimension used. The three analyses consisted of three different regression factorials with the first independent

variable, sketch condition, having three levels and the second independent variable being continuous. In the first analysis the factors were sketch condition (high, intermediate, and low variance in the instructor's performance) and cognitive complexity. The second and third analyses had sketch condition and IPT conformity and IPT halo, respectively, as the other independent variable.

The second three analyses used performance dimension intercorrelations as the dependent variable. These analyses consisted of three 3 X 3 ANOVAs. The rater classification scores (cognitive complexity, IPT conformity, and IPT halo) were trichotomized into high, intermediate, or low levels of variance. In the first analysis the factors were sketch condition (high, intermediate, or low variance in instructor performance) and cognitive complexity (high, intermediate, or low variance over all IPT items). In the second analysis the factors were sketch condition and three levels of IPT conformity. The third analysis had the factors sketch condition and three levels of IPT halo.

Dependent Variables

Two different measures of halo were used as dependent variables in this study. The first dependent variable was the amount of variance between the ratings of performance dimensions from Kirkeide's (1980) graphic rating scale.

The second dependent variable was the performance dimensions' intercorrelations. To produce the intercorrelations the following procedures were used: For each of the nine cells, the ratings of the nine performance dimensions were intercorrelated and the resultant 36 correlations (lower diagonal) were converted into Fischer z -scores. The 324 z -scores (36 times the 9 treatment conditions) were then used as the dependent variable by analyzing how z -scores varied over cell conditions. This procedure was done three times, once for each rater classification method (cognitive complexity, IPT conformity, and IPT halo). Three separate ANOVAs, one ANOVA for each rater classification method, were then conducted on the z -scores.

Results

The three different rater classification measures (cognitive complexity, IPT conformity, and IPT halo) were intercorrelated. The correlation between the classification methods were as follows: for cognitive complexity and IPT conformity variance scores $r(115) = .94, p < .001$; for cognitive complexity and IPT halo variance scores $r(115) = .67, p < .001$; and for IPT conformity and IPT halo variance scores $r(115) = .40, p < .001$. Intercorrelations among the measures were not unexpected, since all rater classification measures were derived through analysis of ratings of the same 34 IPT items. It would appear that the cognitive complexity and IPT conformity approaches are measuring very similar responses, therefore it would appear that subjects who varied (or who did not vary) widely in their personality ratings did so equally both within and over the IPT factors. This suggests that variability in the item ratings was not a function of the different levels of ratings for different IPT factors but rather perceived differences in the personality items.

Manipulation Check

The meaningfulness of the results depend upon whether the sketches successfully portrayed instructors with differing levels of performance variance. After the first

36 subjects had been exposed to one of the three sketch conditions (twelve subjects per sketch condition) a one-way analysis of variance was performed on the means of the manipulated performance rating dimensions (those performance dimensions that varied from sketch to sketch). A significant sketch effect was found with differences between sketch conditions all in the expected directions (see Table 2), $F(2, 33) = 3.283$, $p < .05$. Another one-way analysis of variance was performed on the means of the nonmanipulated performance rating dimensions (those performance dimensions intended to remain constant between sketches). No significant sketch effect was found for the means of the nonmanipulated performance dimensions. These preliminary results indicated that the sketches successfully portrayed instructors with differing levels of variance in performance.

One way analyses of variance were again performed on manipulated and nonmanipulated performance dimensions after all 117 subjects had completed the experiment (39 subjects per sketch condition). A significant sketch effect was found for both manipulated means, $F(2, 114) = 25.358$, $p < .001$; and for nonmanipulated means, $F(2, 114) = 16.299$, $p < .001$ (see Table 3). Again it was predicted that there would be a significant sketch effect for the manipulated performance dimension means and no significant effect for the nonmanipulated performance dimension means. However, it is not entirely unreasonable that a significant sketch effect could occur for both manipulated and nonmanipulated

Table 2

Mean Performance Ratings for Manipulated and Nonmanipulated
Performance Dimensions across Sketch Conditions
(N = 36)

Manipulation Condition	Sketch Condition (Number of negative performance dimensions portrayed by the actor)			F	η^2
	All Positive	Two Negative	Four Negative		
Manipulated	4.413	3.600	3.498	3.283*	.11
Non Manipulated	4.468	3.975	4.035	.928	-

* $p < .05$

Table 3

Mean Performance Ratings for Manipulated and Nonmanipulated
Performance Dimensions across Sketch Conditions
(N = 117)

Manipulation Condition	Sketch Condition (Number of negative performance dimensions portrayed by the actor)			F	η^2
	All Positive	Two Negative	Four Negative		
Manipulated	4.696	3.204	3.348	25.358***	.29
Non Manipulated	4.954	3.730	3.953	16.299***	.21

*** $p < .001$

performance dimension means. Although the performance dimensions were developed to reflect different aspects of an instructor's performance (Kerkeide, 1980) some degree of correlation between the dimensions can be expected. For example, the performance dimension "student-teacher relations" was intended to remain constant over sketch conditions while the dimension "test fairness" was intended to vary over sketch condition. The fairness of an instructor's test, however, will undoubtedly have some bearing on his/her student-teacher relations. If the "nonmanipulated" performance dimensions were, to some extent, effected by the manipulations of the "manipulated" performance dimensions, then the amount of variance in the instructor's performance in the intermediate and most negative sketch conditions may have been less than was anticipated. In addition, the subjects who exhibit halo bias and attend to negative information should also show higher dimension intercorrelations thereby giving lower ratings overall and contributing to differences in the nonmanipulated means.

Cognitive Complexity

Before discussing the results for cognitive complexity, it should be noted that cognitive complexity in this study has been operationally defined differently than has been done in other studies of cognitive complexity (e.g., Bieri et al., 1966; Scott, 1962; Zajonc, 1960). A statistically

significant interaction effect was found between level of cognitive complexity and sketch condition with variance in performance ratings as the dependent variable, $F(2, 111) = 4.116$, $p < .05$ (see Table 4a). Subjects with higher levels of cognitive complexity had a greater tendency than subjects with lower levels of cognitive complexity to vary their ratings with the actual instructor performance (sketch condition), (see Table 4b). This would indicate that there is an inverse relationship between degree of cognitive complexity and degree of halo bias exhibited. The main effect for sketch condition was not significant, however, the main effect for cognitive complexity was found to be significant, $F(1, 111) = 6.287$, $p < .05$ (see Table 4a).

The interaction relationship was also present when the dependent measure was dimension intercorrelations, $F(4, 315) = 22.661$, $p < .001$ (see Table 5a). Although the main effect for sketch condition was not significant the main effect for cognitive complexity was found to be significant, $F(2, 315) = 52.797$, $p < .001$ (see Table 5a). The means in Table 5b indicate a somewhat complex pattern. Analyses of the simple main effects of sketch condition for each level of cognitive complexity were conducted using the dimension intercorrelations data. Results indicated that raters with low cognitive complexity were unable to discriminate between differing levels of variance in performance portrayed in the sketch conditions. Significant sketch effects were found for subjects with intermediate levels of cognitive complexity, $F(2, 315) = 14.548$, $p < .001$; and for subjects

Table 4a

Regression ANOVA with Standardized Performance Measures and
Performance Dimension Variance as the Dependent Variable
(Sketch Condition X Cognitive Complexity)
(N = 117)

Source	df	MS	F	ω^2
Sketch Condition	2	.0034	.4235	-
Cognitive Complexity	1	.0497	6.2869*	.04
Cog. Comp. X Sketch	2	.0326	4.1163*	.05
Residual	111	.0079		

* $p < .05$

Table 4b

Mean Performance Dimension Variance Scores for Each Cell in
the Sketch Condition X Cognitive Complexity Matrix
(Performance Dimension Scores were Standardized)
(N = 117)

Level of Cog. Complex	Sketch Condition (Number of negative performance dimensions portrayed by the actor)		
	All Positive	Two Negative	Four Negative
Low σ^2	.38	.30	.29
Medium σ^2	.54	.42	.53
High σ^2	.35	.54	.57

Note: The ANOVA (Table 4a) treated cognitive complexity as a continuous variable. The table of means (Table 4b) indicates the pattern of means that occurs when cognitive complexity is trichotomized and is presented for illustrative purposes only.

Table 5a

Analysis of Variance with Performance Dimension
 InterCorrelations as the Dependent Variable
 (Sketch Condition X Cognitive Complexity)
 (N = 117)

Source	df	MS	F	ω^2
Sketch Condition	2	.042	.555	-
Cognitive Complexity	2	3.983	52.797***	.25
Cog. Comp. X Sketch	4	1.709	22.661***	.17
Residual	315	.075		

*** $p < .001$

Table 5b

Z-Score Means for Each Cell in the
 Sketch Condition X Cognitive Complexity Matrix
 (N = 117)

Level of Cog. Complex.	Sketch Condition (Number of negative performance dimensions portrayed by the actor)					
	All Positive		Two Negative		Four Negative	
Low σ^2	.67	(.59)	.72	(.62)	.71	(.61)
Medium σ^2	.22	(.22)	.57	(.51)	.37	(.35)
High σ^2	.61	(.55)	.10	(.10)	.35	(.34)

() = Mean correlation scores

high in cognitive complexity, $F(2, 315) = 31.251, p < .001$ (see Table 6).

IPT Conformity

The results for IPT conformity were similar to the results for cognitive complexity. This is not surprising given the high correlation (.94) between the cognitive complexity measure and the IPT conformity measure. A significant interaction effect was found between level of IPT conformity variance and sketch condition with variance in performance ratings as the dependent variable (Table 7a), $F(2, 111) = 3.873, p < .05$. Subjects who had higher levels of IPT conformity variance had a greater tendency than subjects who had lower levels of IPT conformity variance to vary their ratings of instructor performance with actual instructor performance (sketch condition, see Table 7b). No significant main effect was found for sketch condition, however a significant main effect was found for IPT conformity, $F(1, 111) = 7.348, p < .01$ (see Table 7a).

The interaction effect was also found between IPT conformity and sketch condition when the dependent variable was the rating dimension intercorrelations, $F(4, 315) = 23.814, p < .001$. Significant main effects were found both for sketch condition, $F(2, 315) = 3.802, p < .05$; and for IPT conformity, $F(2, 315) = 93.765, p < .001$ (see Table 8a). An analysis of the simple main effects indicated that subjects who were lowest in IPT conformity variance were

Table 6

Simple Main Effects for Sketch Condition at each level of
Cognitive Complexity with Performance Dimension
Intercorrelations as the Dependent Variable
(N = 117)

Source	df	MS	F	ω^2
Sketch Condition (Low Cog. Complexity σ^2)	2	.023	.305	-
Sketch Condition (Medium Cog. Complex. σ^2)	2	1.099	14.548***	.08
Sketch Condition (High Cog. Complex. σ^2)	2	2.344	31.251***	.16
Residual	315	.075		

*** $p < .001$

Table 7a

Regression ANOVA with Standardized Performance Measures and
Performance Dimension Variance as the Dependent Variable
(Sketch Condition X IPT Conformity)
(N = 117)

Source	df	MS	F	η^2
Sketch Condition	2	.0029	.3693	-
IPT Conformity	1	.0579	7.3477**	.05
IPT Conformity X Sketch	2	.0305	3.8731*	.05
Residual	111	.0079		

* $p < .05$

** $p < .01$

Table 7b

Mean Performance Dimension Variance Scores for Each Cell in
the Sketch Condition X IPT Conformity Matrix
(Performance Dimension Scores were Standardized)
(N = 117)

Level of IPT Conformity	Sketch Condition (Number of negative performance dimensions portrayed by the actor)		
	All Positive	Two Negative	Four Negative
Low σ^2	.32	.31	.24
Medium σ^2	.55	.43	.50
High σ^2	.41	.51	.65

Note: The ANOVA (Table 7a) treated IPT conformity as a continuous variable. The table of means (Table 7b) indicates the pattern of means that occurs when IPT conformity is trichotomized and is presented for illustrative purposes only.

Table 8a

Analysis of Variance with Performance Dimension
Intercorrelations as the Dependent Variable
(Sketch Condition X IPT Conformity)
(N = 117)

Source	df	MS	F	η^2
Sketch Condition	2	.266	3.802*	.01
IPT Conformity	2	6.560	93.765***	.31
IPT Conformity X Sketch	4	1.666	23.814***	.15
Residual	315	.070		

* $p < .05$
*** $p < .001$

Table 8b

Z-Score means for each cell in the
Sketch Condition X IPT Conformity Matrix
(N = 117)

Level of IPT Conformity	Sketch Condition (Number of negative performance dimensions portrayed by the actor)					
	All Positive		Two Negative		Four Negative	
Low σ^2	.72	(.62)	.78	(.65)	.83	(.68)
Medium σ^2	.15	(.14)	.47	(.44)	.34	(.33)
High σ^2	.61	(.55)	.10	(.10)	.47	(.44)

() = Mean correlation scores

unable to discriminate between differing levels of variance in instructor performance. Significant sketch effects were found for subjects who were intermediate in IPT conformity variance, $F(2, 315) = 13.671, p < .001$; and for subjects highest in IPT conformity variance, $F(2, 315) = 37.190, p < .001$ (see Table 9). As with cognitive complexity, the results were mixed (Table 8b) with different patterns of means found for intermediate and high levels of IPT conformity.

