THE RELATION OF OBSERVATIONAL TO INFERENTIAL ACCURACY IN JUDGING PEOPLE

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INFERENTIAL ACCURACY IN JUDGING PEOPLE

by

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A THESIS

The ability to judge people accurately is an important factor in interpersonal relations. Past research has shown this ability to consist of at least two components: inference accuracy (about individuals), and stereotype accuracy (inference accuracy about groups). A third possible component, on which little research has been done, is observation accuracy. This study attempts to explore the observation component, its relation to inference and stereotype accuracy, and its relation to other possible correlates.

A test to measure observation accuracy, using the Cline film, was constructed. Cline's inference accuracy test was modified and used with the film also. The tests were administered to 70 subjects (judges) in an introductory Industrial Psychology class. Both tests were then item-analyzed, the judge's papers were rescored on the best items, and these scores were used in further analysis. A readministration of the tests to a new group of judges showed the reliability of the observation test to be +.67 and the reliability of the inference test to be +.66. Measures of stereotype accuracy, leadership attitudes. and empathic drive were also administered to the 70 judges. Data on the age, and course grade of the judges was collected. All the scores and demographic variables were intercorrelated and factor analyzed.

The factor analysis showed that there is a separate dimension of observation accuracy. The correlational analysis showed that observation accuracy about an individual

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is related to inference accuracy about that same individual,
to inference accuracy about members of the opposite sex, and
to inference accuracy about groups (stereotype accuracy).
The relationship decreases as inference accuracy is general-
ized further from the individual, but is still statistically
significant in some instances. Even where the same individual
is concerned, however, the small size of most of the correla-
tions suggest that observation accuracy is only a partial
determinant of inference accuracy. Of the other possible
correlates of observation accuracy tested, only course grade
of the judge has a significant correlation.

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W.A.H.

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INTRODUCTION

Psychology instructors have always accepted the devel-
opment of the ability to understand people as at least one
goal of their teaching. Now, with half the more than 20,000
members of the American Psychological Association employed
as diagnosticians and psychotherapists, the achievement of
this goal in graduate training has become of critical pro-
fessional concern. The development of this ability is also
the goal of the rapidly expanding "sensitivity training"
courses for business executives (Tannebaum, et al., 1961;
McGregor, 1960). Yet few of the evaluations thus far con-
ducted provide any evidence that such teaching and training
programs are effective (Taft, 1955; Trumbo, 1955).

Both the design of effective training programs and of
sound experiments to evaluate them have been hindered by
ignorance of the nature of the ability itself. The past
decade has seen a great increase in the number of studies
planned to increase knowledge of the ability. These studies
have presented the person to be judged in a wide variety of
ways; in taped interviews, in still photographs, in silent
and sound movies, in written records, as well as in inter-
action with judges. Judges have been asked to record first
person judgments ("What does he think of me?"), second
person judgments ("What does he think of himself?"), third

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person judgments ("What do other people think of him?"), and nonpersonal judgments ("What grades did he get in high school?"). The judges have recorded their judgments by rating, matching, and ranking methods as well as by filling out objective questionnaires as they think the person being judged filled them out.

In general, these studies have presented the person to be judged to the judge, and the judge is asked to make inferences about the person from the cues he has picked up during the presentation. The accuracy of these inferences has been determined from information that is known to the experimenter but withheld from the judge. Such inferential accuracy scores have been used to explore a variety of problems: The generality of the scores, the components of the scores, their determinants, and the influence of training upon them. Little attention, however, has thus far been given to differences in the extent and accuracy of the observations that the judges make when exposed to the same person, and the relation of these to inferential accuracy. The present study, therefore, was designed to clarify the relationship between inferential accuracy and observational accuracy.

For this study the meanings of observation and inference must be sharply differentiated. When a judge looks at a person he sees and hears certain things. He sees what the person looks like, what actions and movements they make, and he hears what they say. Observing, for purposes of this

study, is defined as the perception of these three kinds of cues.

We can measure the judge's accuracy of observation by asking him questions about what the person looked like, did, and said. However, there are qualities of the person that the judge does not observe directly, but which he can still reach some conclusion about. Such qualities of the person as humbleness and religiousness are not perceived directly, but are "inferred" by the judge from what he has perceived through his senses. These judgments about a person, based on what is perceived, but not directly perceived themselves, are what is meant by inferences. Though many studies of interpersonal perception have concerned themselves with inferences and some have dealt with observations, none have attempted to investigate the relationship between the two.

THE PROBLEM

The principle hypothesis tested in the present study
was the following: the more accurately a judge observes
people, the more accurate are his inferences about them.
Testing the hypothesis required a measure of observational
accuracy, and the major work of the present study involved
the development of sound-film tests of the ability. The
development involved selecting appropriate observational
items for six cases, administering the initial form of the
test to determine the discrimination value of items, read-
ministering the revised test to a new group to determine
its reliability, and factor analyzing scores on the sub-tests
to determine whether observational accuracy was a homogeneous
factor.

Three independent tests of the general hypothesis were
undertaken. It was most confidently hypothesized that,
(1) accuracy in observing a particular person is related to
accuracy in making inferences about that person. It was
less confidently hypothesized that, (2) accuracy in observing
men is related to accuracy in making inferences about women
and accuracy in observing women is related to accuracy in
making inferences about men. These two checks of the general
hypothesis involved the development of inference tests for
each of the same six persons used in the observational

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tests. The development of these tests followed the same steps as the development of the observational tests. It was least confidently hypothesized that. (3) _observation accuracy is related to stereotype accuracy. i.e., that accuracy in observing individuals is related to accuracy in making inferences about groups_. Previously developed tests of stereotype accuracy (Gilkner, 1962) were utilized in testing the hypothesis.

In addition to making the three above tests of the hypotheses, it was an objective of the study to discover other correlates of observation accuracy. In this exploration, observation accuracy scores were related to age, course grade, leadership attitudes, and a measure of empathic drive (Mullin, 1962).

HISTORY

A review of the literature revealed several techniques suitable for measuring observation accuracy, though this was not always the primary purpose of the author. The clearest example of a pure measure of observation accuracy, and the closest to the instrument planned for this study is one designed by Fay (1947). This is a questionnaire filled out after viewing a filmed situation. The film was the criterion of accuracy and the questions pertained directly to its content. However, no data or analysis was presented with the instrument and its reliability was not checked. It is clear though that observation accuracy could be measured with this instrument.

A study by Witryol and Kaess (1957) was conducted to investigate sex differences in social memory tasks. But the technique used in part of the study could be adapted to measuring observation accuracy. Male and female participants were assigned alias names and engaged in a miniature social situation consisting of a one minute "sidewalk" interview. During each interview the interviewee gave his name at least once. Later, subjects in experimental groups were asked to match the aliases with the interviewees who used them. Witryol and Kaess found significant differences between sexes in ability to match the names with the people.

But aside from this, it is evident that if subjects were asked to report on the interviewees physical characteristics. actions, and statements we would have a good test of observation accuracy.

One big drawback is that the interviewees would not be able to act and answer questions exactly the same way if the experiment was repeated. Secondly, it would be difficult to establish, each time, what the interviewees actually did look like, say, and do. To investigate the relation between observation and inference accuracy, a suitable test of inferences about the interviewees would also have to be constructed. This is too involved a process to go into for interviewees who will only participate once.

A technique used by Buzby (1924) might also be used to test observation accuracy. The study consisted of having the subjects (judges) decide which of several emotional states were being registered on a picture of a face presented to him. This procedure could be used to test observation accuracy. But it would be limited to testing observation accuracy about physical characteristics and facial expressions. It has the virtue. however, that the people to be observed are standardized. If a number of correct inferences about the people in the pictures were compiled, the judges could be tested on them and the relation between observation and inference accuracy could be explored.

Another method for testing observation accuracy was employed by Showel (1960). Infantry trainees who had trained together for at least six weeks answered written questions concerning their names, if they had been on KP in the last week, if they had been on sick call in the last week, if they had a pass in the last week, their rifle qualification scores, level of civilian education, et cetera. Each trainee then answered questionnaires in the way he thought each of the other trainees had answered them. Since all the questions were about things a trainee could have observed the other trainees doing or saying, this was a test of observation accuracy. Following this, each trainee was rated by his fellow trainees and his leaders as to his leadership potential. It was found that observation accuracy correlated significantly with rated leadership potential. Showel presents several possible explanations for this.

If the trainees were also asked to answer questions concerning the other trainees' beliefs, attitudes, and feelings, in the way they thought the trainees would have answered them, this would be a test of inference accuracy. Observation and inference accuracy could then have been correlated. This procedure has one drawback in that the subjects, trainees in this case, must live together for a length of time.

There are also methods exhibited in the literature for measuring or testing inference accuracy. The basic procedures for doing this were cited in the previous section.

The study by Cline (1960), which the present study leans upon heavily, is a good example of the type of inference accuracy tests currently employed. The study is covered in the method section which follows and need not be described here. The most evident point is that though a number of studies have been conducted which employ means of testing observation and inference accuracy, no study has been done to investigate the relationship between the two. The present study will attempt to do this.

