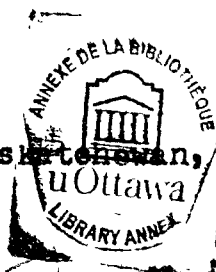


SOCIAL DESIRABILITY AND THE PERCEPTION OF FACES
IN THE SZONDI TEST

by John T. Hamilton

Thesis presented to the School of Psychology
and Education of the University of Ottawa as
partial fulfillment of the requirements for
the degree of Doctor of Philosophy.

Saskatoon, Saskatchewan, 1961.



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ACKNOWLEDGMENTS

This thesis was prepared under the supervision of Professor Gilles Chagnon, M. Ps., of the School of Psychology and Education of the University of Ottawa.

The writer wishes to express his appreciation to the members of the Department of Psychology, University of Saskatchewan, for their help in obtaining subjects, to D. Sydiaha, Ph. D., for his assistance in programming for the electronic computer the data used in the thesis, and to D. G. McKerracher, M. D., Professor of Psychiatry, University of Saskatchewan, at Saskatoon, who made arrangements for the necessary financial support.

CURRICULUM STUDIORUM

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INTRODUCTION

Recent research has suggested that most personality inventories are strongly affected by a factor which has been labelled social desirability. The psychologists who have demonstrated that this factor is operating in many tests have pointed to the strong relationship between the number of times a question is answered in the affirmative and the independently rated social implication of the behaviour suggested by this question. It has also been implied in these studies that many personality profiles, which have hitherto been felt to reflect individual characteristics, are in fact artifacts resulting from the discrepancies in the social desirability or popularity of the individual items comprising the test. One of the more important implications arising from the studies involving social desirability, then, is the suggestion that before a profile can be considered to reflect distinctive personality characteristics, it is necessary to show that it is not influenced by discrepancies in the popularity of the test items.

The Szondi test was felt to be particularly well suited to a study which aimed at examining the relationship between test profiles and the popularity of the items comprising the test. First, the results of the Szondi test are arranged in the form of configurations or patterns. These

patterns have been attributed to existing differences in personality. Second, the popularity of the cards had been investigated in previous research studies and marked discrepancies among the items making up the test were known to exist. Third, the use of faces as stimuli was believed to present a promising area to search for differences in individual preference.

The first chapter of the thesis involves a review of the literature. It begins with a description of the Szondi test and Szondi's theory. The current status of Szondi research is discussed. This is followed by a general discussion of the perception of faces. Those publications forming the background to the present study are then presented along with their theoretical implications. In the final section of the review of literature the hypothesis is stated.

The second chapter discusses the experimental design. It describes the subjects, the controls, the procedures used in administering the tests, and the methods used in analyzing the results.

The results of the experiment form the next chapter in the study. This section includes the statistical values obtained from the experiment and the results of the various tests of significance. A final chapter involves a discussion of these results. Special emphasis is placed on the generality of the findings and reliability of the experiment.

The importance of the results from the standpoint of the Szondi test is discussed and the implications for further research presented.

An appendix gives in tabular form the raw-score values found in a research study which formed the background to the present investigation.

CHAPTER I

REVIEW OF THE LITERATURE

The literature on the Szondi test is steadily increasing. Although there is, at present, no official count of the number of references to either Szondi's theory or his test, a bibliography by David¹ lists 375 references up to 1953. Mahoney² published a further bibliography including thirty-nine entries for the years 1954 and 1955. When it is considered that Szondi workers are very active and that the content of one publication is devoted entirely to work done on this technique, it can be seen that some means of classifying these studies is necessary.

Many of the studies on the Szondi are in the form of clinical reports; case studies in which the Szondi has proven of special interest either as a diagnostic tool or in the manner in which it revealed personality dynamics. These isolated clinical cases have supported the clinician in his belief that the Szondi is a useful clinical tool.

1. Henry P. David, "A Szondi Test Bibliography, 1939-1953," in the Journal of Projective Techniques, Vol. 18, No. 1, issue of March, 1959, p. 17.

2. Stanley C. Mahoney, "Szondi Bibliography, 1954-1955," in the Szondi Newsletter, Vol. 5, No. 2, issue of April, 1956, p. 13.

A further group of studies is concerned with what is called criterion validity³. That is, how effective a Szondi sign or combination of signs differentiates between people of known personality characteristics. An examination of the criterion validity of a technique requires that the psychologist divide people on the basis of diagnostic labels, aggressive or dependent traits, or similar distinctive features. This type of validity study probably presents the greatest difficulties to the research worker.