IPT Halo

Support varied for an inverse relationship between variance scores for IPT halo and halo bias exhibited depending upon which dependent variable was used. No significant interaction or main effects were found for IPT halo and sketch condition when the dependent variable was the subjects' variance in performance ratings (see Table 10). However, a significant interaction was found between IPT halo and sketch condition when the dependent variable was the dimension intercorrelations, $F(4, 315) = 10.299, p < .001$ (see Table 11a). When dimension intercorrelations were the dependent variable a significant main effect was found for IPT halo, $F(2, 315) = 10.588, p < .001$ (see Table 11a), however no significant main effect was found for sketch condition. Analysis of the simple main effects of sketch condition for each level of IPT halo (using dimension intercorrelations as the dependent variable) found

Table 9

Simple Main Effects for Sketch Condition at each level of
 IPT Conformity with Performance Dimension
 Intercorrelations as the Dependent Variable
 (N = 117)

Source	df	MS	F	η^2
Sketch Condition (Low IPT Conformity σ^2)	2	.106	.305	-
Sketch Condition (Medium IPT Conform. σ^2)	2	.957	13.671***	.07
Sketch Condition (High IPT Conformity σ^2)	2	2.603	37.190***	.19
Residual	315	.070		

*** $p < .001$

Table 10a

Regression ANOVA with Standardized Performance Measures and
Performance Dimension Variance as the Dependent Variable
(Sketch Condition X IPT Halo)
(N = 117)

Source	df	MS	F	ω^2
Sketch Condition	2	.0035	.4028	-
IPT Halo	1	.0067	.7778	-
IPT Halo X Sketch	2	.0139	1.6076	-
Residual	111	.0086		

* $p > .05$

Table 10b

Mean Performance Dimension Variance Scores for Each Cell in
the Sketch Condition X IPT Halo Matrix
(Performance Dimension Scores were Standardized)
(N = 117)

Level of IPT Halo	Sketch Condition (Number of negative performance dimensions portrayed by the actor)		
	All Positive	Two Negative	Four Negative
Low σ^2	.39	.36	.37
Medium σ^2	.47	.37	.53
High σ^2	.41	.54	.49

Note: The ANOVA (Table 10a) treated IPT halo as a continuous variable. The table of means (Table 10b) indicates the pattern of means that occurs when IPT halo is trichotomized and is presented for illustrative purposes only.

Table 11a

Analysis of Variance with Performance Dimension
 InterCorrelations as the Dependent Variable
 (Sketch Condition X IPT Halo)
 (N = 117)

Source	df	MS	F	ω^2
Sketch Condition	2	.169	2.277	-
IPT Halo	2	.785	10.588***	.05
IPT Halo X Sketch	4	.764	10.299***	.10
Residual	315	.074		

*** $p < .001$

Table 11b

Z-Score means for each cell in the
 Sketch Condition X IPT Halo Matrix
 (N = 117)

Level of IPT Halo	Sketch Condition (Number of negative performance dimensions portrayed by the actor)					
	All Positive		Two Negative		Four Negative	
Low σ^2	.28	(.27)	.50	(.46)	.49	(.45)
Medium σ^2	.41	(.39)	.66	(.58)	.56	(.51)
High σ^2	.52	(.48)	.28	(.27)	.34	(.33)

() = Mean correlation scores

significant sketch effects for subjects with low $F(2, 315) = 7.427, p < .001$; intermediate, $F(2, 315) = 7.503, p < .001$; and high variance scores for IPT halo, $F(2, 315) = 7.820, p < .001$ (see Table 12).

Summary

Significant effects were found for the sketch condition X cognitive complexity and the sketch condition X IPT conformity interactions using variance scores as the dependent variable. Cognitive style main effects were also found to be significant for the cognitive complexity and IPT conformity measures. The main effects and the interaction effects tended to account for similar proportions of the variance (omega squared ranged from .04 to .05), (see Tables 4a and 7a).

When intercorrelation scores were used as the dependent variable, slightly different results were found. Significant effects were found for the sketch X cognitive style interactions for all three cognitive style measures. Cognitive style main effects were also found to be significant for all three measures. The main effects for cognitive complexity, IPT conformity, and IPT halo had omega squared values of .25, .31, and .05 respectively (see Tables 5a, 8a, and 11a). The interaction effects for cognitive complexity X sketch, IPT conformity X sketch and IPT halo x sketch had omega squared values of .17, .15, and .10 respectively (see Tables 5a, 8a, and 11a).

Table 12

Simple Main Effects for Sketch Condition at each level of
 IPT Halo with Performance Dimension Intercorrelations as
 the Dependent Variable
 (N = 117)

Source	df	MS	F	η^2
Sketch Condition (Low IPT Halo σ^2)	2	.550	7.427***	.04
Sketch Condition (Medium IPT Halo σ^2)	2	.555	7.503***	.04
Sketch Condition (High IPT Halo σ^2)	2	.579	7.820***	.04
Residual	315	.074		

*** $p < .001$

Discussion

Researchers interested in studying the evaluations of human performance have recognized halo bias as a potentially important factor in limiting the accuracy of raters. Despite the relatively long period (since Thorndike, 1920) in which halo bias has been a concern to researchers little success can be claimed in finding effective measures for dealing with this phenomenon. A major problem has been a failure to differentiate between halo caused by perceptual distortions on the part of the rater and halo caused by correlated true scores, what Cooper (1981b) calls "true halo" (see also, Harvey, 1982; Hulin, 1982; Murphey, 1982). True halo can be seen as the result of the "natural" tendencies of some traits to go together, an extreme example being where the ratee is all good or all bad.

These results strongly suggest that, when there is a control for different levels of a ratee's true halo, raters with tendencies to provide personality ratings with halo also tend to be unable to differentiate between varying levels of performance in the ratee. There are two possible explanations for these results. First, it would appear that individual differences may exist in the ability of raters to differentiate among the performance dimensions of a ratee (see also Borman, 1977). A second explanation may be that since the IPT measure was rated on the same person as the performance ratings, the IPT measure was strongly influenced by the ratings and perceptions of the person's performance.

The evidence would not tend to support the second argument of performance ratings and perceptions contaminating the personality ratings. The results from the instrument development stage of this research suggest that the amount of variance in personality ratings tends to remain somewhat stable over different rates, thereby supporting an individual difference interpretation. More importantly, while the contamination interpretation might hold for individuals with low IPT variance where variance was low (and correlations high) over all sketch conditions, it did not hold for the subjects with high IPT variance where the low variance sketch condition was seen by these subjects as in fact low. Therefore, these results would support the view that raters differ in their ability to appropriately differentiate between performance dimensions.

Although the overall pattern of results tended to support the hypotheses that cognitive complexity and/or conformity with IPT structure were predictive of raters' tendencies to exhibit illusory halo, there were some cell means in the analyses using standardized dimension intercorrelations as the dependent variable that yielded some unexpected results (see Tables 5b, 8b, & 11b). The low mean standardized intercorrelations in the all positive sketch condition for intermediate levels of cognitive complexity, IPT conformity, and IPT halo is the one exception to the overall favorable pattern. Because of the rather high correlations between the three methods of rater classification, many of the same subjects were classified as

intermediate in cognitive complexity, IPT conformity, and IPT halo. Upon examination of the data it was found that some of the subjects in intermediate cells for the all positive performance sketch condition perceived the instructor to be rather low in several dimensions of performance, especially the instructor's "attitude towards the subject matter". A ready explanation for this pattern is not forthcoming. In general, however, the ANOVAs using standardized performance rating intercorrelations as the dependent variable had a pattern of cell means that supported the original hypotheses.

Most analyses (Tables 4a, 5a, 7a, 10a & 11a) did not find a significant main effect for sketch condition. This was not unexpected given that only those raters who were highest in cognitive complexity and IPT conformity variance scores were able to rate the instructor appropriately. The inability of two thirds of the raters to accurately rate the variance in the instructor's performance wiped out the main effect for sketch condition when it was combined over all types of raters.

Many previous studies have failed to find a relationship between halo bias in performance ratings and other measures of person perception (Bernardin, Cardy, & Carlyle, 1982; Lahey & Saal, 1981; Kuhnert & Saal, Note 2) and efforts to control halo bias through training (Bernardin, 1978), format (Smith & Kendall, 1963), or statistical control (Landy, Vance, Barnes-Farrell, & Steele, 1980) have had problems. Perhaps part of the difficulty in

coping with halo has been that researchers have treated rating halo as a simple unidimensional construct, when in fact, halo is a multidimensional phenomenon occurring for a variety of reasons. Cooper (1981b) suggested that the construct called halo may be a collection of six related constructs: 1) undersampling, 2) engulfing, 3) insufficient concreteness, 4) insufficient rater motivation and knowledge, 5) cognitive distortions and 6) correlated true scores. Research is likely to yield more successful methods of dealing with halo if it takes into account all of the different facets of halo.

Training raters to reduce their halo is likely to be most effective in reducing certain types of halo: cognitive distortions, insufficient rater motivation and knowledge, and undersampling. Cognitive distortions occur when raters supplement their faulty memories of ratees with their stereotypical beliefs of trait covariance, causing them to distort their ratings. Training raters to keep accurate and timely records of critical incidents of performance could be one effective way to reduce cognitive distortions (Bernardin & Walter, 1977; Smith & Kendall, 1963). If critical incidents are recorded as they happen, then memories have less time to decay and these records provide a long-term source of information to counteract stereotypes. Undersampling is another type of halo that occurs when raters lack sufficient information about a ratee and fill in these gaps in their knowledge with the assumption that they match their overall impression of the ratee (Cooper, 1981b).

Once again the training of subjects in the use of a log which records all relevant information would tend to reduce this problem. Training programs informing raters about the problems of halo bias, stressing the importance of accurate rating data, and detailing specific uses for the ratings may help to increase rater motivation and knowledge.

However, training may be of little or no use in reducing other types of halo. Training raters is unlikely to have much effect on insufficient concreteness and engulfing, and it may be difficult to train raters to reduce some types of halo without causing them to reduce true halo as well. Insufficient concreteness refers to halo caused by a poorly designed rating format in which the rating dimensions are not sufficiently specific and concrete (Cooper, 1981b). Engulfing halo is defined by Cooper (1981b) as halo that occurs when ratings are colored by the rater's overall impression of the ratee. "Engulfing may continue to contribute {to} illusory halo when the sample of ratee observations increases because of the strength of rater's implicit covariance theories that link impressions with the rating categories" (Cooper, 1981b, p. 220). Raters' longstanding implicit covariance theories may prove highly resistant to change through training. Instructions from the trainer to reduce the influence of overall impressions may sensitize the rater to produce ratings with lower covariance than his/her impressions of the ratee warrant, but this effect may have several unwanted side effects, such as decreased reliability (Borman, 1975) and

decreased accuracy (Borman, 1979a). Raters are also likely to find it difficult to act contrary to their implicit beliefs over any extended period of time and may revert to their long term habits (Bernardin, 1978). The results of this study would support the view that some individuals have longstanding and stable habits in the amount of variance in their ratings.

The second area of research designed to reduce halo has been the development of carefully designed rating formats (e.g., Smith & Kendall, 1963). Changing the design of formats is probably the most likely solution to insufficient concreteness halo. However, attempts to deal with halo by improving formats alone (e.g., the development of BARs) have not yielded very promising results (Jacobs, Kafry, & Zedeck, 1980). To be most effective, improving the rating format should be combined with an effective rater training program. Bernardin and Smith (1981) have pointed out that researchers have often ignored the fact that the Smith and Kendall (1963) study dealing with BARs also stressed training raters to improve their observation and recording processes.

Landy, Vance, Barnes-Farrell, and Steele (1980) suggested a method for statistically controlling halo bias through the use of partial correlation techniques. Landy et al. (1980) partialled out the variance associated with an overall effectiveness score from the ratings of 15 individual performance items. Analyses of the residual matrix indicated that the overall performance factor had disappeared and was replaced by "several more specific

factors" (Landy et al., 1980, p. 504). Landy et al. (1980) concluded (with some reservation) that the results of their study indicated that "halo had been reduced and discriminant validity of performance dimensions improved" (p. 501). The Landy et al. (1980) study's assumption that the total variance associated with the overall performance evaluation represents halo bias has been criticized by several researchers (Harvey, 1982; Hulin, 1982; Murphey 1982). "The Landy et al. (1980) procedure is an acceptable method of controlling halo error only if we accept the assumption that every performance rating should be uncorrelated with the overall performance dimensions" (Murphey, 1982, p. 161). In Cooper's (1981) terminology, we may well have removed much of the true halo rather than the other types of illusory halo. Until more is understood about what the overall effectiveness rating represents, it is unlikely that this method of controlling halo will be useful for practical application.

None of the methods (training, improved formats, or statistical control) for dealing with halo bias appears to be a likely candidate for effectively dealing with engulfing halo. Engulfing halo is the type of halo that Nisbett and Wilson (1977) referred to as strong halo. There is reason to believe that the type of halo bias that is reflected in the individual differences in this study is engulfing halo. While the presence of engulfing halo cannot be directly assessed, it is argued that by systematic elimination or control of the other five sources of halo a strong case can

be made that the halo effect found in this experiment is due to engulfing halo.