METHOD AND PROCEDURE

The first step in the present study was the development of an effective instrument for measuring the ability to make accurate observations of people. Following this a comparable instrument was constructed to measure inference accuracy of the same subjects. After discussing the development of these instruments, the previously developed instruments used to collect data on the hypothesized correlates are briefly described.

Subjects

The subjects, or judges, in this study were 70 students in an Industrial Psychology class, at Michigan State University. spring term, 1961. This was an introductory course which is open to students of any department who have had at least one other course in psychology. The ages of the 70 judges ranged from 18 to 34 years. A summary of the 70 judges included in the study is presented in Table I.

TABLE I

AGE AND SEX OF JUDGES

Age	Males	Females	Total
Under 20	14	1	15
20 - 24	41	6	47
Over 24	8	–	8
Total	63	7	70

The Observation Accuracy Test

As was illustrated in the preceding section, presenting the person to be observed to the judges is a serious problem in a test of observation accuracy. If students act out parts, the cues can not be kept constant from one group of judges to the next. If photographs are used the cues are constant, but very limited in scope. Doing a study with people who have lived in close contact is good but subjects of this nature are difficult to find. One solution might be to have professional actors act out roles, but this could be rather expensive. The technique used in the present study provided repeatable, yet lifelike cues for the judges, and they did not have to be together for a very long time. The individuals to be observed and judged were presented in colored sound movies.

One of the primary investigators in the use of sound films for this purpose is V. Cline. He has gone to some lengths to perfect a motion picture film which can be used as a standard stimulus in judging accuracy experiments. These are films of people in an interviewing situation. The six interviewing cases filmed by Cline (1960), were the basis for the observation accuracy test constructed for this study. The filmed cases consist of five minute interviews with 3 males and 3 females of various ages and backgrounds. They were each designated by a letter instead of by name. i.e., Mrs. P., Mr. W., Mrs. N., Mr. Z., Mr. G., and Mrs. D. In the interview, questions concerning personal values,

personality strengths and weaknesses, reaction to inter-
viewing, hobbies, activities, self-concept, and temper were
asked. These filmed cases provided the ultimate criterion
of accurate observation. The test items need only be limited
to the interviewing situation the judges observed.

To construct items for the observational test the
following procedure was followed. Several people viewed the
Cline film of six information gathering interviews. As they
viewed them they recorded the physical characteristics of
the interviewees that were most prominent. Viewing the cases
again they recorded the actions of the interviewees, and a
third time through they recorded what the interviewees said.
Thirty true statements about each interviewee were constructed
from these recorded characteristics, actions, and remarks.
Thirty false, but plausible statements, were also constructed
about each of the six interviewees. Thus there were sixty
items about each of the six interviewees. Each item is a
true or false statement referring to a physical characteristic,
action, or remark of one of the interviewees. Observations
of this type are at least a partial basis for inferences
about the interviewees, but the particular inference items
in this study are not directly related to any particular
observation items in the study.

The observation test was administered in a classroom
setting. At each of the six testing sessions the judges
were given mimeographed test booklets containing sixty true
and false items about one of the interviewees. Following the

sixty observation items were sixty inference items about the same interviewee. More will be said about the inference items and their construction in the next section. The appropriate five minute filmed interview was shown to the judges and immediately thereafter they answered the sixty observation and the sixty inference items. They recorded their choices of true or false on IBM answer sheets for simplified scoring.

After administering and scoring the observation test it was item analyzed to help choose the most discriminating items for the revised test. The following technique was employed. After ranking the answer sheets according to score received, the top 25% and the bottom 25% of the papers were separated from the group. An item count was obtained to find what per cent of the upper group and what per cent of the lower group answered a particular item correctly. The difference between these percentages was taken as an index of that item's discriminability. The thirty items which appeared to be most discriminating were included in the revised test. However, care was taken to still include and equal number of true and false items in the test; and to scatter the three types of observation items throughout the test. The revised test is included in Appendix A along with correct answers to the items and their discrimination index-values. The answer sheets were rescored with regard to just the thirty "chosen" items on each of the six cases. These scores were then used in the further analysis.

Two separate tests of the observation tests reliability were performed. Both involved split-half correlation and both employed the use of the Spearman-Brown Prophecy Formula (1958). The first reliability test involved correlation of the judges' scores on the three female cases combined with their scores on the three male cases combined. Each case now contains thirty items so the scores on three female cases combined could range from 0 to 90 and so could scores on three male cases combined. Each judge now had two observation scores, one for females and one for males. Rank correlating these two sets of scores produces a reliability coefficient for a test 90 items long. Since the complete test was really 180 items long, and the length of a test increases its reliability, the prophecy formula was used to increase the reliability coefficient to that of a 180 item test. The coefficient thus computed was +.67. It must be remembered, however, that the scores used in this correlation were on items previously chosen by item analysis for their discriminability. They are bound to be similar in some respect then, so this coefficient is biased upward and does not give a true reading of the test's reliability. It does, however, indicate that the test has some reliability though it may be lower than +.67.

It was felt that a further check of the test's reliability should be made, and this time to use a new group of judges so the above mentioned bias would not be present. The first three cases of the observation test, Mrs. P.,

Mr. W., and Mrs. N., were administered to a group of 26 undergraduate students in an advanced psychology class at Michigan State University. This was done in much the same manner as for the first group. These three cases made a combined test 90 items long, thirty for each case. Each judge's total score was split into two subscores; one subscore for all the odd items and one for all the even items. Since the three types of observation items were scattered throughout the test, it was felt this could be done without fear of bias. Rank correlating these two sets of scores produces a reliability coefficient for a 45 item test. Again it was desired to know the reliability coefficient for a test of 180 items, the length of the complete test of all six cases. The prophecy formula was employed to forecast the increase in reliability from a 45 item test to 180 item test. The reliability coefficient found was again +.67.

Since the prophecy formula is a forecasting technique using it to increase a coefficient by this much may also introduce bias in an upward direction. Therefore, this is also a rough estimate of the true reliability coefficient of the complete observation test. It is safe to say, however, that the test does have enough reliability to be useful.

The Inference Accuracy Test

A problem often encountered in the investigation of the ability of people to make accurate inferences is that of devising a suitable measure of inference accuracy. It is

difficult to establish which inferences about a person are
correct and which are incorrect. The first step in solving
the problem is to collect enough information about a person
to establish some truths about him. Then the inferences the
judges make must be limited to the areas we have information
on. These so-called truths are hard to come by. We cannot
ask a person directly about his personality because it is
well-known that people do not always answer objectively.
Therefore, an indirect method of searching out their feelings,
beliefs, and attitudes must be used. One way to do this is
to spend a great deal of time asking the person's friends,
neighbors, and relatives about him. Combine this with a
number of extended interviewing and psychological testing
sessions with the person and a certain amount of agreement
should evolve concerning the person's personality makeup.
Items can then be constructed on the areas where the sources
agree. To test a judge's inference accuracy about that
particular person he need only be allowed to see and hear the
person for a time and then be tested to find if his judgments
agree or disagree with the sources. Another approach to
collecting inference test items about a person is to have
that person answer questions about his feelings, beliefs, and
attitudes. The judge whose inference accuracy is to be
tested is allowed to see and hear that person and then is
instructed to answer the same questions in the way he thinks
the person answered them. Cline (1960), used all these
methods to collect information and construct inference items

about the people in his filmed interviews. He has constructed
items of both kinds, those that test the judge's agreement
with other sources and those that test the judge's agreement
with the way the interviewees answered certain questions
about themselves.

Some of Cline's items are multiple choice, some are
true-false, and some give a choice of two responses. For
the present study the multiple choice items were modified so
they could be answered true or false also. Thus, all items
for this study give the judge two choices, true or false in
some cases and (1) or (2) in others. Some of the multiple
choice items could not be changed to the true-false format.
These and others were omitted to limit the inference test to
sixty items for each case, 360 items in all.

The administration, scoring, and item analysis of the
inference test were the same as for the observation test.
The thirty most discriminating items in each case were chosen
for the revised test. The revised inference test can be seen
in Appendix B with the correct answers and discrimination
index-values.

To test the reliability of this revised inference test
the same procedure was followed as for the revised obser-
vation test. The judges' scores on combined female cases
were correlated with scores on combined male cases. This
gave a reliability coefficient for a 90 item test which was
plugged in the prophecy formula to project the coefficient
for a 180 item test. The resulting coefficient was +.67,

the same as for the observation test. This reliability co-
efficient is also biased upward as was the one for the
observation test and for the same reason. A second reliabil-
ity coefficient was computed for the inference test after
administering it to the same group of 26 students who took
the observation test the second time. They were tested on
just the first three cases, Mrs. P., Mr. W., and Mrs. N.
The judges' scores on all odd items were correlated with
scores on all even items of the first three cases. Since
there were 90 items in the first three cases, correlating
45 odd items with 45 even items gave a reliability coeffici-
ent for a 45 item test. The coefficient for a 180 item test
is the one of interest, however, so the prophecy formula was
used to increase the above coefficient by a factor of 4.
The resulting reliability coefficient for a 180 item infer-
ence test was +.66.

With reservations concerning the crudeness of these
two estimates, it can safely be said that the inference test
is reliable enough to gather data with. It appears that
both the observation test and the inference test are of
about equal reliability.