A third group of research studies attempts to test Szondi's theoretical formulations. This type of research leads to a consideration of the construct validity of the test, whether or not the implications of Szondi's theory are consistent with experimental results. In studies of construct validity the researcher is attempting to prove by implication that a particular psychological concept is valid. As Cronbach and Meehl⁴ point out, "Construct validation is involved whenever a test is to be interpreted as a measure of some attribute or quality which is not operationally defined."

3. Lee J. Cronbach and Paul F. Meehl, "Construct Validity in Psychological Tests," in the Psychological Bulletin, Vol. 52, No. 4, issue of July, 1955, p. 281.

4. Idem; ibidem, p. 282.

In the present study no attempt is made to review the numerous case studies which have employed the Szondi test. These studies offer testimonials to the soundness and effectiveness of the technique but do not, in themselves, constitute a validation of Szondi's theory. The first sections describe the structure of the Szondi test. This is followed by discussions of Szondi's theory and the current status of research in the perception of faces. Those studies which are directly concerned with construct validity and which form the background to the present experiment are then presented. A discussion of the dimension of social desirability and the theoretical argument which is the background to this study forms the final section. The chapter is concluded with a statement of the hypothesis.

1. The Szondi Test.

The Szondi test is comprised of forty-eight pictures of persons suffering from severe forms of mental illness. In the test there are eight psychiatric categories: homosexuals, sadists, epileptics, hysterics, catatonic schizophrenics, paranoid schizophrenics, manic-depressives in the depressed phase of illness, and manic-depressives in the manic phase of illness. The portraits are grouped into six sets of eight pictures. Each set contains one portrait from each of the eight diagnostic categories.

During the regular administration of the test the cards are displayed in their individual sets. The subject is required to select two portraits which he "likes" or feels are most "pleasant" and two portraits which he "dislikes" or feels are most "unpleasant". Thus from the total of six sets of cards each subject makes twenty-four selections, divided into twelve "liked" and twelve "disliked" choices.

A subject's selections are recorded in the form of a profile. A Szondi test form consists of eight vertical columns, called factors, representing each of the psychiatric categories. A horizontal line divides the profile in half in order that "positive" or "liked" choices in a category might be recorded above the line and "negative" or "disliked" below the line.

There are four possible reactions to each category or factor. If a subject does not select the cards in a category or if he makes only one selection the factor is scored as "open". If his choices in a factor tend to be divided somewhat equally between "liked" and "disliked" selections the score for the category is "ambivalent". When the subject's reactions to the faces in a selected category are "preferred" or "liked" the factor is recorded as positive. When "disliked" reactions predominate, the factor is registered as negative.

2. Szondi's Theory.

The choice of photographs in the Szondi test is explained by what Szondi⁵ would consider his general theory involving the psychology of choice. Alternative theories are lacking. Deri⁶, a student of Szondi, has proposed certain modifications in the theoretical explanations governing the selection of portraits. However, the innovations in theory that Deri introduces appear to be aimed more at making Szondi interpretation acceptable to North American psychologists, than presenting a new theoretical position. They are, therefore, not of great importance.

Szondi's theory⁷ can be stated simply as a psychology of choice. Szondi feels that one of the outstanding features of human life involves the fact that people are constantly faced with the necessity of making choices. He also feels that for the most part the choices made are a result of coercive influences. Thus he classifies the various sources from which coercive influences might arise. He sees society and culture in general as being two of the principal sources

5. Lipot Szondi, Ulrich Moser, and Marvin W. Webb, The Szondi Test, Philadelphia, Lippincott, 1959, xv-309 p.

6. Susan K. Deri, Introduction to the Szondi Test: Theory and Practice, New York, Grune and Stratton, 1949, xiv-354 p.

7. Szondi, Op. Cit., p. 5.

of forced choice. However, Szondi has not emphasized cultural and social influences in his psychology of choice. By far the greater portion of his writings are concerned with the inherited tendencies which in one way or another act to direct one's choice of objects, interests, friends, and mate. Szondi pictures the majority of individuals as going through life with very little to say about what they will or will not do. Thus he speaks of his psychology as an analysis of fate.

At the centre of Szondi's theory⁸ is his system of dialectics. Compulsive or coercive choice manifests itself in bipolar form: either-or, like-dislike, friend-enemy, etc. He feels the struggle for mental health is in reality a struggle against the coercive influences which lead to either-or choices. To Szondi freedom of choice represents the rarely achieved ultimate in human adjustment.

The Szondi test, in keeping with the general theory, is a forced choice technique. Szondi⁹ feels that the use of pressure, usually in the form of insistence in a test situation or for that matter in therapy, coincides with the general characteristics governing human choices in

8. Szondi, Op. Cit., p. 4.

9. Szondi, Op. Cit., p. 250.

interpersonal relationships. Szondi's theory of personality resembles psychoanalytic theories. For this reason, he can be classified as a depth psychologist.