(1) Undersampling halo: The sketches were designed so that subjects would have information on each performance dimension. This procedure would, hopefully, reduce problems associated with undersampling halo. If, in spite of the best efforts of the experimenter, undersampling still occurred, then its effects should be uniformly seen over subjects in all sketch conditions since the same amount of information was presented in all sketch conditions.

(2) Insufficient concreteness: It has been argued that the graphic rating scales used by the subjects in this experiment are not sufficiently concrete to prevent bias resulting from insufficient concreteness (Smith & Kendall, 1963). However, once again halo caused by insufficiently concrete rating scales should be constant across subjects since all subjects received the same rating format.

(3) Insufficient rater motivation and knowledge: Insufficient rater motivation and/or knowledge could be a factor causing halo in this experiment only if it is assumed that motivation and knowledge covary with the IPT measures used in this study. The training literature would suggest that this is only partially true and that rather than dealing with knowledge or motivation we are dealing with patterns in behaviors which are resistant to change. It is assumed, therefore, that this type of halo would not be expected to contribute to, or interact with, treatment differences.

(4) Cognitive distortion: Cognitive distortion is a halo bias occurring when individuals supplement their faulty memories of ratees with their stereotypical beliefs of personality trait covariance causing a perceptual distortion. Because subjects in this experiment rated the instructor immediately after viewing the sketches, it is expected that cognitive distortion should be minimal and, therefore, should not be a factor in treatment group differences.

(5) True halo: Halo due to correlated true scores is that form of halo that occurs because the ratings are reflecting covariances between performance dimensions that actually exist. The sketches were designed to differ in terms of performance variance to enable one to distinguish true halo from illusory halo. More true halo should be exhibited in the low variance ratee condition than the high variance ratee condition. Subjects who do not follow this pattern can be assumed to not be recognizing true halo.

Because the individual differences found in this study cannot be readily explained by treatment differences in undersampling, insufficient concreteness, insufficient rater motivation and knowledge, or cognitive distortions, it is argued that the most likely source of these individual differences is engulfing halo. If this assumption is correct, the results of this study indicate that the constructs of cognitive complexity and IPT conformity (as operationally defined in this study) enable the researcher to predict individual differences in a tendency to exhibit a

particular type of halo, namely engulfing halo. It should be noted that the other types of halo could be present in the data but were not expected to vary with the treatment conditions.

The results of this study would appear to be in direct contradiction with several studies dealing with cognitive style and rating behavior (Bernardin, Cardy, & Carlyle, 1982; Lahey & Saal, 1981; Bernardin & Boetcher, Note 1; Kuhnert & Saal Note 2). Previous studies have failed consistently to demonstrate (with one exception, Schneier, 1977) any relationship between cognitive style and halo or cognitive style and format interaction. However the results of the current study do indicate a relationship between cognitive style and halo. These divergent findings may be the result of two major differences in the research. First, previous research has utilized measures of cognitive style such as Bieri et al.'s (1966) version of the role construct repertory test (e.g., Bernardin, Cardy, & Carlyle, 1982, Lahey & Saal, 1981; Schneier, 1977), Scott's (1962) sorting task (Lahey & Saal, 1981), or Zajonc's (1960) ratee characteristic generation and integration task (Kuhnert & Saal, Note 2). This study used a cognitive style measure from implicit personality theory research. Since no evidence was found directly relating cognitive complexity measures and IPT measures, we have argued and assumed that procedurally and conceptually they are similar and therefore are likely to be related over individuals, although the use of different techniques still remains a plausible

explanation for the differences in the results. This study used the IPT approach rather than other cognitive complexity approaches since the IPT approach was seen as a potentially more effective and acceptable means of integrating a cognitive style measure into the rating process. Other measures of cognitive complexity (e.g., Bieri et al., 1966) are often cumbersome and sometimes require raters to provide personal information about significant people in their lives (e.g., evaluate one's mother or close friend). One might reasonably expect a rater to object to providing such information. The IPT method of measuring cognitive style simply requires the rater to rate the ratee on personality dimensions as well as performance dimensions. IPT could serve one stated goal of this study, which was to differentiate types of raters, and could do so without serious disruption of the rating process.

A second, and potentially more important, difference between previous research and this study was the control for a variety of other potential sources of halo errors, primarily true halo. True halo assumes that ratees vary in the amount of real covariation between performance dimensions, that is, some people are all good or all bad and others are mixtures, and this real covariation (or lack of covariation) is generally unknown in field studies and can be easily labeled as "halo error". Since the amount of true halo for subjects in previous studies is unknown, the real differences between raters and the relationships between cognitive style and tendency to exhibit halo, might have

been obscured.

Limitations and Future Research

Future research in training raters to reduce halo bias should consider that there may be more than one type of illusory halo. Certain types of halo may be more resistant to training than others. It has been suggested that engulfing halo may be prove to be the type of halo that is least likely to be improved by rater training. If individual differences in tendency to exhibit engulfing halo can be predicted, future research could be directed at investigating whether individuals with high tendencies to exhibit engulfing halo are less easily trained to reduce their halo bias than individuals who have other types of halo biases. A possible practical application of this type of research could be that individuals most likely to benefit from rater training could be identified. Training programs could be made more economical if those individuals who could benefit most from such a program could be identified.

If individual differences in tendency to exhibit halo bias can be identified, it will become possible to exclude individuals from the rating process who are most likely to exhibit halo bias. The results of the preliminary study is seen as the first step in developing such procedures. Exclusion of raters likely to exhibit halo bias would be possible in those situations in which many raters rate a single ratee (person). An example of this type of rating

situation is when performance evaluations of instructors are made by students in a class or when supervisors are rated by their subordinates.

Although significant interaction effects were found between cognitive complexity and sketch condition and between IPT conformity and sketch condition, these interactions tended to explain only a small portion of the total variance. Significant main effects were also found for cognitive complexity, IPT halo, and IPT conformity. This would indicate that a substantial portion of the variance found by these rater classification methods is reflecting habitual patterns of response unrelated to the actual variance in the ratee's performance. Future research in this area should control for true halo and, if possible, isolate other components of halo bias.

A major difference between this study and previous research investigating relationships between cognitive style and halo has been its choice of using an IPT approach to measuring cognitive style. This method of measuring cognitive style was used because it was seen as a potentially more acceptable way to integrate measurement of cognitive style into the rating process. The most frequent measure of cognitive complexity has been Bieri et al.'s (1966) version of the role construct repertory test although other methods such as Scott's (1962) sorting task and Zajonc's (1960) ratee characteristic generation and integration task have been used. It is possible that the reason why this study was able to find a relationship

between cognitive style and tendency to exhibit halo bias, when other researchers have failed to find any such relationship, is the choice of methods for measuring cognitive style. It is suggested that future research should investigate whether a relationship between halo and cognitive style is found when other measures of cognitive style are used and "true halo" is controlled. Further, the relationship between traditional cognitive complexity measures and the IPT measure used in this study should be investigated.

A potential limitation of this study is that the raters rated an instructor that they were only able to see for an eight minute videotaped presentation. This unrealistic rating situation was created to allow for the control of true halo. It is possible that the shortness of the raters' history with the instructor and the unnaturalness of the rating situation may have influenced the outcome of this study. Perhaps future researchers will be able to come up with some method of providing raters with a naturalistic rating situation and still control for true halo. Until then, the unnatural laboratory setting used in this study must be considered as a potentially limiting factor on the generalizability of the results.

This study used freshmen college students as subjects. These subjects were generally young and inexperienced at rating the performance of college instructors. The results of one study (Kuhnert & Saal, Note 2) suggested that a rater's cognitive complexity tends to change and develop with

time. Research on the effect of rater experience on rating accuracy however, has been mixed, with researchers finding that rater experience tends to: improve the reliability of ratings (Jurgensen, 1950), increase the tendency to be lenient in one's ratings (Mandell, 1956), or have no effect on rater accuracy (Klores, 1966). Perhaps different results would have occurred if more experienced raters had been used as subjects.

The sketch conditions in this study were varied by starting with a sketch depicting an instructor with all positive performance dimensions and systematically changing positive performance dimensions into negative performance dimensions to create sketches with increasing degrees of variance in instructor performance. Gordon (1970) found that acceptable behavior tends to be rated more accurately than unacceptable behavior. Perhaps different results would have been obtained if this experiment had started with an entirely negative performance sketch and systematically added positive performance dimensions.

Conclusions

The results of this study suggest the following propositions. There are individual differences in raters' tendencies to exhibit halo bias and these tendencies can be measured by the raters' degree of variation in an IPT set of items. Previous studies may have been unable to find a relationship between cognitive style and halo bias because

they failed to control for true halo (or used a different individual measure of cognitive style). Further, the type of halo bias that these measures of cognitive style are likely to be predicting is engulfing halo which is most resistant to methods of halo reduction that involve modification of the rating format and/or rater training. Finally using an IPT approach to measuring cognitive style may be an effective means of integrating a cognitive style measurement into the rating process.

Schneier's (1977) intuitively appealing finding that cognitive complexity and halo bias were interrelated was at first viewed as a potential breakthrough in understanding of the halo phenomenon (Landy & Farr, 1980). However the failure to replicate this finding (Bernardin, Cardy, & Carlyle, 1982; Lahey & Saal, 1981; Bernardin & Boetcher, Note 1; Kuhnert & Saal, Note 2) seemed to indicate that this issue had been layed to rest. The results of the present study would tend to resurrect the issue of a cognitive style-halo bias relationship and suggests, that when true halo is controlled for experimentally, this relationship emerges.

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APPENDIX A

IPT Item Rating Format

This questionnaire contains 40 different rating items on various qualities of people. Each rating item contains two adjectives with opposite meanings separated by a seven point numbered scale. You will be asked to circle the number that is closest to the word which best describes the person that you will be rating. Only one number is to be circled for each of the 40 rating items. An example of the type of rating item you will be using is:

Cowardly 1 2 3 4 5 6 7 Brave

If you feel that the person you are rating is extremely brave you would circle the number 7.

Cowardly 1 2 3 4 5 6 ⑦ Brave

If you feel that the person you are rating is extremely cowardly you would circle the number 1.

Cowardly ① 2 3 4 5 6 7 Brave

If you feel that the person you are rating is neither cowardly nor brave you would circle the number 4 which is the number exactly in between the two adjectives.

Cowardly 1 2 3 ④ 5 6 7 Brave

A 2 or a 3 would represent varying degrees of cowardliness and a 5 or 6 would represent varying degrees of braveness.

Remember to circle only one number for each of the 40 rating items.

If you have any questions please do not hesitate to ask.

CONTINUE ON NEXT PAGE

YOU ARE TO RATE THE FOLLOWING PERSON

1.	Lacking artistic feeling	1	2	3	4	5	6	7	Esthetically Fastidious
2.	Bad	1	2	3	4	5	6	7	Good
3.	Kind	1	2	3	4	5	6	7	Cruel
4.	Reliable	1	2	3	4	5	6	7	Unreliable
5.	Honest	1	2	3	4	5	6	7	Dishonest
6.	Unstable	1	2	3	4	5	6	7	Stable
7.	Friendly	1	2	3	4	5	6	7	Unfriendly
8.	Lazy	1	2	3	4	5	6	7	Ambitious
9.	Tight Fisted	1	2	3	4	5	6	7	Generous (DELETED)
10.	Happy	1	2	3	4	5	6	7	Unhappy
11.	Thoughtful	1	2	3	4	5	6	7	Self centered
12.	Attractive	1	2	3	4	5	6	7	Unattractive (DELETED)
13.	Relaxed	1	2	3	4	5	6	7	Tense
14.	Cold	1	2	3	4	5	6	7	Warm
15.	Anxious	1	2	3	4	5	6	7	Unanxious
16.	Talkative	1	2	3	4	5	6	7	Silent
17.	Goodnatured	1	2	3	4	5	6	7	Irritable
18.	Fussy, tidy	1	2	3	4	5	6	7	Careless (DELETED)
19.	Hypochondriacal	1	2	3	4	5	6	7	Not hypochondriacal (DELETED)
20.	Crude	1	2	3	4	5	6	7	Refined
21.	Frank, open	1	2	3	4	5	6	7	Secretive
22.	Scrupulous	1	2	3	4	5	6	7	Unscrupulous
23.	Persevering	1	2	3	4	5	6	7	Quitting, fickle
24.	Excitable	1	2	3	4	5	6	7	Composed
25.	Artistically insensitive	1	2	3	4	5	6	7	Artistically sensitive

CONTINUE ON NEXT PAGE

26.	Reclusive	1	2	3	4	5	6	7	Sociable
27.	Jealous	1	2	3	4	5	6	7	Not jealous (DELETED)
28.	Responsible	1	2	3	4	5	6	7	Undependable
29.	Imaginative	1	2	3	4	5	6	7	Simple, direct
30.	Adventurous	1	2	3	4	5	6	7	Cautious
31.	Self sufficient	1	2	3	4	5	6	7	Dependent
32.	Intellectual	1	2	3	4	5	6	7	Unreflective, narrow
33.	Negativistic	1	2	3	4	5	6	7	Cooperative
34.	Easily upset	1	2	3	4	5	6	7	Poised, tough
35.	Immature	1	2	3	4	5	6	7	Independent minded
36.	Boorish	1	2	3	4	5	6	7	Cultured
37.	Assertive	1	2	3	4	5	6	7	Submissive
38.	Slow	1	2	3	4	5	6	7	Energetic
39.	Calm	1	2	3	4	5	6	7	Emotional
40.	Slight interest in opposite sex	1	2	3	4	5	6	7	Marked interest in opposite sex (DELETED)

Please check only one response for each of the following questions.