The Stereotype Accuracy Tests

This is a judging instrument pioneered by Zavala (1960),
and further developed by Silkner (1962). The form used in
this study is discussed in detail in the latter's thesis but
will be outlined briefly here. In this test the judge is

instructed to choose the response he thinks the majority of persons from a particular group of people would choose, actually making inferences about a group instead of an individual. The scoring is based on the actual responses of people in that group. The total stereotype accuracy score is the sum of scores on four sub-scales constructed with reference to different groups.

Men Stereotype: A large group of American business and professional men checked whether they liked or disliked each of many different occupations, amusements, activities, and kinds of people. They also answered descriptive statements about what kind of persons they thought they were. From this information the experimenter constructed a test containing three kinds of items about the men. The first kind of item, called "likes of men" are composed of three occupations, three amusements, three activities, or three kinds of people, one of which was liked by over 50% of the business and professional men. The subjects being tested were asked to choose which of the three they thought were liked by over 50% of the men.

The second phase of the men stereotype test included items containing three occupations, amusements, activities, or kinds of people, one of which was disliked by over 50% of the men. The subject being tested was asked to choose which one of the three this was.

The third phase of the men stereotype test was composed of items containing three descriptive statements, one

of which was chosen by over 50% of the men as descriptive of themselves. The subjects were asked to choose which of the three statements this was.

Women Stereotype: The construction and administration of this test was similar to the men stereotype test except the criterion group was a group of over four thousand women.

Sex Difference Stereotype: This test consisted of items containing a single occupation. amusement, activity, or kind of person. The subjects were asked to decide if this particular interest was liked by a higher percentage of men or of women.

Age Difference Stereotype: To construct this test the experimenter had a typical group of 15 year old boys and a typical group of 55 year old men check whether they liked or disliked each of many occupations, amusements, activities, and kinds of people. The items constructed each contained one of these interests and the subjects being tested were asked to decide which interests they thought were liked by a higher percentage of young men and which by a higher percentage of old men.

Psychologist Stereotype: Items in this test each contained one of the previously mentioned interests. They were responded to favorably or unfavorably by over two hundred male Psychologists and over two thousand men in other occupations. Subjects being tested were asked to decide which of the interests were liked by a higher percentage of Psychologists and which were liked by a lower percentage of Psychologists than other men.

Demographic and Personality Variables

In quest of possible correlates of observation accuracy, data was gathered on a number of variables. Among them were age and course grade of the judge. Course grade is the grade given the judge in this introductory Industrial Psychology course. The hypothesis is that judges who received higher grades would be the same people who were more accurate in their observations.

Employee Orientation Scale: A scale constructed by Dore' for a Master's thesis (1960). Designed to investigate leadership characteristics, this scale measures the extent to which a leader takes a personal interest in his employees. The contention is that the person who is oriented toward the satisfaction of his employees is a better leader than the work oriented person.

Differentiated Role Scale: Another of Dore's scales. This one is designed to measure the extent to which a person is likely to take roles different from his subordinates in a real life situation. The good leader is one who breaks his activities up, and performs a different function than his subordinates. Instead of doing the same thing his followers do he should be busy with planning, organizing, training, and scheduling.

The implications for this study are--Is the person who has the above mentioned desirable leadership characteristics also accurate in his observations of other individuals?

Emphathic Drive Test: A scale constructed by Mullin (1962) for a Master's thesis. This scale is to measure the degree of empathic drive a person has in his personality makeup. Empathy here is the tendency of a judge to look for experiential rather than physical aspects of the judged. The person high in empathic drive looks deeper within the judged for characteristics of inner feelings and experiences. In this study it is hoped to find if a person who is high in empathic drive tends to be more accurate in his observation of others.

Actual Similarity Test (Males): This test measures the similarity of the judge's interests to the typical man's. The question involved here is--Would those male judges who score high in similarity also be higher in their accuracy of observing other males?

The Correlation Analysis

There were twenty-three separate test scores and variables on which data was gathered for each of the 70 judges. Observation, inference, and stereotype accuracy scores were combined in various ways in order to investigate more general relationships. Altogether there were thirty-nine variables to be intercorrelated. Product-moment inter-correlation was done on MISTIC (Michigan State Integral Computor). A list of all thirty-nine variables and a matrix of their intercorrelations are presented in Appendix C.

RESULTS

The following tables show the correlations bearing on the sub-hypotheses and hypothesized correlates.

Sub-hypothesis 1

Table II is concerned with the sub-hypothesis that observation and inference accuracy about the same individual are related. Correlations are presented for each case separately and for the total score of all six cases. A positive correlation indicates that judges who were accurate observers tended to be more accurate in making inferences. Of the six correlation coefficients, three are significant at the 5% level. The small size of the other three suggests that differences in observation accuracy account for only part of the difference in inference accuracy. On the whole the correlations lend substantial support to the sub-hypothesis.

TABLE II

CORRELATION BETWEEN OBSERVATION ACCURACY
AND INFERENCE ACCURACY ABOUT INDIVIDUALS
N = 70

Mrs.P.	Mr.W.	Mr.R.	Mr.L.	Mr.G.	Mr.D.	Totals
.01	.15	.30	.30	.20	.25	.39

r of .24 significant at 5% level

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Sub-hypothesis 2

Table III provides the evidence to check sub-hypothesis 2 which states that judges who are accurate observers of men will be accurate in their inferences about women and that those who are accurate observers of women will be accurate in their inferences about men. The hypothesis is clearly substantiated in the case of observation accuracy of women. In fact observation accuracy of women had a higher correlation with making inferences about men than it had with making inferences about women. But the difference is not significant. The hypothesis, however, receives little support in the case of observation accuracy of men. The correlation of observation accuracy of men with inference accuracy about women was not significantly different from zero. The correlation of observation accuracy of men was significantly correlated with inference accuracy about men.

TABLE III

CORRELATION BETWEEN OBSERVATION ACCURACY
AND INFERENCE ACCURACY ON MALE CASES AND
FEMALE CASES
N = 70

Observation Accuracy Scores	Inference Accuracy Scores	
	Mr. W.,Z.,& G.	Mrs.P.,N.,&D.
Mr. W., Z., & G.	.32	.16
Mrs. P., N., & D.	.35	.23

r of .24 significant at 5% level

<u>Sub-hypothesis 3</u>

Table IV shows the relationship between observation accuracy and various stereotype accuracies. Only two of the stereotype accuracy tests have statistically significant correlation with observation accuracy. Those judges who were accurate in their stereotype of Psychologists tended to be more accurate observers of men. Those judges who were accurate in their stereotype of women tended to be more accurate in their observation of both men and women. None of the other tests of stereotypes correlated significantly with the scores of observation accuracy.

TABLE IV

CORRELATION BETWEEN OBSERVATION ACCURACY
AND STEREOTYPE ACCURACY
N = 70

Stereotype Accuracy Scores	Observation Accuracy Scores		
	Mr.W..Z..&G.	Mrs.P.,N..&D.	Total
Psychologist Stereotype	.46	.19	.33
Women Stereotype	.27	.27	.31
Sex Difference Stereotype	.09	.22	.18
Men Stereotype	.02	-.07	-.02
Age Stereotype	.08	-.13	-.02
Total Stereotype	.19	.07	.15

r of .24 significant at 5% level

Correlates of Observation Accuracy

Table V shows the relationship of observation accuracy with six possible correlates of this accuracy. It was found that only course grade correlated significantly with observation accuracy. The judges who were good observers were the same people who received high grades in this Industrial Psychology course. Accurate observations may play a large part in doing well on examinations and getting good grades. It is also possible, however, that what motivates a student to do well on tests in a course also motivates him to do well on class projects in the course.

TABLE V

RELATION OF OBSERVATION ACCURACY
TO POSSIBLE CORRELATES
N = 70

Possible Correlates	Observation Accuracy Scores		
	Mr.W.,C.,C.	Mrs.P.,N.W.	Total
Course Grade of Judge	.37	.31	.39
Age of Judge	-.04	.10	.03
Employee Orientation Score	.09	-.07	.01
Actual Similarity Score	.03	-.03	.00
Differentiated Role Score	-.02	-.01	-.01
Empathic Drive	-.07	-.08	-.09

r of .24 significant at 5% level

The Factor Analysis

A factor analysis was performed in an attempt to dis-
cover the factors underlying the demographic, personality,
and accuracy variables measured. Under most circumstances
it is not meaningful to do a factor analysis of data gathered
from only 70 judges. Nor is it advisable when the reliabili-
ties of testing instruments are as low as those in this study,
only .67 for the observation test and .66 for the inference
test. A third limitation is that most of the correlations in
the analysis were small, only 45 statistically significant
at the 5% level. Since this was a purely exploratory study,
the factor analysis was still deemed feasible, though its
interpretation would be somewhat limited. The primary inter-
est was to see if the observation tests would all load
highly on a common factor. Of the thirty-nine variables in
the study, twenty-three were chosen to be factor analyzed.
The remaining seventeen, being various combinations of the
first twenty-three would introduce serious bias if included
in the factor analysis. Table VI is an intercorrelation
matrix of the twenty-three variables factor analyzed.