Szondi has shown much interest in the ancestors of his subjects. He attempts to trace abnormalities by examining the patterns of choices of his subjects and their relatives. His efforts, however, remain very much on the descriptive level and appear to lack the rigid controls usually found in connection with studies on heredity¹⁰.

3. Perceiving Faces.

Perceiving faces is closely associated with what the social psychologist calls "person perception"¹¹. Although this terminology is somewhat awkward, it implies a concept for which there is, at present, no other descriptive label. In using this concept the social psychologist is referring to the fact that our behaviour is greatly influenced by our knowledge that other people are perceivers or potential perceivers. Traditional emphasis in perception has been concerned with the behavioural changes occurring

10. Franz J. Kallmann, The Genetics of Schizophrenia, New York, Augustin, 1938, xvi-289 p.

11. Renato Tagiwri, and Luigi Petrullo, Person Perception and Interpersonal Behaviour, Stanford, Stanford University Press, 1958, xvii-390 p.

as a result of a subject's different perceptual experiences. The social psychologist, however, emphasizes what happens to the subject as a result of his knowing others can perceive and therefore know or judge him.

Our first contact with others is usually social in nature. Also the first information we have of another is usually that of his appearance. The appearance of another person provides us with a non-verbal form of information. Of the presenting features in any one person's make-up, his facial features represent one of the more obvious aspects of his appearance. The human face is such a prominent physical attribute that it leads, rightly or wrongly, to emphasis being placed on this area of anatomy as a means of knowing a person. Secord¹² points out that throughout history there has been an emphasis on facial characteristics as a means of depicting the personal attributes or essential qualities of a person. Statues, paintings, the daily newspaper, all use the face as a means of providing a personal contact which otherwise would not be obtained.

The mistaken or faulty use of facial features in judging a person is a common experience. Many times a person's features leads us to expect a certain type of

12. Paul F. Secord, "Facial Features and Inference Processes in Interpersonal Perception," in Renato Tagiuri and Luigi Petrullo, Person Perception and Interpersonal Behaviour, Stanford, Stanford University Press, 1958, p. 300-301.

personality. Often, however, the behaviour of the person is contrary to that anticipated and it is obvious that our initial impression was faulty. The psychology of judging people on the basis of their facial features has much in common with Bruner's¹³ discussion of concept formation. He points out that many attributes are unnecessary for the formation of correct concepts in a problem situation. Frequently these unnecessary attributes are the ones which stand out or articulate most clearly. His example is that of a yellow car. The color yellow is superfluous to the concept car, yet it is one of the outstanding attributes. When a characteristic is outstanding but unnecessary or likely to lead to false concept formation it is spoken of as a noisy attribute. Noisy, in the sense that it commands attention but is not necessary, and at times even harmful to correct judgment.

The human face is in many respects a noisy attribute. It occupies a prominent position and is used as a source of information. The question can be asked, why do people employ unreliable sources of information such as facial features when the actual behaviour of a person provides for much more

13. Jerome S. Bruner, Jacqueline J. Goodnow, and George A. Austin, A Study of Thinking, New York, John Wiley, 1956, xi-330 p.

stable judgment? The answer, as Bruner¹⁴ points out, seems to be that people are continually making judgments on the basis of incomplete or scanty information. Bruner states that, "...most complex perception, particularly in our social lives, is dependent upon the integration of information of a far less reliable kind than we normally provide in a tachistoscope at rapid exposure." Bruner's concept appears to be a rephrasing of the Gestalt principle of perceptual simplicity¹⁵, the concept that the perceptual responses will tend to be made on the least amount of information available. When it is remembered that projective techniques are situations which the psychologist describes as unstructured, or ambiguous, which is another way of expressing the fact that definite information is lacking, it can be seen that faces provide an excellent source of stimulus material. The task of responding to photographs without the additional information, which usually accompanies social contact, provides a situation for a variety of different responses.

14. Jerome S. Bruner, "Personality Dynamics and the Process of Perceiving," in Robert R. Blake and Glenn V. Ramsey, Perception, an Approach to Personality, New York, Ronald Press, 1951, p. 135.

15. Julian F. Hochberg, "Effects of the Gestalt Revolution: The Cornell Symposium on Perception," in the Psychological Review, Vol. 64, No. 2, issue of March, 1957, p. 73.