How well informed are you about the person you have just rated in terms of the qualities you have rated him on?

- _____ Not at all informed
- _____ Only slightly
- _____ Fairly well
- _____ Very well

How sure are you that the ratings you gave are an accurate description of the person you rated, based on your observations?

- _____ Very unsure
- _____ Unsure
- _____ Fairly sure
- _____ Sure

GO TO NEXT SECTION

APPENDIX B

Format for Rating IPT Item Importance

YOU HAVE RATED THREE DIFFERENT PEOPLE USING THE SAME RATING ITEMS. You will now be asked to rate the usefulness of the 40 rating items themselves. Specifically, how important is each one of the rating items in rating a teacher's performance? For example?

Brave-Cowardly
Important 1 2 3 4 5 6 7 Unimportant

If you feel the quality of being brave or cowardly is a very important quality affecting the performance of a teacher you would circle the number 1.

Brave-Cowardly
Important (1) 2 3 4 5 6 7 Unimportant

If you feel that a teacher can be either very brave or very cowardly and still do an equally good job as a teacher you would circle the number 7 indicating that bravery is a very unimportant quality in judging a teacher's performance.

Brave-Cowardly
Important 1 2 3 4 5 6 (7) Unimportant

If you feel that the quality of being brave or cowardly is a quality of moderate importance to a teacher's performance you would circle the number 4.

Brave-Cowardly
Important 1 2 3 (4) 5 6 7 Unimportant

A 2 or a 3 would represent varying degrees of importance and a 5 or a 6 would represent varying degrees of unimportance.

Remember to circle only one number for each of the 40 rating items.

If you have any questions please do not hesitate to ask.

CONTINUE ON NEXT PAGE

Please indicate the importance of each one of the following rating items in terms of their usefulness in judging a teacher's performance.

1. Esthetically Fastidious-Lacking artistic feeling
Important 1 2 3 4 5 6 7 Unimportant
2. Good-Bad
Important 1 2 3 4 5 6 7 Unimportant
3. Kind-Cruel
Important 1 2 3 4 5 6 7 Unimportant
4. Reliable-Unreliable
Important 1 2 3 4 5 6 7 Unimportant
5. Honest-Dishonest
Important 1 2 3 4 5 6 7 Unimportant
6. Stable-Unstable
Important 1 2 3 4 5 6 7 Unimportant
7. Friendly-Unfriendly
Important 1 2 3 4 5 6 7 Unimportant
8. Ambitious-Lazy
Important 1 2 3 4 5 6 7 Unimportant
9. Generous-Tight fisted
Important 1 2 3 4 5 6 7 Unimportant (DELETED)
10. Happy-Unhappy
Important 1 2 3 4 5 6 7 Unimportant
11. Thoughtful-Self centered
Important 1 2 3 4 5 6 7 Unimportant
12. Attractive-Unattractive
Important 1 2 3 4 5 6 7 Unimportant (DELETED)
13. Relaxed-Tense
Important 1 2 3 4 5 6 7 Unimportant
14. Warm-Cold
Important 1 2 3 4 5 6 7 Unimportant
15. Anxious-Unanxious
Important 1 2 3 4 5 6 7 Unimportant
16. Talkative-Silent
Important 1 2 3 4 5 6 7 Unimportant
17. Goodnatured-Irritable
Important 1 2 3 4 5 6 7 Unimportant
18. Fussy, Tidy-Careless
Important 1 2 3 4 5 6 7 Unimportant (DELETED)

CONTINUE ON NEXT PAGE

- | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|-------------|-----------|
| 19. | Hypochondriacal-Not hypochondriacal | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | (DELETED) |
| 20. | Refined-Crude | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 21. | Frank, open-Secretive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 22. | Scrupulous-Unscrupulous | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 23. | Persevering-Quitting, Fickle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 24. | Composed-Excitable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 25. | Artistically sensitive-Artistically Insensitive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 26. | Sociable-Reclusive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 27. | Not jealous-Jealous | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | (DELETED) |
| 28. | Responsible-Undependable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 29. | Imaginative-Simple, direct | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 30. | Adventurous-Cautious | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 31. | Self-sufficient-Dependent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 32. | Intellectual-Unreflective, narrow | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 33. | Cooperative-Negativistic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 34. | Poised, Tough-Easily upset | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 35. | Independent minded-Immature | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |
| 36. | Cultured-Boorish | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant | |

CONTINUE ON NEXT PAGE

37. Assertive-Submissive
 Important 1 2 3 4 5 6 7 Unimportant
38. Energetic-Slow
 Important 1 2 3 4 5 6 7 Unimportant
39. Calm-Emotional
 Important 1 2 3 4 5 6 7 Unimportant
40. Slight interest in opposite sex-Marked interest in opposite sex (DELETED)
 Important 1 2 3 4 5 6 7 Unimportant

STOP

When you have completed the questionnaire please turn it face down on your desk and wait for the experimenter to dismiss the room.

APPENDIX C

IPT Item Factor Breakdown

SCALE ITEM NUMBERS DIVIDED INTO
EXPECTED FACTOR GROUPINGS

I. SURGENCY

8*	21	37
10	26*	38*
16	30	40

II. AGGREGABLENESS

2*	9*	14*	33*
3	11	17	
7	12	27*	

III. DEFENDABILITY

4	22
5	23
18	28

IV. EMOTIONAL STABILITY

6*	19*	34*
13	24*	39
15*	31	

V. CULTURE

1*	29	36*
20*	32	
25*	35*	

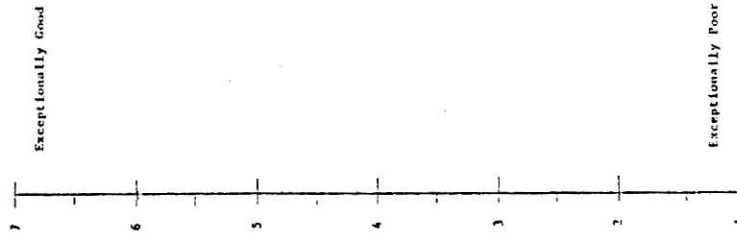
*Indicates that adjective pairs used in the rating scale were in reversed order for social desirability.

The predicted factor groupings category names were taken from a study by

Tupes, E. C., & Christal, R. E. Recurrent personality factors based on trait ratings. USAF ASD Technical Report, 1961, No. 61-97.

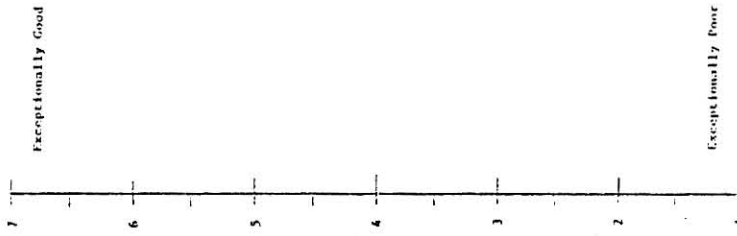
APPENDIX D
Graphic Rating Scale

GRADE: Extent to which the instructor's grading practices remain consistent and free of confusion and are also fair.



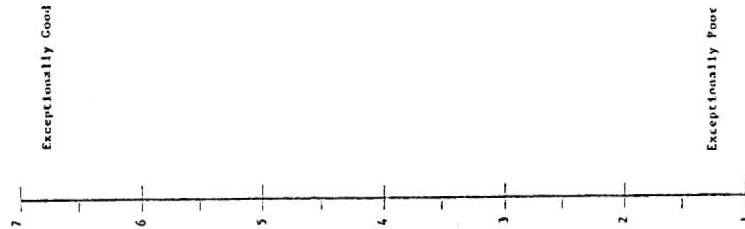
Certainty of Rating	
1	2
3	4
5	
Very	Certain
Uncertain	

ATTITUDE TOWARDS SUBJECT: Extent to which the instructor shows personal interest in the material and displays a positive attitude towards teaching the subject.



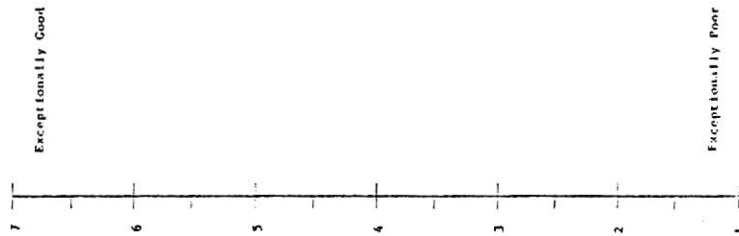
Certainty of Rating	
1	2
3	4
5	
Very	Certain
Uncertain	

MANNER OF PRESENTATION: Extent to which the instructor's methods of presentation and use of audio-visual aids help emphasize and clarify important points; ability to present material clearly and concisely on a level students can understand.



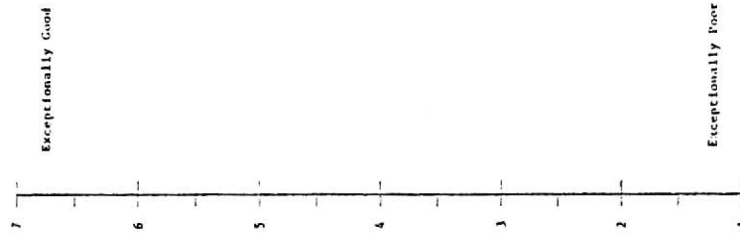
Certainty of Rating	
1	2
3	4
5	
Very	Very
Uncertain	Certain

INSTRUCTOR KNOWLEDGE: Extent to which the instructor is aware of current material related to the course or to his/her field and is able to accurately answer or direct the student to specific sources that will answer questions concerning the subject matter.



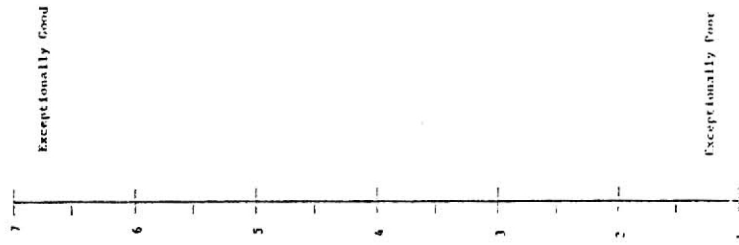
Certainty of Rating	
1	2
3	4
5	
Very	Very
Uncertain	Certain

ORGANIZATION: Extent to which the instructor arranges the subject matter and course objectives in an orderly and logical sequence for thorough coverage.



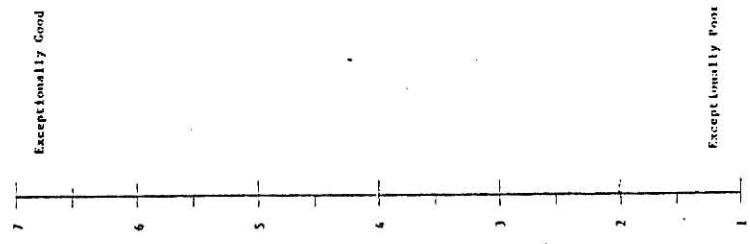
Certainty of Rating				
1	2	3	4	5
Very				Very
Uncertain				Certain

OBJECTIVENESS: Extent to which the instructor remains objective and presents a fair treatment of all points of view on controversial or debatable topics.



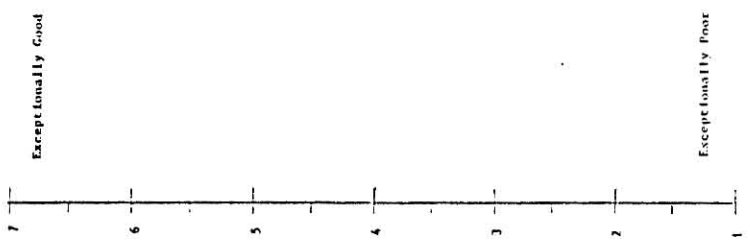
Certainty of Rating				
1	2	3	4	5
Very				Very
Uncertain				Certain

TESTS: Extent to which the instructor writes clear, unambiguous questions that relate to and are representative of in-class material and outside readings which were stressed adequately in class.



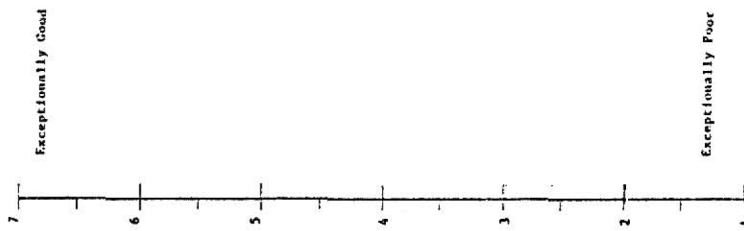
Certainty of Rating
 1 2 3 4 5
 Very Uncertain Certain

STUDENT-TEACHER RELATIONS: Extent to which the instructor shows a true, sincere concern for the welfare of the students through such things as dependability, availability for help, and consideration of student feelings; establishing rapport with the students.



Certainty of Rating
 1 2 3 4 5
 Very Uncertain Certain

ASSIGNMENTS: Extent to which the instructor is clear on what is to be done, avoids assigning excessive amounts, and provides assignments which contribute to the understanding of the subject matter rather than just providing busy work.