The factor analysis was done on the MISTIC, Michigan
State Integral Computer. The procedure was as follows.
Modified highest communalities were found, factors were
extracted by the principal axis method, and the factors were
orthogonally rotated using the Quartimax method of Wrigley
and Nauhaus (1954). The criterion for choosing the number
of factors to rotate was that postulated by Kiel and Wrigley

TABLE VI

INTERCORRELATION OF 23 VARIABLES FACTOR ANALYZED

Test or Variable	1	2	3	4	5	6	7	8	9	10	11
1 Age of Judge											
2 Men Stereotype Test	07										
3 Women Stereotype Test	-06	28*									
4 Sex Difference Stereotype Test	-23	11	17								
5 Age Stereotype Test	-15	-02	06	-11							
6 Psychologist Stereotype Test	12	-10	19	-05	23						
7 Actual Similarity Test	22	38*	12	-13	10	10					
8 Mullin Empathy Test	10	04	-22	11	-14	-07	-16				
9 Employee Orientation Test	-15	22	07	-08	-11	04	00	03			
10 Differentiated Role Test	17	21	-06	-03	04	06	14	-01	-04		
11 Course Grade of Judge	04	06	09	12	01	13	32*	-01	-11	24*	
12 Mrs. P. Observation Test	08	-26*	08	14	-11	00	-16	-05	-18	-03	20
13 Mrs. P. Inference Test	-07	05	32*	03	03	-01	09	-23	08	13	02
14 Mr. W. Observation Test	04	-06	13	06	09	33*	-13	-02	10	12	23
15 Mr. W. Inference Test	-21	07	12	-02	-07	03	-04	-25*	23	04	12
16 Mrs. N. Observation Test	07	04	23*	13	-14	19	05	-00	00	08	29*
17 Mrs. N. Inference Test	16	16	19	24*	-01	10	27*	-04	09	05	-07
18 Mr. Z. Observation Test	-17	04	24*	15	00	26*	07	-01	12	-13	27*
19 Mr. Z. Inference Test	-09	-23	04	02	02	23	06	-17	-13	02	27*
20 Mr. G. Observation Test	01	07	22	00	08	41*	15	-12	02	-05	30*
21 Mr. G. Inference Test	29*	-08	19	-07	11	26*	09	06	-03	21	11
22 Mrs. D. Observation Test	07	08	26*	13	-04	21	04	-15	-01	-01	20
23 Mrs. D. Inference Test	-07	22	21	00	-15	02	17	-05	12	17	12
	1	2	3	4	5	6	7	8	9	10	11

*r of .24 or greater is significant at 5% level.

TABLE VI (continued)

Test or Variable		12	13	14	15	16	17	18	19	20	21	22
Age of Judge	1											
Men Stereotype Test	2											
Women Stereotype Test	3											
Sex Difference Stereotype Test	4											
Age Stereotype Test	5											
Psychologist Stereotype Test	6											
Actual Similarity Test	7											
Mullin Empathy Test	8											
Employee Orientation Test	9											
Differentiated Role Test	10											
Course Grade of Judge	11											
Mrs. P. Observation Test	12											
Mrs. P. Inference Test	13	01										
Mr. W. Observation Test	14	07	07									
Mr. W. Inference Test	15	05	11	13								
Mrs. N. Observation Test	16	36*	22	25	14							
Mrs. N. Inference Test	17	11	33*	04	15	36*						
Mr. Z. Observation Test	18	14	14	36	15	42*	03					
Mr. Z. Inference Test	19	11	34*	24*	17	32*	26*	30*				
Mr. G. Observation Test	20	21	14	24*	08	54*	15	32*	35*			
Mr. G. Inference Test	21	16	36*	16	-05	20	36*	07	20	20		
Mrs. D. Observation Test	22	33*	23	24*	10	41*	10	29*	22	41*	17	
Mrs. D. Inference Test	23	01	46*	01	19	22	32*	12	33*	11	10	23*

*r of .24 or greater is significant at 5% level.

(1962) for the Quartimax program: rotate the highest number possible which will still give at least two variables loaded on each factor.

Table VII presents the four rotated factors and the variables that load most highly on each. Only factor loadings of .30 and over are included. The most obvious finding of this analysis is the loading of all six observation tests on Factor I. The five other variables that load highly on this factor are women and Psychologist stereotype, course grade of judge, and inference tests about two of the male interviewees. The most apparent thing these eleven variables could have in common is their measure of a judge's ability to observe accurately. It is quite clear that Factor I is a factor of observation accuracy.

There are five tests that have their highest loading on Factor II. All load at the same end of the dimension. Stereotype accuracy is a measure of a judge's inference accuracy about groups. All five of the variables loading on this factor then, are tests of inference accuracy. And four of them are tests of inference accuracy about women. Though five is a rather small number of variables to define a factor, the agreement of sign and content of these tests make it safe to say this is a factor involving inference accuracy about women.

Factor III appears to be a dimension with men stereotype, age stereotype, and actual similarity at one end; and sex difference stereotype and observation accuracy of Mrs. P.

TABLE VII

ROTATED FACTORS AND FACTOR LOADINGS

	I	II	III	IV
Age of Judges	--	--	--	-.59
Men Stereotype Test	--	-.45	.32	--'
Women Stereotype Test	.33	-.34	--	--
Sex Difference Stereotype Test	--	--	-.34	--
Age Stereotype Test	--	--	-.35	--
Psychologist Stereotype Test	.53	--	--	--
Actual Similarity Test	--	--	.47	--
Mullin Empathy Test	--	--	--	--
Employee Orientation Test	--	--	--	.32
Differentiated Role Test	--	--	--	--
Course Grade of Judge	.44	--	--	--
Mrs. P. Observation Test	.36	--	-.46	--
Mr. W. Observation Test	.49	--	--	--
Mrs. N. Observation Test	.63	--	--	--
Mr. Z. Observation Test	.57	--	--	--
Mr. G. Observation Test	.69	--	--	--
Mrs. D. Observation Test	.54	--	--	--
Mrs. P. Inference Test	--	-.55	--	--
Mr. W. Inference Test	--	--	--	.32
Mrs. N. Inference Test	--	-.48	--	--
Mr. Z. Inference Test	.51	--	--	--
Mr. G. Inference Test	.33	--	--	-.47
Mrs. D. Inference Test	--	-.63	--	--

at the other end. The common factor between men stereotype and actual similarity is not hard to understand since the judge who is similar to the typical man would probably have a more accurate stereotype of the typical man. Content of the other three variables that load on this factor and their disagreement of sign point to no consistent interpretation of the dimension.

The same is true of Factor IV where only four variables have high loadings. Not only is this a limited number of variables to define a factor, but these particular four have no apparent dimension in common. The factor that would have employee orientation and inference accuracy of Mr. W. at one end, and age of judge and inference accuracy about Mr. G. at one opposite end is not readily identified. No attempt will be made to do so here.

In summary, Factor I can be confidently identified as primarily observation accuracy. Factor II can be called a factor of inference accuracy about women, but this is done with less confidence than the identification of Factor I. Factors III and IV are not readily identified.

DISCUSSION

The Observational Component

The construction of a test to measure observation accuracy was considerably easier than construction of tests to measure other components. The criterion of accurate observation is readily available, and with filmed interviews the cues remain constant for all judges. The test constructed for this study was found to have a reasonable amount of reliability.

From the factor analysis it was found that all six observation tests loaded heavily on a single dimension. The five other tests that load on this same dimension may do so because of observation accuracy involved in them. In other words, the most obvious element that the eleven tests could have in common is measurement of observation accuracy. If we assume this is so, observation accuracy is an important dimension that can be measured with appropriate tests.

Tests of Hypotheses

To gain insight into the relation of observation accuracy and inference accuracy several sub-hypotheses were tested. They pertained to increasingly general relationships between the two.

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The first sub-hypothesis postulated that the ability
to observe a person accurately would be related to the
ability to make accurate inferences about that same person.
In general, the data supports this sub-hypothesis. There
is a positive relationship between the two accuracies. But
the fact that only half the correlations are statistically
significant indicates that observation accuracy accounts
for only part of inference accuracy.

The second sub-hypothesis stated that accuracy in
observing men is related to accuracy in making inferences
about women, and that accuracy in observing women is related
to making accurate inferences about men. The correlations
indicate that observation accuracy about women is related to
making accurate inferences about men as well as making
accurate inferences about women. Observation accuracy about
men had a significant correlation with making accurate
inferences about men, but was not significantly related to
making accurate inferences about women. Since most of the
judges were male, it might be concluded that men who are
accurate observers of women make accurate inferences about
both men and women, while men who are accurate observers of
men make accurate inferences about men but not about women.
However, in neither instance was the difference between cor-
relations statistically significant.

The third sub-hypothesis stated that observation
accuracy is related to stereotype accuracy (that accurate
observation of individuals is related to making accurate

inferences about groups). The hypothesis was tested for
stereotypes regarding various groups. Observation accuracy
about men was significantly related to stereotype accuracy
about Psychologists and to stereotype accuracy about women.
And observation accuracy about women was significantly re-
lated to stereotype accuracy about women. The correlation
coefficients of observation accuracy with stereotype accuracy
about the other groups tested were not statistically signifi-
cant.

Each succeeding sub-hypothesis tested a more general
relationship between observation and inference accuracy.
It is evident that as the relationship becomes more general
the strength of the relationship decreases. The relation
between observation accuracy about an individual and infer-
ence accuracy about the same individual is greater than the
relation between observation accuracy about an individual
and stereotype accuracy about most of the groups in this
study.

Observation accuracy was also found to be related to
course grade of the judge. It was suggested that this may
be because of the importance of accurate observation in
getting good grades, or because of a common factor such as
motivation which is important in getting good grades and
doing well on class projects.

This study has shown that observation accuracy is a
measurable dimension. It has also shown that observation
and inference accuracy are related, and that observation

accuracy and course grade are related.   The study has not
provided any insight concerning the "nature" of the relation-
ship between observation and inference accuracy.   This points
the way to further research.

But before this type of research can be done, several
prerequisites are necessary. The instruments used to measure
observation and inference accuracy must be refined.   Their
reliability and validity must be improved.   Once this is
accomplished they should be used to test large groups of
judges and the factor analysis should be replicated to define
factors more specifically than this study has done.   Experi-
ments could then be performed to find which kinds of obser-
vations are most important to making accurate inferences,
to investigate the nature of the relationship between obser-
vation and inference accuracy, and to find if judges can be
trained to observe more accurately.   When reliable and valid
instruments are available these kinds of research can be
done; whether meaningful results could be found without them
is questionable.

SUMMARY AND CONCLUSIONS

A test to measure observation accuracy, based on a color film of six interviews, was constructed. The film was made by Cline to use in conjunction with his inference accuracy test. This inference test was modified and also used in the present study. Tests to measure stereotype accuracy, leadership attitudes, and personality traits were available. Data was collected with each of these tests on each of the 70 judges who participated in the study.

A factor analysis was performed to find if observation accuracy is accounted for by an independent dimension of judgment accuracy. Correlational analysis was performed to explore the relationship between observation accuracy, inference accuracy, and stereotype accuracy (inference accuracy about groups). Further correlation was performed between observation accuracy and some other variables that might be related to this accuracy. These variables were course grade of the judge in this introductory Industrial Psychology course, age of the judge, score on a test of employee orientation, score on a test of differentiated role, score on a test of actual similarity, and score on a test of empathic drive.

The factor analysis indicates that the six subtests of observation accuracy are measuring a common factor. Several

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other variables also load heavily on this factor, but it is
quite clear that this is a factor that can be called obser-
vation accuracy. None of the other three factors rotated
show a clear cut composition and no attempt was made to
interpret them.

The correlational analysis lends some support to the
three sub-hypotheses. Sub-hypothesis 1, that observation
accuracy about an individual is related to inference accuracy
about that same individual, was given the most support. How-
ever, the small size of the correlations suggest that obser-
vation accuracy is only one determinant of inference accuracy.
Sub-hypothesis 2, that observation accuracy about men would
be related to inference accuracy about women and observation
accuracy about women would be related to inference accuracy
about men, was supported in part. The correlation between
observation accuracy about women and inference accuracy about
men was significant, but the correlation between observation
accuracy about men and inference accuracy about women was not
significant. Sub-hypothesis 3, that observation accuracy is
related to stereotype accuracy (inference accuracy about
groups) was also supported in part. Of the five stereotype
accuracies included in the study, only women stereotype and
psychologist stereotype correlated significantly. Of seven
other variables included in the study, only course grade of
the judge had a significant correlation with observation
accuracy. In other words, those judges who received high
grades in this introductory Industrial Psychology course were

the same people who were accurate observers.

This study has illustrated that observation accuracy
is a component that should be recognized when investigating
accuracy of judging people. The findings suggest that it
is at least a partial determinant of inference accuracy and
some kinds of stereotype accuracy.

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APPENDICES

Observation Test

DIRECTIONS:

You are about to see brief filmed interviews of people. At the end of each interview the projector will be stopped. You will then attempt to answer the 30 items about that person by recording your answers on the separate answer sheet.

The correct answers are known about how that person actually looked, what the person actually said, and the way acquaintances actually rated the person. Be sure to answer all items even if you feel you are guessing.

Mrs. P. — Observational

The following are statements about Mrs. P. If the statement is true, mark number <u>one</u> on your answer sheet. If the statement is false or if the film didn't give enough information to answer, mark number <u>two</u>.

H	L	D *		
93-76=17	T		1.	Her hair was parted in the middle.
83-56=27	F		2.	She wore a gold wedding ring.
73-46=27	T		3.	The first and third buttons of her coat were undone.
96-80=16	F		4.	She ran her finger along the edge of the table.
76-53=23	T		5.	She wore earrings.
66-33=33	T		6.	She said she loses her temper when tired and nervous.
90-66=24	F		7.	She said she can't remember faces very well.
73-56=17	T		8.	She said she doesn't make friends easily.
96-80=16	F		9.	Her hands came into view three times.
96-76=20	T		10.	She had black hair.
100-86=14	F		11.	Her watch had a gold strap on it.
93-83=10	T		12.	If she were given a million dollars she would pay her bills and then donate to crippled children.
73-33=40	F		13.	She had heavy eyebrows.
93-80=13	T		14.	The left side of her face was to the camera most of the time.
93-76=17	F		15.	Her children are two boys and a girl.
93-76=17	T		16.	She giggled sometimes.
93-56=37	F		17.	Her fingernails were polished red.
96-80=16	T		18.	She wore lipstick.
86-53=33	F		19.	She likes to teach children.
100-73=27	T		20.	She had her collar turned down.
93-73=20	F		21.	She had a rather low forehead.
86-70=16	T		22.	She would laugh off a lie told about her.
83-70=13	T		23.	She had a straight nose.
100-73=27	F		24.	She enjoys watching television.
70-46=24	F		25.	She couldn't say what kind of person she is.
93-80=13	F		26.	The sleeves on her coat were tapered toward the wrist.
100-83=17	F		27.	She said her husband works in a factory.
70-46=24	T		28.	Her hair was turned under on the ends.
96-63=33	T		29.	She started many sentences with "oh" or "well."
100-86=14	F		30.	She had gloves on.

* H = percent of high group who got item correct .
  L = percent of low group who got item correct.
  D = difference between H and L.

Mr. W. - Observational

The following are statements about Mr. W. If the statement is true, mark number <u>one</u> on your answer sheet. If the statement is not true or if it cannot be answered on information from the film mark number <u>two</u> on your answer sheet.

H   L   D *

100-76=24	F	31. He had straight hair.
90-60=30	F	32. He was clean shaven.
90-70=20	T	33. He likes music.
100-73=27	T	34. He says he is above average in intelligence.
93-56=37	F	35. He wore no shirt under his sweater.
93-66=27	T	36. He wants to better society.
66-46=20	T	37. He talks rather fast.
93-70=23	F	38. He doesn't think religion is important to people.
76-43=33	T	39. He said he is actually two different people.
96-70=26	T	40. He likes to play golf.
100-83=17	F	41. He was quite excited about being in the movies.
100-66=34	F	42. There were button cuffs on his sweater.
86-63=23	T	43. He has few friends.
96-80=16	F	44. He had a tooth missing in front.
100-70=30	F	45. He is an art student.
100-73=27	T	46. He said religion makes men able to live with each other better.
83-46=37	T	47. He likes to play tennis.
96-73=23	T	48. His sweater had horizontal stripes on it.
70-36=34	T	49. He put his left to his chin.
100-80=20	T	50. He dislikes spectator sports.
96-66=30	T	51. He hopes others see him as he sees himself.
93-53=40	F	52. Wore watch with its fave on the inside of his wrist.
76-53=23	F	53. He believes in God.
96-76=20	T	54. He said his personality handicap is that he tries too hard.
96-76=20	T	55. He said he is ambitious.
66-46=20	F	56. He had a deep dimple in his chin.
100-80=20	F	57. Said he lost his temper more often when he was young.
96-66=30	T	58. He leaned forward in his chair most of the time.
100-76=24	F	59. Said his wife understands him.
100-83=17	F	60. He kept his right hand in his lap.

* H = percent of high group who got item correct.
  L = percent of low group who got item correct.
  D = difference between H and L.

Mrs. N. – Observational

The following are statements about Mrs. N. If the statement is true mark number <u>one</u> on your answer sheet. If the statement is false or if it cannot be answered on information from the film, mark humber <u>two</u> on your answer sheet.

H	L	D*			
100-80	=	20	T	61.	She loses her temper often.
93-70	=	23	F	62.	She had false teeth.
83-60	=	23	F	63.	Her husband is dead.
70-46	=	24	T	64.	She thinks of her children in her spare time.
76-43	=	33	F	65.	She didn't wear any lipstick.
86-50	=	36	F	66.	She had a grey streak in her hair.
43-20	=	23	T	67.	She blinked her left eye often.
96-80	=	16	F	68.	She had on a black dress.
80-46	=	34	T	69.	She moved her hands often.
83-63	=	20	F	70.	She wore heavy rouge on her cheeks.
93-63	=	30	T	71.	She loses her temper because of problems in her work.
100-76	=	24	T	72.	She had on a black coat.
73-50	=	23	T	73.	She had waves in her hair.
53-33	=	20	T	74.	She carried a purse in her left hand.
86-50	=	36	F	75.	She didn't smile throughout the interview.
66-43	=	23	T	76.	The collar of her dress was unbuttoned.
96-63	=	33	T	77.	She is interested in society work.
96-80	=	16	F	78.	She reads quite a bit.
90-70	=	20	F	79.	She stuttered at times.
93-76	=	17	F	80.	Her coat was completely unbuttoned.
83-43	=	40	T	81.	She wore earrings.
56-33	=	23	T	82.	Her work is in the field of religion.
100-83	=	17	F	83.	She likes to play cards.
83-50	=	33	T	84.	Her hobbies take up most of her spare time.
96-70	=	26	T	85.	She held something in her left hand.
100-60	=	40	T	86.	She likes to crochet.
93-76	=	17	F	87.	She wore a gold watch on her left wrist.
83-53	=	27	T	88.	She works with about ten other people in her job.
90-76	=	14	F	89.	She enjoys house work.
93-76	=	17	F	90.	She had her ears pierced.