Certainty of Rating	
1	5
2	4
3	3
4	2
5	1
Very Uncertain	Very Certain

APPENDIX E

Scripts for Videotaped Sketches

PREDICTED TEACHER EVALUATIONS

SCALES	LV	HV	MV
1. ASSIGNMENTS	H	L	H
2. ATTITUDES TOWARDS SUBJECT	H	L	L
3. GRADING POLICY	H	H	H
4. INSTRUCTOR KNOWLEDGE	H	H	H
5. MANNER OF PRESENTATION	H	H	H
6. OBJECTIVENESS	H	H	H
7. ORGANIZATION	H	L	L
8. STUDENT-TEACHER RELATIONS	H	H	H
9. TESTS	H	L	H

Note: The lecture portion of these scripts was taken directly from pages 26 and 27 of the text:

Freedman, J. L. Introductory Psychology. Reading, Massachusetts: Addison-Wesley Publishing Co., 1978.

SCRIPT ONE (LOW VARIANCE)

GOOD AFTERNOON; I'M DR. JOHNSON. YOU SHOULD BE SIGNED
UP FOR GENERAL PSYCHOLOGY, GROUP ONE. IS EVERYONE IN THE
RIGHT PLACE? GOOD.

ATTITUDE
TOWARD
SUBJECT
(A)

THIS COURSE IS AN INTRODUCTION TO PSYCHOLOGY. WE ARE
GOING TO COVER MANY DIFFERENT AREAS OF PSYCHOLOGY IN JUST
ONE SEMESTER. THE FIRST AREA TO BE COVERED IS PERCEPTION.
FOLKLORE SUGGESTS THAT OUR SENSES ARE VERY POOR COMPARED TO
THOSE OF OTHER ANIMALS. CATS CAN SEE IN THE DARK; DEER
CAN HEAR A FOOTSTEP MILES AWAY; AND DOGS CAN SMELL A
WEEK-OLD SCENT; WHEREAS WE SUPPOSEDLY RESPOND ONLY TO THE
STRONGEST MOST OBVIOUS STIMULATION. WHILE SOME ANIMALS DO,
SEE, HEAR, OR SMELL MORE KEENLY THAN HUMANS, HUMAN SENSE
ORGANS ARE ACTUALLY REMARKABLY SENSITIVE. HOWEVER, THEY
ARE HIGHLY SELECTIVE-----EXCEPTIONALLY SENSITIVE
TO CERTAIN STIMULI AND NOT AT ALL TO STIMULI OUTSIDE THAT
LIMITED RANGE.

MANNER OF
PRESENTATION
(H)

THE HUMAN EYE RESPONDS TO ONE PHOTON OF LIGHT
ENERGY---THE SMALLEST AMOUNT POSSIBLE. ON A DARK CLEAR
NIGHT A PERSON WITH NORMAL EYESIGHT CAN SEE A CANDLE FLAME
THIRTY MILES AWAY. BUT THE EYE DOES NOT RESPOND TO ALL
TYPES OF ENERGY. OBVIOUSLY, THE WORLD WOULD APPEAR VERY

DIFFERENT IF WE COULD SEE INFRARED ENERGY EMITTED BY HOT STOVES, THE BEAMS OF RADIO STATIONS REFLECTING FROM CLOUDS, OR BURSTS OF GAMMA RAYS IN THE ATMOSPHERE.

LIKE THE EYE, THE HUMAN EAR IS VERY SENSITIVE TO A LIMITED RANGE OF STIMULI. A PERSON WITH NORMAL HEARING CAN DETECT THE TICK OF A WATCH TWENTY FEET AWAY IN A QUIET ROOM OR THE SOUND OF A PIN DROPPING TWELVE FEET AWAY ON A WOODEN FLOOR. NO WONDER EVEN A FAUCET DRIPPING THREE ROOMS AWAY OR A RADIO ON IN THE HOUSE NEXT DOOR CAN KEEP US AWAKE.

THE EAR RESPONDS TO VIBRATIONS OF AIR, WHICH, LIKE LIGHT ENERGY, TRAVEL IN WAVES THAT VARY IN LENGTH OR FREQUENCY. THE HUMAN EAR RESPONDS ONLY TO FREQUENCIES BETWEEN 20 AND 20,000 CYCLES PER SECOND. OTHER ANIMALS RESPOND TO HIGHER AND LOWER FREQUENCIES. BATS AND DOLPHINS, FOR EXAMPLE, CAN HEAR SOUND FREQUENCIES ABOVE 100,000 CYCLES PER SECOND; AND DOGS RESPOND TO WHISTLES WELL ABOVE THE 20,000 CYCLES PER SECOND THAT HUMANS CAN HEAR. A PERSON WHO FANS HERSELF SLOWLY WITH A PIECE OF CARDBOARD CAN FEEL THE AIR HITTING HER FACE AND SEE THE FAN MOVING, BUT SHE CANNOT HEAR THE AIR VIBRATING BECAUSE THE FREQUENCY IS MUCH TOO LOW. IF WE WERE SENSITIVE TO OTHER FREQUENCIES, WE WOULD BE BOMBARDED WITH SOUNDS FROM EVERY MOVING OBJECT. WE WOULD HEAR DOGS WAGGING THEIR TAILS, TALL BUILDINGS SWAYING IN THE WIND, AND THE CONSTANT, VERY RAPID VIBRATION OF WINDOW PANES AND OTHER SUCH RIGID OBJECTS. WE WOULD BE ABLE TO SAY "I HEARD HIM NOD YES" OR

MAINED OF
PRESENTATION



"HE WAVED GOODBYE LOUDLY".

ALTHOUGH WE TEND TO RELY ON THEM LESS THAN ON VISION AND HEARING, OUR ORGANS OF TASTE, SMELL, AND TOUCH ARE ALSO VERY SENSITIVE. WE CAN TASTE ONE TEASPOON OF SACCHARINE DISSOLVED IN SIX GALLONS OF WATER;SMELL A SINGLE DROP OF PERFUME DIFFUSED THROUGH A THREE-ROOM APARTMENT; AND FEEL THE WING OF A FLY FALLING ON OUR CHEEK FROM A DISTANCE OF ONE CENTIMETER. IN ADDITION, OUR KINESTHETIC SENSE CAN TELL US WHEN WE ARE LESS THAN ONE DEGREE FROM PERFECTLY VERTICAL AND CAN DETECT PRACTICALLY ANY MOVEMENT OF THE BODY.

INSTRUCTOR
KNOWLEDGE
(H)

WHEN THE CLASS MEETS NEXT I WILL DISCUSS SOME OF THE CONTROVERSIES CURRENTLY BEING DEALT WITH IN THE SCIENTIFIC JOURNALS CONCERNING THE SENSE OF TASTE. IT HAS GENERALLY BEEN BELIEVED THAT ALL OF TASTE IS COMPOSED OF FOUR BASIC SENSATIONS: SWEETNESS, SOURNESS, SALTINESS, AND BITTERNESS. SOME RESEARCHERS NOW BELIEVE THAT THERE ARE SEVENTEEN SEPARATE TASTE SENSATIONS. I WILL PRESENT BOTH SIDES OF THE ARGUMENT. NEXT WEEK WE WILL HAVE A FILM ON THE PSYCHOPHYSICAL ASPECTS OF VISION. IT IS ONE OF THE BETTER FILMS AVAILABLE AND I THINK YOU WILL FIND IT QUITE INTERESTING. WHENEVER POSSIBLE I WILL ALSO BE INCORPORATING RELEVANT ASPECTS OF MY OWN RESEARCH.

OBJECTIVENESS
(H)

MANNER OF
PRESENTATION
(H)

INSTRUCTOR
KNOWLEDGE
(H)

..... ARE THERE ANY QUESTIONS?

GRADING
POLICY
(12)

THE NEXT THING TO BE DONE IS TO INFORM YOU OF MY GRADING POLICY. GRADES GIVEN, WILL BE BASED ON THE NORMAL CURVE. BECAUSE THE DIFFICULTY OF THE MATERIAL YOU WILL BE TESTED ON VARIES, YOUR GRADE WILL BE DETERMINED BY HOW WELL YOU DO WITH RESPECT TO THE PERFORMANCE OF THE ENTIRE CLASS.

TESTS
(14)

EXAMINATIONS WILL BE COMPOSED OF INFORMATION BOTH FROM LECTURE AND FROM ASSIGNED READINGS. THE QUESTIONS ON THESE TESTS WILL FOCUS ON THE MAJOR POINTS STRESSED EITHER IN LECTURE OR BY THE AUTHORS OF YOUR TEXT. THERE WILL BE NO ATTEMPT TO DEVELOP "TRICK QUESTIONS". HOWEVER A THOROUGH UNDERSTANDING OF THE MATERIAL WILL BE NECESSARY TO OBTAIN A GOOD GRADE ON THE EXAMS.

ORGANIZATION
(14)

IN OUR NEXT CLASS, A SYLLABUS WILL BE DISTRIBUTED THAT WILL INDICATE THE SCHEDULE FOR TESTING AND FOR READING ASSIGNMENTS. IF FOR SOME REASON I FIND IT NECESSARY TO DEVIATE FROM THE SCHEDULE I WILL NOTIFY YOU WELL IN ADVANCE.

STUDENT -
TEACHER
RELATIONS
(15)

BECAUSE OF THE SIZE OF THIS LECTURE HALL IT WILL BE ALMOST IMPOSSIBLE TO ANSWER ALL OF YOUR QUESTIONS. HOWEVER, IF THE LECTURES OR THE ASSIGNED READINGS LEAVE UNANSWERED QUESTIONS YOU ARE FREE TO SEE ME DURING MY DESIGNATED OFFICE HOURS. THESE ARE WRITTEN IN THE UPPER LEFT HAND CORNER ON THE SYLLABUS. SPECIAL HELP SESSIONS WILL BE SCHEDULED WHEN ESPECIALLY DIFFICULT MATERIAL IS COVERED.

YOUR FIRST READING ASSIGNMENT IS THE FIRST TWO

ASSIGNMENTS
(H)

CHAPTERS OF THE TEXT, "READINGS IN GENERAL PSYCHOLOGY".
THE LAST HALF OF CHAPTER TWO CONCERNS ITSELF WITH
STATISTICAL MANIPULATIONS. IT IS PROBABLY TOO ADVANCED FOR
THE LEVEL OF THIS CLASS AND YOU ARE NOT REQUIRED TO READ
IT. THE MOST IMPORTANT POINTS OF THAT SECTION WILL BE

MANNER OF
PRESENTATION
(H)

SUMMARIZED IN THE LECTURE. I HAVE PREPARED HANDOUTS WHICH
SHOULD MAKE THE STATISTICAL MANIPULATIONS MORE EASILY
UNDERSTOOD.

ARE THERE ANY QUESTIONS ABOUT ANY OF THE THINGS I HAVE
COVERED TODAY?.....BECAUSE THIS IS THE
FIRST CLASS I WILL LET YOU GO EARLY TODAY.

SEE YOU NEXT WEDNESDAY.

SCRIPT TWO (HIGH VARIANCE)

GOOD AFTERNOON, I'M DR. JOHNSON. YOU SHOULD BE SIGNED
UP FOR GENERAL PSYCHOLOGY, GROUP TWO. IS EVERYONE IN THE
RIGHT PLACE? GOOD.

ATTITUDE
TOWARD
SUBJECT
①

THIS COURSE IS AN INTRODUCTION TO PSYCHOLOGY. WE ARE
GOING TO COVER MANY DIFFERENT AREAS OF PSYCHOLOGY IN JUST
ONE SEMESTER. THE FIRST AREA TO BE COVERED IS PERCEPTION.
IT IS NOT AN AREA OF PRINCIPLE INTEREST TO ME AND IT'S
PROBABLY BETTER TO GET IT OUT OF THE WAY FIRST. I'LL TRY
TO MAKE THIS AS QUICK AND PAINLESS AS I POSSIBLY CAN. TO
BEGIN WITH, LET ME CLEAR UP A POSSIBLE MISCONCEPTION THAT
SOME OF YOU MAY HAVE.

MANNER OF
PRESENTATION
②

FOLKLORE SUGGESTS THAT OUR SENSES ARE VERY POOR
COMPARED TO THOSE OF OTHER ANIMALS. CATS CAN SEE IN THE
DARK, DEER CAN HEAR A FOOTSTEP MILES AWAY, AND DOGS CAN
SMELL A WEEK-OLD SCENT, WHEREAS WE SUPPOSEDLY RESPOND ONLY
TO THE STRONGEST MOST OBVIOUS STIMULATION. WHILE SOME
ANIMALS DO, SEE, HEAR, OR SMELL MORE KEENLY THAN HUMANS,
HUMAN SENSE ORGANS ARE ACTUALLY REMARKABLY SENSITIVE.
HOWEVER, THEY ARE HIGHLY
SELECTIVE-----EXCEPTIONALLY SENSITIVE TO CERTAIN
STIMULI AND NOT AT ALL TO STIMULI OUTSIDE THAT LIMITED

(PRESENT CHART)

RANGE.

THE HUMAN EYE RESPONDS TO ONE PHOTON OF LIGHT ENERGY---THE SMALLEST AMOUNT POSSIBLE. ON A DARK CLEAR NIGHT A PERSON WITH NORMAL EYESIGHT CAN SEE A CANDLE FLAME THIRTY MILES AWAY. BUT THE EYE DOES NOT RESPOND TO ALL TYPES OF ENERGY. OBVIOUSLY, THE WORLD WOULD APPEAR VERY DIFFERENT IF WE COULD SEE INFRARED ENERGY EMITTED BY HOT STOVES, THE BEAMS OF RADIO STATIONS REFLECTING FROM CLOUDS, OR BURSTS OF GAMMA RAYS IN THE ATMOSPHERE.

MANNER OF
PRESENTATION
(4)

LIKE THE EYE, THE HUMAN EAR IS VERY SENSITIVE TO A LIMITED RANGE OF STIMULI. A PERSON WITH NORMAL HEARING CAN DETECT THE TICK OF A WATCH TWENTY FEET AWAY IN A QUIET ROOM OR THE SOUND OF A PIN DROPPING TWELVE FEET AWAY ON A WOODEN FLOOR. NO WONDER EVEN A FAUCET DRIPPING THREE ROOMS AWAY OR A RADIO ON IN THE HOUSE NEXT DOOR CAN KEEP US AWAKE.

THE EAR RESPONDS TO VIBRATIONS OF AIR, WHICH, LIKE LIGHT ENERGY, TRAVEL IN WAVES THAT VARY IN LENGTH OR FREQUENCY. THE HUMAN EAR RESPONDS ONLY TO FREQUENCIES BETWEEN 20 AND 20,000 CYCLES PER SECOND. OTHER ANIMALS RESPOND TO HIGHER AND LOWER FREQUENCIES. BATS AND DOLPHINS, FOR EXAMPLE, CAN HEAR SOUND FREQUENCIES ABOVE 100,000 CYCLES PER SECOND; AND DOGS RESPOND TO WHISTLES WELL ABOVE THE 20,000 CYCLES PER SECOND THAT HUMANS CAN HEAR. A PERSON WHO FANS HERSELF SLOWLY WITH A PIECE OF CARDBOARD CAN FEEL THE AIR HITTING HER FACE AND SEE THE FAN MOVING, BUT SHE CANNOT HEAR THE AIR VIBRATING BECAUSE THE

FREQUENCY IS MUCH TOO LOW. IF WE WERE SENSITIVE TO OTHER FREQUENCIES, WE WOULD BE BOMBARDED WITH SOUNDS FROM EVERY MOVING OBJECT. WE WOULD HEAR DOGS WAGGING THEIR TAILS, TALL BUILDINGS SWAYING IN THE WIND, AND THE CONSTANT, VERY RAPID VIBRATION OF WINDOW PANES AND OTHER SUCH RIGID OBJECTS. WE WOULD BE ABLE TO SAY "I HEARD HIM NOD YES" OR "HE WAVED GOODBYE LOUDLY".

ALTHOUGH WE TEND TO RELY ON THEM LESS THAN ON VISION AND HEARING, OUR ORGANS OF TASTE, SMELL, AND TOUCH ARE ALSO VERY SENSITIVE. WE CAN TASTE ONE TEASPOON OF SACCHARINE DISSOLVED IN SIX GALLONS OF WATER;SMELL A SINGLE DROP OF PERFUME DIFFUSED THROUGH A THREE-ROOM APARTMENT; AND FEEL THE WING OF A FLY FALLING ON OUR CHEEK FROM A DISTANCE OF ONE CENTIMETER. IN ADDITION, OUR KINESTHETIC SENSE CAN TELL US WHEN WE ARE LESS THAN ONE DEGREE FROM PERFECTLY VERTICAL AND CAN DETECT PRACTICALLY ANY MOVEMENT OF THE BODY.

INSTRUCTOR
KNOWLEDGE
(14)

WHEN THE CLASS MEETS NEXT I WILL DISCUSS SOME OF THE CONTROVERSIES CURRENTLY BEING DEALT WITH IN THE SCIENTIFIC JOURNALS CONCERNING THE SENSE OF TASTE. IT HAS GENERALLY BEEN BELIEVED THAT ALL OF TASTE IS COMPOSED OF FOUR BASIC SENSATIONS: SWEETNESS, SOURNESS, SALTINESS, AND BITTERNESS. SOME RESEARCHERS NOW BELIEVE THAT THERE ARE SEVENTEEN SEPARATE TASTE SENSATIONS. I WILL PRESENT BOTH SIDES OF THE ARGUMENT. NEXT WEEK WE WILL HAVE A FILM ON THE PSYCHOPHYSICAL ASPECTS OF VISION. IT IS ONE OF THE

OBJECTIVENESS
(14)

ATTITUDE
TOWARD
SUBJECT
(L)

BETTER FILMS AVAILABLE AND I THINK YOU WILL FIND IT MAKES A
RATHER DIFFICULT SUBJECT MORE-BEARABLE.

..... ARE THERE ANY QUESTIONS?

GRADING
POLICY
(H)

THE NEXT THING TO BE DONE IS TO INFORM YOU OF MY
GRADING POLICY. GRADES GIVEN, WILL BE BASED ON THE NORMAL
CURVE. BECAUSE THE DIFFICULTY OF THE MATERIAL YOU WILL BE
TESTED ON VARIES, YOUR GRADE WILL BE DETERMINED BY HOW WELL
YOU DO WITH RESPECT TO THE PERFORMANCE OF THE ENTIRE CLASS.
THIS IS THE FAIREST GRADING PROCEDURE THAT I CAN COME UP
WITH.

TESTING
(L)

EXAMINATIONS WILL BE COMPOSED OF INFORMATION BOTH FROM
LECTURE AND FROM ASSIGNED READINGS. ANYTHING MENTIONED IN
YOUR TEXT OR STATED IN THE LECTURE IS FAIR GAME FOR TEST
QUESTIONS. THIS INCLUDES FOOTNOTES MADE BY THE AUTHORS OF
YOUR TEXT OR INFORMATION ON HANDOUTS PRESENTED IN CLASS
THAT ARE NOT COVERED IN THE LECTURE. AT THE COLLEGE LEVEL
STUDENTS SHOULDN'T HAVE TO BE LED BY THE HAND BY THE
INSTRUCTOR. I DON'T FEEL THAT IT IS MY PLACE TO TELL YOU
EXACTLY WHAT MATERIAL IS IMPORTANT FOR YOU TO KNOW. YOU
SHOULD TAKE SOME OF THE RESPONSIBILITY FOR YOUR OWN
EDUCATION. SOMETIMES THE TESTS WILL BE COMPOSED OF
QUESTIONS COVERED MAINLY IN THE LECTURE AND AT OTHER TIMES
THE TEXT WILL BE THE MAJOR SOURCE OF QUESTIONS. A

THOROUGH UNDERSTANDING OF THE MATERIAL WILL BE NECESSARY
TO OBTAIN A GOOD GRADE ON THE EXAMS.

BECAUSE OF THE SIZE OF THIS LECTURE HALL IT WILL BE
ALMOST IMPOSSIBLE TO ANSWER ALL OF YOUR QUESTIONS.

STUDENT-
TEACHER
RELATIONS
(H)

HOWEVER, IF THE LECTURES OR THE ASSIGNED READINGS LEAVE
UNANSWERED QUESTIONS YOU ARE FREE TO SEE ME DURING MY
DESIGNATED OFFICE HOURS. SPECIAL HELP SESSIONS WILL BE
SCHEDULED WHEN ESPECIALLY DIFFICULT MATERIAL IS COVERED.
PLEASE DO NOT HESITATE TO ASK QUESTIONS EITHER IN CLASS OR
DURING MY OFFICE HOURS. IF YOU HAVE ANY SPECIAL PROBLEMS
OR YOU JUST WANT TO TALK ABOUT SOMETHING DISCUSSED IN CLASS
FEEL FREE TO DROP BY.

ORGANIZATION
(L)

IN OUR NEXT CLASS, A SYLLABUS WILL BE DISTRIBUTED THAT
WILL INDICATE THE SCHEDULE FOR TESTING AND FOR READING
ASSIGNMENTS. I'M AFRAID THAT THE SYLLABUS IS ALREADY
OBSOLETE. I'M THE KIND OF PERSON THAT LIKES TO TAKE THINGS
ONE DAY AT A TIME. I WILL TRY, WHENEVER POSSIBLE, TO
NOTIFY YOU OF ASSIGNMENTS A WEEK IN ADVANCE.

ASSIGNMENTS
(L)

YOUR FIRST READING ASSIGNMENT IS THE FIRST TWO
CHAPTERS OF THE TEXT, "READINGS IN GENERAL PSYCHOLOGY".
THE LAST HALF OF CHAPTER TWO CONCERNS ITSELF WITH
STATISTICAL MANIPULATIONS. IT IS PROBABLY ADVANCED FOR THE
LEVEL OF THIS CLASS. SO BE PREPARED TO ASK A LOT OF
QUESTIONS IN OUR NEXT CLASS. WHILE A KNOWLEDGE OF
STATISTICS IS NOT REALLY ESSENTIAL, AT THIS LEVEL, THOSE OF
YOU WHO CONTINUE ON TO MORE ADVANCED COURSES IN PSYCHOLOGY

S-TWO HV
6

MANNER OF PRESENTATION WILL BENEFIT FROM THE EXTRA EFFORT REQUIRED. I HAVE
PREPARED HANDOUTS WHICH SHOULD MAKE THE STATISTICAL
MANIPULATIONS MORE EASILY UNDERSTOOD.

ARE THERE ANY QUESTIONS ABOUT ANY OF THE THINGS I HAVE
COVERED TODAY?.....BECAUSE THIS IS THE
FIRST CLASS I WILL LET YOU GO EARLY TODAY.

SEE YOU NEXT WEDNESDAY.

SCRIPT THREE (MEDIUM VARIANCE)

GOOD AFTERNOON, I'M DR. JOHNSON. YOU SHOULD BE SIGNED UP FOR GENERAL PSYCHOLOGY, GROUP THREE. IS EVERYONE IN THE RIGHT PLACE? GOOD.

ATTITUDE
TOWARD
SUBJECT
(L)

THIS COURSE IS AN INTRODUCTION TO PSYCHOLOGY. WE ARE GOING TO COVER MANY DIFFERENT AREAS OF PSYCHOLOGY IN JUST ONE SEMESTER. THE FIRST AREA TO BE COVERED IS PERCEPTION. IT IS NOT AN AREA OF PRINCIPLE INTEREST TO ME AND IT'S PROBABLY BETTER TO GET IT OUT OF THE WAY FIRST. I'LL TRY TO MAKE THIS AS QUICK AND PAINLESS AS I POSSIBLY CAN. TO BEGIN WITH, LET ME CLEAR UP A POSSIBLE MISCONCEPTION THAT SOME OF YOU MAY HAVE.

FOLKLORE SUGGESTS THAT OUR SENSES ARE VERY POOR COMPARED TO THOSE OF OTHER ANIMALS. CATS CAN SEE IN THE DARK, DEER CAN HEAR A FOOTSTEP MILES AWAY, AND DOGS CAN SMELL A WEEK-OLD SCENT, WHEREAS WE SUPPOSEDLY RESPOND ONLY TO THE STRONGEST MOST OBVIOUS STIMULATION. WHILE SOME ANIMALS DO, SEE, HEAR, OR SMELL MORE KEENLY THAN HUMANS, HUMAN SENSE ORGANS ARE ACTUALLY REMARKABLY SENSITIVE. HOWEVER, THEY ARE HIGHLY SELECTIVE-----EXCEPTIONALLY SENSITIVE TO CERTAIN STIMULI AND NOT AT ALL TO STIMULI OUTSIDE THAT LIMITED

RANGE.

MANNER OF
PRESENTATION
(W)

THE HUMAN EYE RESPONDS TO ONE PHOTON OF LIGHT ENERGY---THE SMALLEST AMOUNT POSSIBLE. ON A DARK CLEAR NIGHT A PERSON WITH NORMAL EYESIGHT CAN SEE A CANDLE FLAME THIRTY MILES AWAY. BUT THE EYE DOES NOT RESPOND TO ALL TYPES OF ENERGY. OBVIOUSLY, THE WORLD WOULD APPEAR VERY DIFFERENT IF WE COULD SEE INFRARED ENERGY EMITTED BY HOT STOVES, THE BEAMS OF RADIO STATIONS REFLECTING FROM CLOUDS, OR BURSTS OF GAMMA RAYS IN THE ATMOSPHERE.

LIKE THE EYE, THE HUMAN EAR IS VERY SENSITIVE TO A LIMITED RANGE OF STIMULI. A PERSON WITH NORMAL HEARING CAN DETECT THE TICK OF A WATCH TWENTY FEET AWAY IN A QUIET ROOM OR THE SOUND OF A PIN DROPPING TWELVE FEET AWAY ON A WOODEN FLOOR. NO WONDER EVEN A FAUCET DRIPPING THREE ROOMS AWAY OR A RADIO ON IN THE HOUSE NEXT DOOR CAN KEEP US AWAKE.