* H = percent of high group who got item correct.
L = percent of low group who got item correct.
D = difference between H and L.

Mr. Z. – Observational

The following are statements about Mr. Z. If the statement is true mark number <u>one</u> on your answer sheet. If the statement is false or if it cannot be answered on information from the film, mark number <u>two</u> on your answer sheet.

H	L	D*		
93-70=23		F	91.	He has a 1956 Ford convertible.
93-63=30		F	92.	He doesn't like to go to parties.
100-76=24		T	93.	He had a rather clear complexion.
90-76=14		F	94.	His sister borrows his car occasionally.
83-66=17		T	95.	His greatest personality handicap is not paying attention.
100-76=24		F	96.	He hates fishing and hunting.
90-70=20		T	97.	He has no difficulty making friends.
80-66=14		F	98.	He had a scar on the left side of his chin.
76-53=23		T	99.	He was wearing a shiny belt.
80-50=30		T	100.	He looked down most of the time.
100-86=14		F	101.	He is an aggressive person.
60-26=34		T	102.	He wouldn't like it if his brother took his car.
53-30=23		T	103.	He didn't mind being in the movies.
83-70=13		F	104.	He attends the Catholic church.
93-80=13		F	105.	His hair was neatly trimmed.
56-26=30		T	106.	If a lie was told about him he would get sore.
96-76=20		F	107.	He works as a stock boy in a grocery store.
100-83=17		F	108.	He held his cigarette in his left hand.
96-80=16		T	109.	He is easy to get along with.
100-80=20		F	110.	He had a gold class ring on his right hand.
93-73=20		T	111.	Religion keeps him from doing wrong.
96-63=33		T	112.	He was wearing black pants.
100-80=20		F	113.	He wore argyle socks.
100-73=27		T	114.	The first three buttons on his shirt were undone.
50-30=20		T	115.	He knit his brow often.
80-46=34		T	116.	He said people have a big conscience.
100-86=14		F	117.	He had a pen in his shirt pocket.
56-33=23		T	118.	He spoke with an accent.
86-56=30		F	119.	He lives with his parents.
83-36=47		T	120.	He is disturbed about the way people gather after parties.

* H = percent of high group who got item correct.
  L = percent of low group who got item correct.
  D = difference between H and L.

Mr. G. - Observational

The following are statements about Mr. G. If the statement is true mark number <u>one</u> on your answer sheet. If the statement is false or if it cannot be answered on information from the film, mark number <u>two</u> on your answer sheet.

H L D*			
100-83=17	F	121.	He came to the interview with his wife.
100-83=17	F	122.	He is devout in his religion.
90-66=24	T	123.	He had red hair.
70-33=37	F	124.	He said he had been in home movies many times.
56-40=16	F	125.	The top button of his shirt was buttoned.
100-80=20	T	126.	He had a rather high forehead.
100-86=14	T	127.	His shirt collar was open.
93-66=27	T	128.	He looked at his hands often.
96-60=36	F	129.	He was wearing a wedding ring.
86-73=13	T	130.	He likes dancing.
96-83=13	F	131.	He wouldn't take a bawling out from his boss without arguing.
100-86=14	F	132.	He said he is of above average intelligence.
93-73=20	F	133.	He likes to run around and live it up.
100-83=17	T	134.	His hobby is woodworking.
86-73=13	T	135.	He is getting into the stable class.
100-76=24	F	136.	He said he would like to have a million dollars.
63-50=13	T	137.	His hair had a little grey in it.
100-56=44	F	138.	Most of his family are poor.
93-80=13	T	139.	He enjoys hunting.
96-83=13	T	140.	He was holding a paper in his hands.
100-76=24	F	141.	He said he was nervous.
100-53=47	F	142.	He has a highschool education.
100-70=30	T	143.	His hair was messed up.
93-40=53	F	144.	He trusts his wife.
100-40=60	F	145.	He likes to watch T.V.
83-66=17	T	146.	His jacket was red, black, and white.
100-56=44	F	147.	He enjoys hillbilly music.
86-63=23	T	148.	His lips were rather thin.
100-86=14	F	149.	He was wearing four buckle boots.
100-50=50	F	150.	His oldest child is a boy.

* H = percent of high group who got item correct.
 L = percent of low group who got item correct.
 D = difference between H and L.

Mrs. D. - Observational

The following are statements about Mrs. D. If the statement is true mark number **one** on your answer sheet. If the statement is false or if it cannot be answered on information from the film, mark number **two** on your answer sheet.

H	L	D*			
90-76	=	14	T	151.	She had her purse on her lap.
100-86	=	14	F	152.	She never gets excited about things.
43-23	=	20	F	153.	She kept her hands in her lap.
66-46	=	20	T	154.	She has a long thin neck.
100-86	=	14	F	155.	She never gets to church on time.
83-63	=	20	F	156.	A lie told about her wouldn't disturb her.
93-76	=	17	T	157.	She has high cheek bones.
100-86	=	14	F	158.	She was an only child.
96-80	=	16	T	159.	She likes to sew.
90-76	=	14	F	160.	She had a double chin.
100-83	=	17	F	161.	She had thick lips.
90-63	=	27	F	162.	She wore a wide leather belt.
90-73	=	17	T	163.	She was wearing a black shirt.
30-13	=	17	T	164.	She frowned often.
100-83	=	17	F	165.	She wore a ribbon in her hair.
76-56	=	20	T	166.	She moved her hands when talking.
100-90	=	10	F	167.	She gets angry easier now than when she was younger.
66-30	=	36	F	168.	She had pale cheecks.
96-86	=	10	F	169.	She had a gold watch on her wrist.
83-66	=	17	F	170.	Her hair was parted in the middle.
100-86	=	14	T	171.	She says religion is to cling to.
23-10	=	13	T	172.	She looked off into space when answering questions.
100-76	=	24	F	173.	She likes to read romance magazines.
86-66	=	20	T	174.	She expects people to be inconsiderate.
90-70	=	20	T	175.	She feels we would be defeated if we knew there was no God.
96-73	=	23	T	176.	She is curious about people.
56-30	=	26	T	177.	She wasn't wearing a wedding ring.
60-30	=	30	T	178.	She had her hair cut in bangs in front.
100-86	=	14	F	179.	She had a brooch on the left side of her sweater.
93-46	=	47	T	180.	She loses her temper because of inconsiderate people.

* H = percent of high group who got item correct.
L = percent of low group who got item correct.
D = difference between H and L.

APPENDIX B

Inference Test

Directions:

You are about to see brief filmed interviews of people. At the end of each interview the projector will be stopped. You will then be asked to say whether you think the statements about the person were true or not. The correct answers are known from longer interviews with the person, the answers to questions, and from the comments of his friends.

Mrs. P. – Inference Test

Mrs. P. answered <u>true</u> or false to the following inventory statements. You are to answer them as you think <u>she</u> answered them.

H L D*

100-83=17 T 1. Love to me is a wonderful and beautiful thing.
90-53=37 F 2. When I'm criticized, I don't appreciate it.
66-43=23 F 3. I worry over money and business.
80-33=47 F 4. When I am feeling very happy and active, someone who is blue or low will spoil it all.
90-56=34 T 5. I like to visit places where I have never been before.
93-60=33 T 6. I find it hard to set aside a task that I have undertaken, even for a short time.
93-56=37 F 7. My parents were too strict with me when I was a child.
66-33=33 F 8. It took me a long time to learn things in school.
100-80=20 T 9. I'm nearly always on time for appointments.

Mark the following statements <u>true</u> or <u>false</u>.

93-53=40 T10. Mrs. P. agreed that, God will punish those who disobey His commandments and reward those who obey Him, either in this world or in a future life.
83-70=13 F11. Mrs. P. agreed that, people don't necessarily need to believe in God in order to live good lives and have a high system of ethics and morals.
93-50=43 T12. Mrs. P. agreed that, when she is in doubt, she usually found it best to stop and ask God for guidance.

People who Mrs. P. well, marked the following statements about her true or false. You are to mark them as you think <u>they</u> marked them.

100-73=27 T13. She is an exceptionally hard-working and energetic person.
100-50=50 F14. She is usually late or delinquent in paying bills and debts.
93-73=20 T15. With her children she maintains quite firm and strict discipline.
80-33=47 T16. At a party she can unbend and have a good time.
100-80=20 F17. She is rather selfish and self-centered.
96-56=40 T18. She is an exceptionally sound and emotionally stable person.