THE EAR RESPONDS TO VIBRATIONS OF AIR, WHICH, LIKE LIGHT ENERGY, TRAVEL IN WAVES THAT VARY IN LENGTH OR FREQUENCY. THE HUMAN EAR RESPONDS ONLY TO FREQUENCIES BETWEEN 20 AND 20,000 CYCLES PER SECOND. OTHER ANIMALS RESPOND TO HIGHER AND LOWER FREQUENCIES. BATS AND DOLPHINS, FOR EXAMPLE, CAN HEAR SOUND FREQUENCIES ABOVE 100,000 CYCLES PER SECOND; AND DOGS RESPOND TO WHISTLES WELL ABOVE THE 20,000 CYCLES PER SECOND THAT HUMANS CAN HEAR. A PERSON WHO FANS HERSELF SLOWLY WITH A PIECE OF CARDBOARD CAN FEEL THE AIR HITTING HER FACE AND SEE THE FAN MOVING, BUT SHE CANNOT HEAR THE AIR VIBRATING BECAUSE THE

FREQUENCY IS MUCH TOO LOW. IF WE WERE SENSITIVE TO OTHER FREQUENCIES, WE WOULD BE BOMBARDED WITH SOUNDS FROM EVERY MOVING OBJECT. WE WOULD HEAR DOGS WAGGING THEIR TAILS, TALL BUILDINGS SWAYING IN THE WIND, AND THE CONSTANT, VERY RAPID VIBRATION OF WINDOW PANES AND OTHER SUCH RIGID OBJECTS. WE WOULD BE ABLE TO SAY "I HEARD HIM NOD YES" OR "HE WAVED GOODBYE LOUDLY".

ALTHOUGH WE TEND TO RELY ON THEM LESS THAN ON VISION AND HEARING, OUR ORGANS OF TASTE, SMELL, AND TOUCH ARE ALSO VERY SENSITIVE. WE CAN TASTE ONE TEASPOON OF SACCHARINE DISSOLVED IN SIX GALLONS OF WATER,SMELL A SINGLE DROP OF PERFUME DIFFUSED THROUGH A THREE-ROOM APARTMENT, AND FEEL THE WING OF A FLY FALLING ON OUR CHEEK FROM A DISTANCE OF ONE CENTIMETER. IN ADDITION, OUR KINESTHETIC SENSE CAN TELL US WHEN WE ARE LESS THAN ONE DEGREE FROM PERFECTLY VERTICAL AND CAN DETECT PRACTICALLY ANY MOVEMENT OF THE BODY.

INSTRUCTOR
KNOWLEDGE
(11)

WHEN THE CLASS MEETS NEXT I WILL DISCUSS SOME OF THE CONTROVERSIES CURRENTLY BEING DEALT WITH IN THE SCIENTIFIC JOURNALS CONCERNING THE SENSE OF TASTE. IT HAS GENERALLY BEEN BELIEVED THAT ALL OF TASTE IS COMPOSED OF FOUR BASIC SENSATIONS: SWEETNESS, SOURNESS, SALTINESS, AND

OBJECTIVENESS
(11)

BITTERNESS. SOME RESEARCHERS NOW BELIEVE THAT THERE ARE SEVENTEEN SEPARATE TASTE SENSATIONS. I WILL PRESENT BOTH SIDES OF THE ARGUMENT. NEXT WEEK WE WILL HAVE A FILM ON THE PSYCHOPHYSICAL ASPECTS OF VISION. IT IS ONE OF THE

ATTITUDE
TOWARDS
SUBJECT

(L)

BETTER FILMS AVAILABLE AND I THINK YOU WILL FIND IT MAKES A
RATHER DIFFICULT SUBJECT MORE BEARABLE.

..... ARE THERE ANY QUESTIONS?

GRADING
POLICY

(H)

THE NEXT THING TO BE DONE IS TO INFORM YOU OF MY
GRADING POLICY. GRADES GIVEN, WILL BE BASED ON THE NORMAL
CURVE. BECAUSE THE DIFFICULTY OF THE MATERIAL YOU WILL BE
TESTED ON VARIES, YOUR GRADE WILL BE DETERMINED BY HOW WELL
YOU DO WITH RESPECT TO THE PERFORMANCE OF THE ENTIRE CLASS.

TESTS

(H)

EXAMINATIONS WILL BE COMPOSED OF INFORMATION BOTH FROM
LECTURE AND FROM ASSIGNED READINGS. THE QUESTIONS ON THESE
TESTS WILL FOCUS ON THE MAJOR POINTS STRESSED EITHER IN
LECTURE OR BY THE AUTHORS OF YOUR TEXT. THERE WILL BE NO
ATTEMPT TO DEVELOP "TRICK QUESTIONS", HOWEVER A THOROUGH
UNDERSTANDING OF THE MATERIAL WILL BE NECESSARY TO OBTAIN A
GOOD GRADE ON THE EXAMS.

ORGANIZATION

(L)

IN OUR NEXT CLASS, A SYLLABUS WILL BE DISTRIBUTED THAT
WILL INDICATE THE SCHEDULE FOR TESTING AND FOR READING
ASSIGNMENTS. I'M AFRAID THAT THE SYLLABUS IS ALREADY
OBSOLETE. I'M THE KIND OF PERSON THAT LIKES TO TAKE THINGS
ONE DAY AT A TIME. I WILL TRY, WHENEVER POSSIBLE, TO
NOTIFY YOU OF ASSIGNMENTS A WEEK IN ADVANCE.

BECAUSE OF THE SIZE OF THIS LECTURE HALL IT WILL BE
ALMOST IMPOSSIBLE TO ANSWER ALL OF YOUR QUESTIONS.
HOWEVER, IF THE LECTURES OR THE ASSIGNED READINGS LEAVE

S-THREE MV
5

UNANSWERED QUESTIONS YOU ARE FREE TO SEE ME DURING MY
DESIGNATED OFFICE HOURS. THESE ARE WRITTEN IN THE UPPER
LEFT HAND CORNER ON THE SYLLABUS. SPECIAL HELP SESSIONS
WILL BE SCHEDULED WHEN ESPECIALLY DIFFICULT MATERIAL IS
COVERED.

STUDENT-TEACHER
RELATIONS
(H)

YOUR FIRST READING ASSIGNMENT IS THE FIRST TWO
CHAPTERS OF THE TEXT, "READINGS IN GENERAL PSYCHOLOGY"
THE LAST HALF OF CHAPTER TWO CONCERNS ITSELF WITH
STATISTICAL MANIPULATIONS. IT IS PROBABLY TOO ADVANCED FOR
THE LEVEL OF THIS CLASS AND YOU ARE NOT REQUIRED TO READ
IT. THE MOST IMPORTANT POINTS OF THAT SECTION WILL BE
SUMMARIZED IN THE LECTURE. I HAVE PREPARED HANDOUTS WHICH
SHOULD MAKE THE STATISTICAL MANIPULATIONS MORE EASILY
UNDERSTOOD.

ASSIGNMENTS
(H)

MANNER OF
PRESENTATION
(H)

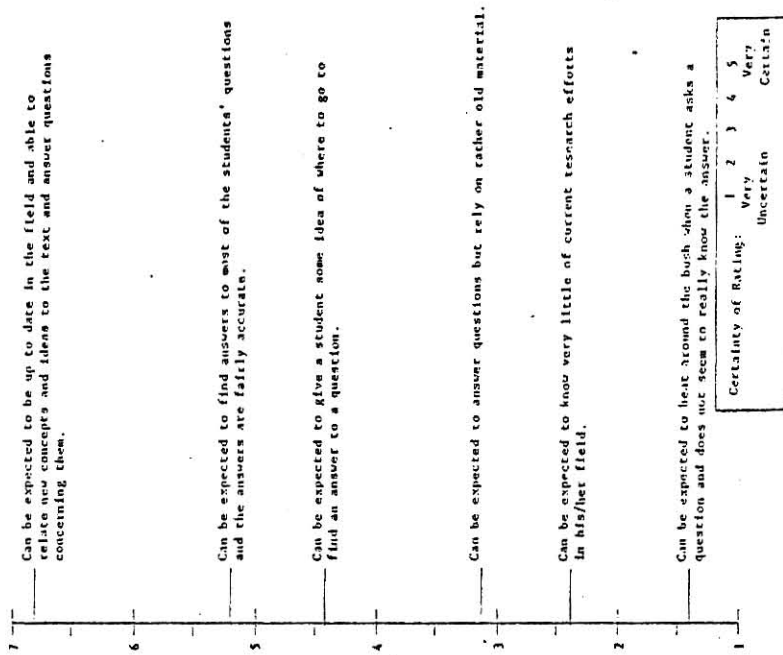
ARE THERE ANY QUESTIONS ABOUT ANY OF THE THINGS I HAVE
COVERED TODAY?.....BECAUSE THIS IS THE
FIRST CLASS I WILL LET YOU GO EARLY TODAY.

SEE YOU NEXT WEDNESDAY.

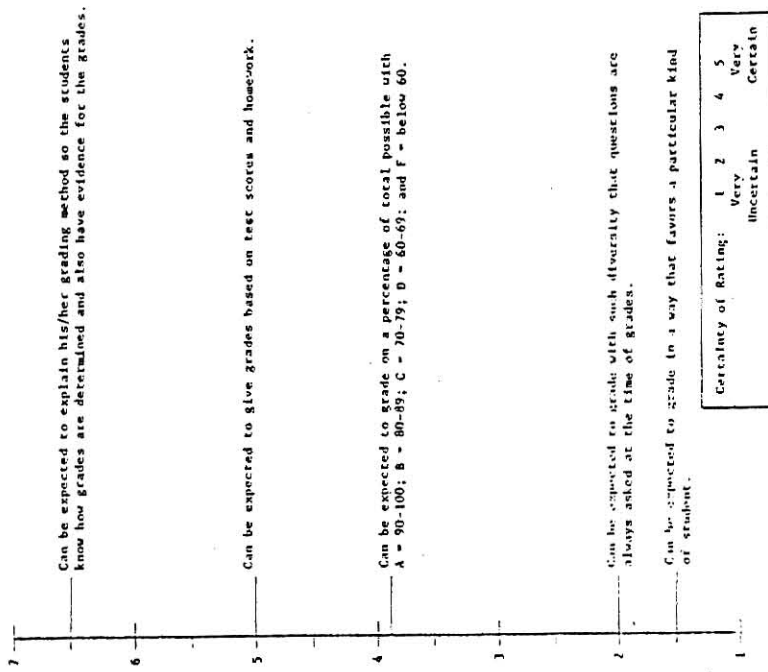
APPENDIX F

Behaviorally Anchored Rating Scale

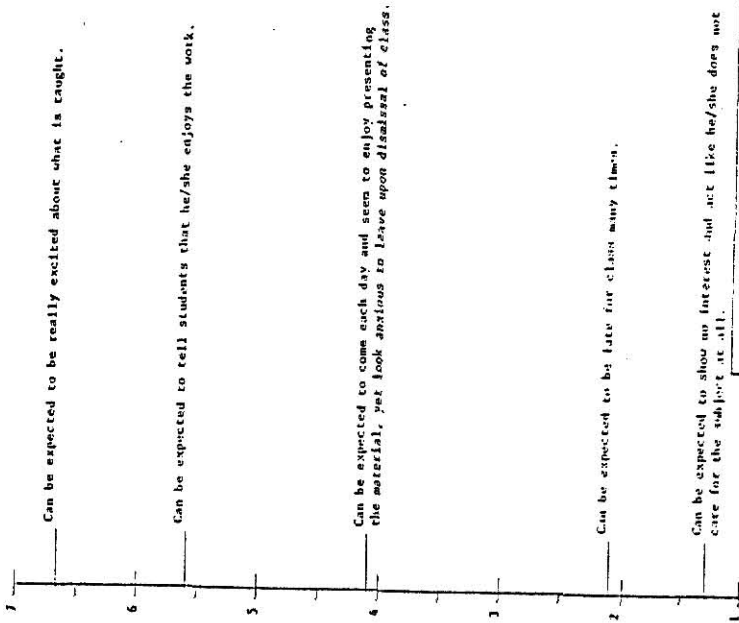
INSTRUCTOR KNOWLEDGE: Extent to which the instructor is aware of current material related to the course or to his/her field and is able to accurately answer or direct the student to specific sources that will answer questions concerning the subject matter.



GRADE: Extent to which the instructor's grading practices remain consistent and free of confusion and are also fair.

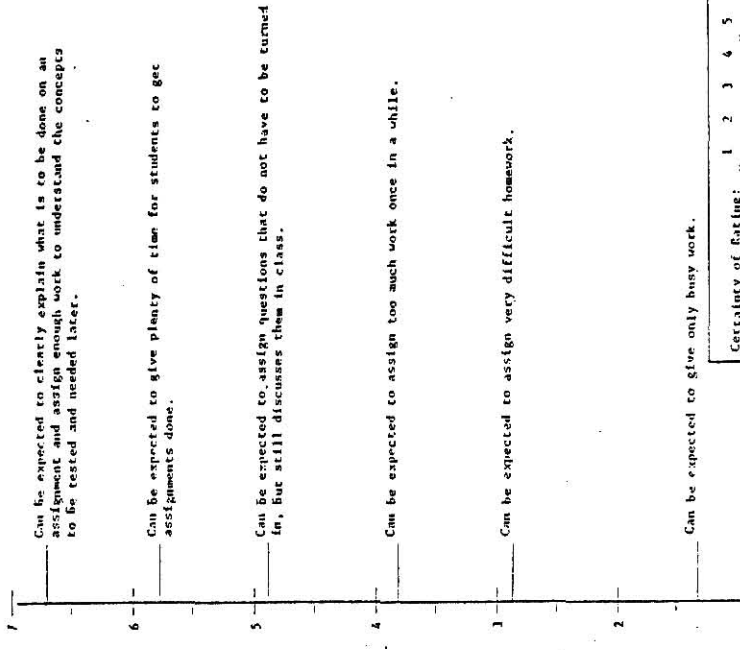


ATTITUDE TOWARDS SUBJECT: Extent to which the instructor shows personal interest in the material and displays a positive attitude towards teaching the subject.