Mrs. P. was rated on each of the traits below by persons who knew her well. If you think they considered the trait as being bescriptive of Mrs. P., mark number <u>one</u> on the answer sheet; if you think they considered the trait nondescriptive of Mrs. P., mark number <u>two</u>.

70-16=54 1 19. Confident   ** 22. Affectionate   25. Ambitious
96-73=23 2 20. Egotistical   23. Careful   26. Unrealistic
46-16=30 2 21. Shy   24. Impractical

Mrs. P. has chosen <u>one</u> adjective from each pair of adjectives below as being most descriptive of <u>herself</u>. Mark on your answer sheet the one from each pair you think she chose.

					H L D
				**22.	1 96-63=33
				23.	1 96-70=26
				24.	2 93-70=23
				25.	1 70-30=40
				26.	2 96-66=30

96-73=23 2 27. (1) tough (2) healthy
96-63=33 1 28. (1) frank (2) dreamy
100-80=20 1 29. (1) active (2) artistic
93-53=40 1 30. (1) responsible (2) emotional

* H = percent of high group who got item correct.
  L = percent of low group who got item correct.
  D = difference between H and L.

Mr. W. - Inference Test

Mr. W. answered <u>true</u> or <u>false</u> to the following inventory statements. You are to answer them as you think <u>he</u> answered them.

H   L   D*

30-13=17 F	31.	At the party I was quite shy and reserved.
87-57=30 T	32.	When I meet people I generally feel indifferent.
93-73=20 F	33.	I enjoy sports more than great music.
93-73=20 F	34.	I don't feel guilty about lying.
57-33=24 T	35.	Religion seems to me to be a problem.
97-77=20 F	36.	I frequently ask people for advice.
70-50=20 F	37.	At times I think I'm no good at all.
60-30=30 T	38.	I have had more unusualy experiences than most people.
87-66=21 T	39.	I enjoy reading about history.
93-43=50 F	40.	My relatives often take my side in arguments.

People who knew Mr. W. well, marked the following statements about him <u>true</u> or <u>false</u>. You mark them as you think <u>they</u> marked them.

87-57=30 F	41.	He is somewhat secure, warm, and easygoing person.
43-10=33 T	42.	He is in a state of rebellion against all religion.
100-90=10 F	43.	He is rather fussy about what he eats and how it is prepared.
83-47=36 T	44.	He tends to stew about things, change his mind back and forth before making major decisions.
90-66=24 T	45.	He would enjoy work in creating floral displays, and artistic work.

Mr. W. was rated on each of the traits below by persons who know him well. If you think they chose the trait as being descriptive of Mr. W., mark number <u>one</u> on the answer sheet for that trait. If you think they considered the trait nondescriptive of Mr. W., mark number <u>two</u> for that trait.

83-66=17	1	46. Confident	70-47=23	2	48. Friendly
77-53=24	1	47. Egotistical	70-37=33	1	49. Rebellious

Mr. W. has chosen <u>one</u> adjective from each pair of adjectives below as <u>being descriptive of himself</u>. Mark on your answer sheet the one from each pair you think <u>he</u> chose.

87-60=27	1	50.	(1) cool (2) timid
77-50=27	1	51.	(1) severe (2) hardhearted
97-66=31	2	52.	(1) goodnatured (2) sincere
100-73=27	1	53.	(1) snobbish (2) hostile
97-77=20	2	54.	(1) inventive (2) independent
57-27=30	1	55.	(1) restless (2) unemotional
100-63=37	2	56.	(1) outgoing (2) progressive
100-77=23	2	57.	(1) witty (2) responsible
53-20=33	1	58.	(1) arrogant (2) apathetic
90-70=20	2	59.	(1) thrifty (2) frank
97-60=37	1	60.	(1) egotistical (2) stingy

* H = percent of high group who got item correct.
  L = percent of low group who got item correct.
  D = difference between H and L.

Mrs. N. answered true or false to the following inventory statements. You are to answer them as you think she answered them.

H	L	D*		
73-46=27			61.	When they didn't invite me I knew they had a reason. T
100-63=37			62.	If I can't get what I want, I usually get along without it. T
100-86=14			63.	When they told me what to do, I did just the opposite. F
83-70=13			64.	When I make mistakes I don't get embarrassed. F
90-60=30			65.	I have nightmares every few nights. F
50-20=30			66.	It takes a lot of argument to convince most people of the truth. F
56-30=26			67.	I seldom have quarrels with the members of my family. T
100-83=17			68.	Policemen are usually honest. T
96-53=43			69.	No one cares much what happens to you. F
56-23=33			70.	When someone annoys me I don't mind telling him what I think of him. F
46-16=30			71.	I enjoy reading about history. T
100-70=30			72.	At times I have a strong urge to do something shocking or harmful. F

People who know Mrs. N. well, marked the following statements about her true or false. You are to mark them as you think they marked them.

100-70=30	73.	She is very conscientious and responsible.	T
80-43=37	74.	She is always complaining about aches and pains.	F
70-50=20	75.	She is not very good at budgeting money.	F
100-56=44	76.	She is quite unselfish and interested in pleasing others.	T
73-30=43	77.	Emotionally, she is a very stable and well balanced woman.	T

Mrs. N. was rated on each of the traits below by persons who know her well. If you think they chose the trait as being descriptive of Mrs. N. mark number one on the answer sheet for that trait. If you think they considered the trait nondescriptive of Mrs. N., mark number two for that trait.

100-70=30	78.	Cooperative	1	66-46=20	81. Ambitious	1
53-33=20	79.	Confident	1	93-63=30	82. Impractical	2
83-40=43	80.	Unrealistic	2	100-66=34	83. Rebellious	2

Mrs. N. has chosen one adjective from each pair of adjectives below as being descriptive of herself. Mark on your answer sheet the one you think she chose.

90-56=34	84.	(1) discreet (2) suggestible	1
76-60=16	85.	(1) progressive (2) contented	2
95-80=16	86.	(1) clever (2) clear-thinking	2
96-76=20	87.	(1) charming (2) appreciative	2
100-60=40	88.	(1) understanding (2) timid	1
95-70=26	89.	(1) conscientious (2) easygoing	1
100-60=40	90.	(1) reliable (2) feminine	1

*H = percent of high group who got item correct.
 L = percent of low group who got item correct.
 D = difference between H and L.

Mr. Z. - Inference Test

Mr. Z. answered true or false to the following inventory statements. You are to answer them as you think he answered them.

H L D*
96-66=30	T 91.	If I can't get what I want, I wait.
90-63=27	F 92.	It doesn't bother me when I say the wrong thing.
96-50=46	F 93.	When I make a mistake I don't "give a damn".
90-50=40	F 94.	At times I have a strong urge to do something harmful.
100-86=14	F 95.	I refuse to play some games because I'm not good at them.
50-30=20	T 96.	I enjoy children.
86-50=36	T 97.	I seldom have quarrels with the members of my family.
96-50=46	F 98.	My parents were too strict with me as a child.
86-40=46	T 99.	I am very sensitive to what others think of me.
86-50=36	T 100.	It makes me uncomfortable to have a lot of people around me.

Mark the following statements _true_ or _false_.

| 86-66=20 | T 101. | Mr. Z. agreed that God will punish those who disobey His commandments and reward those who obey Him, either in this world or a future life. |
| 80-43=37 | F 102. | Mr. Z. agreed that if there is a "God" it is only an impersonal creative force in the universe. |

People who know Mr. Z. marked the following statements about him _true_ or _false_. You are to mark them as you think _they_ marked them.

100-90=10	F 103.	At a party he tends to be at ease and comfortable.
93-70=23	T 104.	On the job he is regarded as very reliable and hard working.
96-50=46	T 105.	He is a rather quiet and humble person.
100-70=30	T 106.	People who know him say he is loyal, honest, and kind.

Mr. Z. was rated on each of the traits below by persons who know him well. If you think they chose the trait as being descriptive of Mr. Z. mark number _one_ on your answer sheet for that trait. If you think they considered the trait nondescriptive of M. Z., mark number _two_ for that trait.

100-86=14	1 107.	Cooperative	100-76=24	2 111.	Unrealistic
100-86=14	1 108.	Shy	83-33=50	2 112.	Stubborn
100-76=24	2 109.	Egotistical	86-56=30	1 113.	Careful
96-63=33	2 110.	Rebellious	100-43=57	2 114.	Impractical

Mr. Z. has chosen _one_ adjective from each pair of adjectives below as being _descriptive of himself_. Mark on your answer sheet the one you think he chose.

80-40=40	2 115.	(1) bossy (2) reasonable
100-80=20	2 116.	(1) handsome (2) honest
100-66=34	1 117.	(1) modest (2) resourceful
100-60=40	1 118.	(1) reserved (2) artistic
93-56=37	1 119.	(1) contented (2) quick
86-46=40	2 120.	(1) versatile (2) mannerly

Mr. G. - Inference Test

Mr. G. answered <u>true</u> or <u>false</u> to the following inventory statements. You are to answer them as you think <u>he</u> answered them.

H	L	D*			
86-53=33			T	121.	At the party I was a little shy and reserved.
73-13=60			F	122.	I could hate a person who is a hypocrite and two faced.
100-90=10			T	123.	When they told me what to do I did it.
90-63=27			F	124.	When they offered me help I refused.
80-66=14			T	125.	I boiled up when I saw people hurting others.
96-66=30			T	126.	I enjoy children.
73-60=13			T	127.	My hardest battles are with myself.
100-76=24			F	128.	I'm often the center of attention at a party.
93-73=20			F	129.	My parents were too strict with me as a child.
96-76=20			T	130.	I seldom have quarrels with members of my family.

Mark the following statement true or false.

43-23=20 T 131. Mr. G. agreed that people don't necessarily need to believe in God in order to live good lives and have a high system of ethics and morals.

People who know Mr. G. well, marked the following statements about him <u>true</u> or <u>false</u>. You are to mark them as you think <u>they</u> marked them.

60-20=40 F 132. He is somewhat dominating.
96-70=26 F 133. He tends to be very ambitious.
83-50=33 F 134. He is rather strict in handling his 12 year old son.
70-16=54 T 135. At parties he enjoys himself but is not much noticed.

Mr. G. was rated on each of the traits below by persons who know him well. If you think they chose the trait as being descriptive of Mr. G. mark number one on the answer sheet for that trait. If you think they considered the trait nondescriptive of Mr. G., mark number two for that trait.

96-80=16 1 136. Friendly		80-30=50 2 139.	Impractical
100-70=30 2 137. Egotistical		100-86=14 1 140.	Shy
100-73=27 1 138. Affectionate		90-56=34 2 141.	Ambitious

Mr. G. has chosen <u>one</u> adjective from each pair of adjectives below as being descriptive of himself. Mark on you answer sheet the one you think <u>he</u> chose.

76-50=26 2 142. (1) mannerly (2) friendly
90-66=24 1 143. (1) contented (2) forceful
100-80=20 2 144. (1) painstaking (2) good natured
93-70=23 2 145. (1) superstitious (2) dependent
86-33=53 1 146. (1) foolish (2) cynical
30-16=14 2 147. (1) witty (2) relaxed
93-73=20 1 148. (1) suggestible (2) fussy
83-60=23 1 149. (1) affectionate (2) quick
83-46=37 2 150. (1) robust (2) stable

* H = percent of high group who got item correct.
 L = percent of low group who got item correct.
 D = difference between H and L.

Mrs. D. – Inference Test

Mrs. D. answered true or false to the following inventory statements.
You are to answer them as you think she answered.

H	L	D*			
96-80=16			F	151.	I'm not afraid of hurting others.
96-83=13			T	152.	Sex is reserved for marriage.
100-83=17			F	153.	When my conscience begins to bother me I ignore it.
60-36=24			F	154.	I don't have much of an appetite.
80-50=30			F	155.	I easily become impatient with people.
73-43=30			F	156.	I practically never blush.
70-40=30			T	157.	I frequently ask people for advice.
76-50=26			F	158.	No one cares much what happens to you.
50-40=10			T	159.	I worry over money and business.

Mark the following statements true or false.

80-43=37 T 160. Mrs. D. agreed that God will punish those who disobey His commandments and reward those who obey Him, either in this life or a future life.

66-30=36 T 161. Mrs. D. agreed that there exists an evil intelligence, personnage or spirit in the universe often referred to as Satan or the Devil.

50-16=34 T 162. Mrs. D. agreed that people don't necessarily need to believe in God in order to live good lives and have a high system of ethics and morals.

100-86=14 F 163. Mrs. D. is unable to accept the idea of "life after death", at least not until we have definite evidence there is such a thing.

People who Mrs. D. well, marked the following statements about her
true or **false**. You are to mark them as you think **they** marked them.

100-86=14 T 164. She enjoys herself very much at social gatherings.

93-66=27 T 165. Her hobby gives her satisfaction because she doesn't want to be just a housewife.

93-60=33 F 166. People rarely go to her with their problems.

100-83=17 T 167. She is open and warm in showing affection.

53-33=20 F 168. When she feels blue she has to get off by herself.

Mrs. D. has chosen **one** adjective from each **pair** of adjectives below as
being **descriptive of herself**. Mark on your answer sheet the one you

think **she** chose.

90-66=24 2 169. (1) charming (2) ambitious
50-33=17 1 170. (1) unconventional (2) unassuming
80-66=14 1 171. (1) changeable (2) submissive
80-36=44 2 172. (1) efficient (2) interests wide.
90-50=40 2 173. (1) quiet (2) original
73-53=20 1 174. (1) tolerant (2) steady
86-33=53 2 175. (1) conservative (2) individualistic
100-76=24 1 176. (1) adventurous (2) bossy
93-60=33 1 177. (1) affectionate (2) poised
90-63=27 2 178. (1) forgetful (2) impulsive
90-56=34 2 179. (1) pleasureseeking (2) curious
100-80=20 1 180. (1) realistic (2) meek

* H = percent of high group who got item correct.
  L = percent of low group who got item correct.
  D = difference between H and L.

APPENDIX C

LIST OF THIRTY-NINE VARIABLES INTERCORRELATED

1. Age of judge.
2. Total stereotype accuracy test.
3. Men stereotype accuracy test.
4. Women stereotype accuracy test.
5. Sex difference stereotype accuracy test.
6. Age stereotype accuracy test.
7. Psychologist stereotype accuracy test.
8. Actual similarity test.
9. Mullin empathic drive test.
10. Employee orientation test.
11. Differentiated role test.
12. Course grade of the judge.
13. Mrs. P. observation accuracy test.
14. Mrs. P. inference accuracy test.
15. Mrs. P. observation plus inference accuracy (13 & 14).
16. Mr. W. observation accuracy test.
17. Mr. W. inference accuracy test.
18. Mr. W. observation plus inference accuracy (16 & 17).
19. Mrs. N. observation accuracy test.
20. Mrs. N. inference accuracy test.
21. Mrs. N. observation plus inference accuracy (19 & 20).
22. Mr. Z. observation accuracy test.
23. Mr. Z. inference accuracy test.
24. Mr. Z. observation plus inference accuracy (22 & 23).
25. Mr. G. observation accuracy test.
26. Mr. G. inference accuracy test.
27. Mr. G. observation plus inference accuracy (25 & 26).
28. Mrs. D. observation accuracy test.
29. Mrs. D. inference accuracy test.
30. Mrs. D. observation plus inference accuracy (28 & 29).
31. Total of all observation accuracy tests (13. 16. 19. 22. 25. & 28).
32. Total of all inference accuracy tests (14. 17, 20, 23, 26. & 29).
33. Total of all observation plus all inference tests (31 & 32).
34. Total of Mrs. P., N., & D. observation accuracy tests (13. 19. & 28).
35. Total of Mrs. P., N., & D. inference tests (14, 20, & 29).
36. Total of Mrs. P. N., & D. observation plus inference tests (34 & 35).
37. Total of Mrs. W., Z., & G. observation accuracy tests (16, 22, & 25).
38. Total of Mr. W., Z., & G. inference accuracy tests (17, 23, & 26).
39. Total of Mr. W., Z., & G. observation plus inference tests (37 & 38).

INTERCORRELATION OF TEST SCORES COMBINATIONS OF TEST SCORES AND DEMOGRAPHIC VARIABLES*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

* r of .24 or greater is significant at 5% level.

INTERCORRELATION OF TEST SCORES* (continued)

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
1.																				
2.																				
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16.																				
17.																				
18.																				
19.																				
20.																				
21.	84																			
22.	03	26																		
23.	26	36	30																	
24.	21	39	71	39																
25.	15	41	32	35	42															
26.	30	31	07	20	18	20														
27.	30	46	24	35	37	74	81													
28.	10	30	29	22	31	41	17	37												
29.	32	41	12	33	31	11	11	14	25											
30.	29	56	24	36	23	30	17	30	72	85										
31.	19	65	65	40	61	71	25	60	66	18	49									
32.	64	73	21	67	61	30	13	55	30	65	63	39								
33.	11	61	51	65	73	59	49	69	56	52	67	34	86							
34.	23	65	37	29	39	51	24	47	74	21	55	86	36	70						
35.	74	78	13	41	37	18	34	34	26	76	69	25	89	71	28					
36.	62	33	29	44	47	40	37	49	53	65	73	64	92	88	74	85				
37.	10	45	73	40	65	72	20	57	43	11	31	83	32	69	51	16	39			
38.	37	46	28	77	71	35	62	64	27	33	33	44	85	79	35	50	54	42		
39.	26	46	60	70	81	63	49	72	41	26	41	78	70	83	51	40	45	84	85	

* r of .24 or greater is significant at 5% level.

APPENDIX D

MEANS AND STANDARD DEVIATIONS OF SCORES
ON OBSERVATION AND INFERENCE TESTS

Observation Tests	Means	Standard Deviations
Mrs. P.	23.63	2.99
Mr. W.	23.91	3.52
Mrs. N.	22.23	3.10
Mr. Z.	22.27	2.91
Mr. G.	23.90	3.38
Mrs. D.	22.27	2.65
Total	138.21	12.00

Inference Tests	Means	Standard Deviations
Mrs. P.	22.24	4.21
Mr. W.	19.84	3.15
Mrs. N.	21.37	3.58
Mr. Z.	23.07	4.46
Mr. G.	22.03	3.90
Mrs. D.	20.96	3.51
Total	130.01	13.94