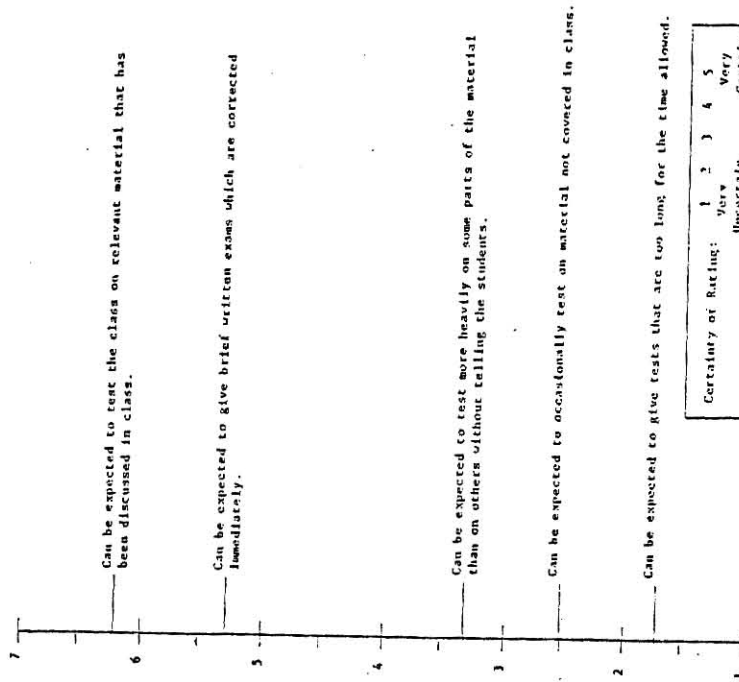
Certainty of Rating: 1 2 3 4 5
Very Uncertain Very Certain

ASSIGNMENTS: Extent to which the instructor is clear on what is to be done, avoids assigning excessive amounts, and provides assignments which contribute to the understanding of the subject matter rather than just providing busy work.



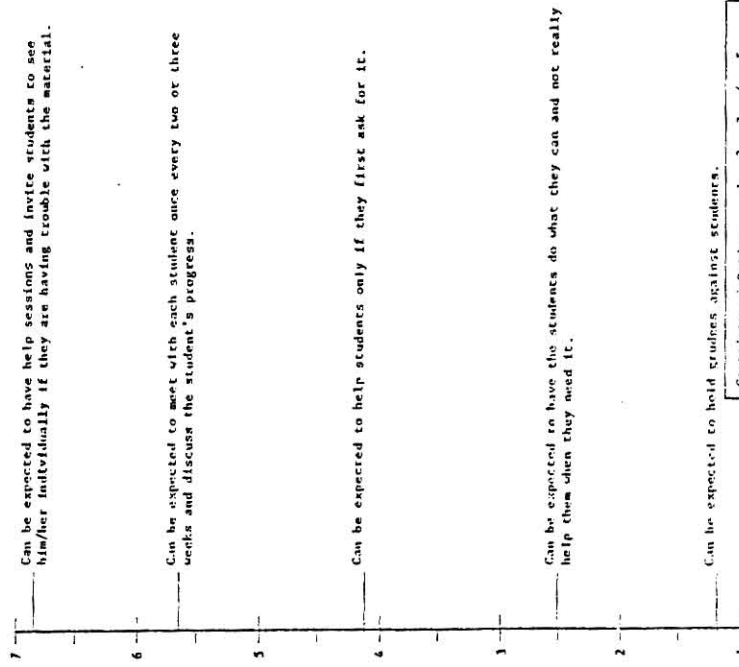
Certainty of Rating: 1 2 3 4 5
Very Uncertain Very Certain

TESTS: Extent to which the instructor writes clear, unambiguous questions that relate to and are representative of in-class material and outside readings which were stressed adequately in class.



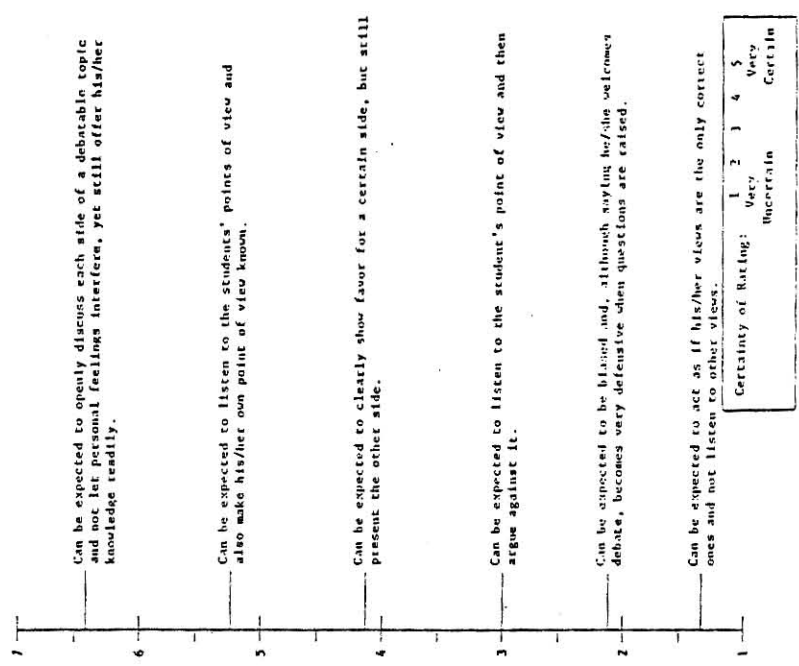
Certainty of Rating:				
1	2	3	4	5
Very Uncertain		Very Certain		

STUDENT-LEARNER RELATIONS: Extent to which the instructor shows a true, sincere concern for the welfare of the students through such things as dependability, availability for help, and consideration of student feelings; establishing rapport with the students.

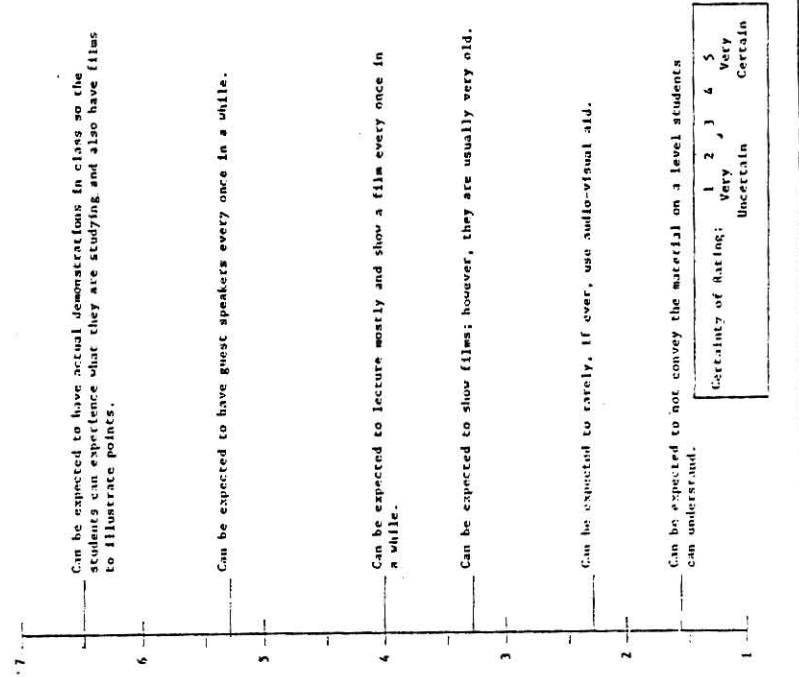


Certainty of Rating:				
1	2	3	4	5
Very Uncertain		Very Certain		

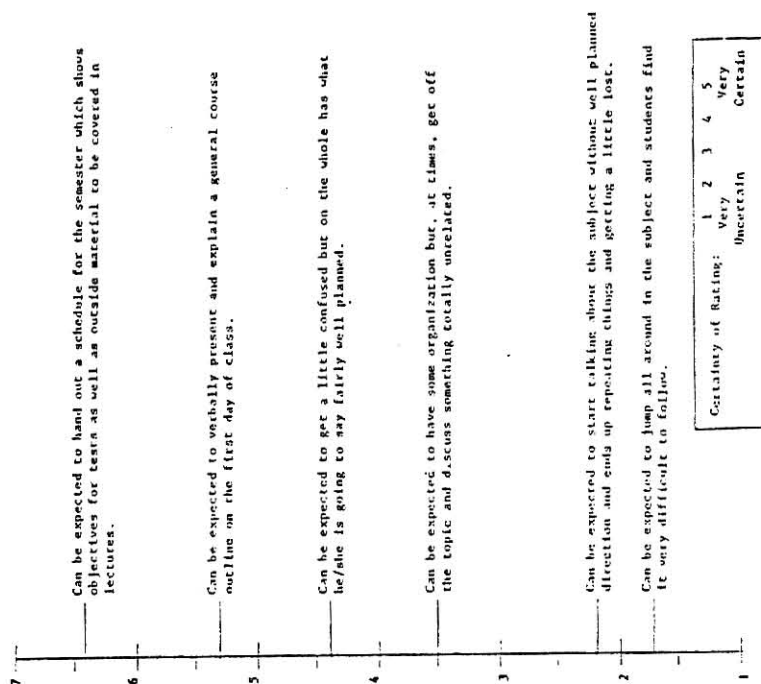
OBJECTIVENESS: Extent to which the instructor remains objective and presents a fair treatment of all points of view on controversial or debatable topics.



MANNER OF PRESENTATION: Extent to which the instructor's methods of presentation and use of audio-visual aids help emphasize and clarify important points; ability to present material clearly and concisely on a level students can understand.



ORGANIZATION: Extent to which the instructor arranges the subject matter and organizes objectives in an orderly and logical sequence for thorough coverage.



Certainty of Rating:	1	2	3	4	5
	Very			Very	
	Uncertain			Certain	

HALO BIAS, IMPLICIT PERSONALITY THEORY, AND COGNITIVE
COMPLEXITY: POSSIBLE RELATIONSHIPS AND IMPLICATIONS FOR
IMPROVING THE PSYCHOMETRIC QUALITY OF RATINGS

by

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B.A., Wright State University, 1978

AN ABSTRACT OF A MASTER'S THESIS

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MASTER OF SCIENCE

Department of Psychology

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Manhattan, Kansas

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Abstract

The problem of halo bias has been a matter of concern for researchers interested in studying the evaluations of human performance for over 60 years (Thorndike, 1920). Although it is intuitively appealing, previous studies have failed consistently to demonstrate (with one exception, Schneier, 1977) any relationship between cognitive complexity and halo (Bernardin, Cardy, & Carlyle, 1982; Lahey & Saal, 1981; Bernardin & Boetcher, Note 1; Kuhnert & Saal, Note 2). Perhaps one reason for this lack of success is that past researchers have been unable to distinguish between illusory halo and what Cooper (1981b) calls "true halo", the covariance of ratee characteristics that actually exists. The present study investigated the relationship between cognitive style and tendency to exhibit illusory halo and experimentally controlled for true halo. Subjects (117 general psychology students) were randomly presented with one of three videotaped sketches of an instructor giving orientation lecture in an introductory psychology course. The sketches varied in the amount of variance in the quality of the instructor's performance (i.e., relatively stable performance, somewhat variable performance, and highly variable performance). The subject's degree of cognitive complexity was measured by analyzing their ratings of the instructor's personality characteristics using rating items from implicit personality theory research (Levy & Dugan, 1960; Passini & Norman, 1966;

Tupes & Christal, Note 3). Illusory halo was distinguished from true halo by analyzing the pattern of subjects responses across the sketch conditions. If subjects with a particular cognitive style rated the instructor appropriately (i.e., had high variance ratings for the instructor with highly variable performance and low variance in ratings of the instructor with stable performance) it was taken as an indication that the subjects were relatively free from illusory halo. If subjects remained consistent to a particular type of rating (i.e., consistently low or high in their variance) regardless of the sketch condition it was taken as an indication that the subjects were exhibiting illusory halo. Halo bias was measured two different ways: by the variance of ratings over performance dimension and by the intercorrelations of performance dimensions. The results suggested that there are individual differences in raters' tendency to exhibit halo bias and that these tendencies to exhibit halo bias can be measured by the raters' degree of variation in an IPT set of items. It is further suggested that the type of halo that these measures of cognitive style are likely to be predicting is "engulfing halo" Cooper (1981b). The failure to replicate Schneier's (1977) finding of an interrelationship between cognitive complexity and halo seemed to indicate that this issue had been laid to rest. The results of the present study would tend to resurrect the issue of a cognitive style-halo bias relationship and suggests that when true halo is controlled for this relationship becomes apparent.