4. Construct Validity of the Szondi Test.

In studying the physiognomic or expressive qualities of faces the psychologist has manipulated such features as eyebrows, curvatures of mouths, distances between eyes, and the heights of cheek bones¹⁶. These studies are usually directed towards finding the invariant facial features responsible for the different physiognomic qualities. It is important to note that faces can have stable expressive qualities in the sense that large groups of subjects will agree that a face looks cruel. As has been pointed out, however, expressive qualities as a source of information might be completely erroneous and the so-called cruel face might well be that of a person with a kindly disposition. In contrast to the usual experiment in the perception of faces, Szondi¹⁷ selected his portraits on the basis of psychiatric diagnosis and has not been interested in the structural features of faces as a means of controlling expressive qualities. Whereas it is possible to justify a classification of faces on the basis of structural features, such as turned-up mouths and high foreheads, no such distinction can be made with Szondi's categories. One of the most

16. Secord, Op. Cit., p. 306.

17. Lipot Szondi, Experimental Diagnostics of Drives, New York, Grune & Stratton, 1952, x-220 p.

important questions arising from Szondi's use of the portraits is whether or not the cards may be categorized as he suggests.

The problem can be restated in statistical terminology. There must be correct categorization before the assumption of additivity is made. That is, items must be shown to belong together before they are added together. Szondi makes the assumption that his categorization is correct and for that reason the portraits which are chosen in a category can be added to give a total score for that category.

Lubin and Malloy¹⁸ tested the assumption of additivity on the Szondi test. They reasoned that the cards in each category should show a strong association with each other. However, when pairs of portraits in each Szondi category were tested, only seventeen significant Chi-squares occurred out of a possible 120.

In another experiment which adopted many of the features of the Lubin and Malloy study, Cohen and Feigenbaum¹⁹

18. A. Lubin, and M. Malloy, "An Empirical Test of Some Assumptions Underlying the Szondi Test," in the Journal of Abnormal and Social Psychology, Vol. 46, No. 5, issue of September, 1951, p. 480-484.

19. Jacob Cohen, and Louis Feigenbaum, "The Assumption of Additivity on the Szondi Test," in the Journal of Projective Techniques, Vol. 18, No. 1, issue of March, 1954, p. 11.

tested the categorization of the Szondi cards. Their sample was considerably larger than that of Lubin and Malloy. By the use of three by three contingency tables, twenty-five significant Chi-squares were found. The authors stated that the larger number of significant association in comparison to the study of Lubin and Malloy probably resulted from the larger number of subjects they employed. The small number of significant associations found in both studies, however, throw suspicion on the practice of adding the cards together as if they were correctly categorized.

On the question of additivity of the cards in each category, Guertin²⁰ pointed out:

One would not expect the pictures in a given category to be highly correlated with pictures from other diagnostic 'categories'. And, of course, a factor analysis should reveal eight group factors, each closely associated with a different diagnostic category.

After a factor analysis of some of the cards the author concluded: "It would appear that there is as much difference in meaning between pictures within the same category as there is between pictures from different categories." The results suggest that there is little, if any, reason to believe that the cards comprising each category do, in fact, have something

20. Wilson H. Guertin, "A Factor Analysis of Some Szondi Pictures," in the Journal of Clinical Psychology, Vol. 7, No. 3, issue of July, 1952, p. 232-235.

in common. A further factorial analysis was carried out by Gordon²¹. He was able to isolate thirteen factors most of which cut across the Szondi's categories. Of the thirteen factors one included five of the six homosexual pictures along with two portraits from other categories. The factor appeared, however, to be more readily identifiable as representing conventional or modern-looking people than as a categorization of homosexuals. Jackson²² reports a further attempt to account for the variance of the Szondi test by means of a factor analysis. His study was based on the use of Q-sorts. As a result of his analysis he was able to identify five factors, none of which supported Szondi's classification of the pictures. The factors and their loadings demonstrate the disparity between Jackson's findings and Szondi's categories: esthetic qualities .79, friendliness .61, intelligence .59, happiness .50, socioeconomic status .45.

The failure of factor analysis to lend support to the classification used by Szondi presents a difficult problem.

21. Leonard V. Gordon, "A Factor Analysis of the Forty-Eight Szondi Pictures," in the Journal of Psychology, Vol. 36, No. 5, 1953, p. 387-392.

22. Victor A. Jackson, Factors in Preferences for Szondi Test Pictures, unpublished Ph. D. thesis presented to the University of Chicago, Illinois, 1952, abstract in American Psychologist, Vol. 7, No. 7, issue of July, 1952, p. 347.

The basis for analyzing and interpreting test results rests firmly on the assumption that the cards are properly classified and that the psychological meaning of the qualities is known. In contrast to these factorial studies Steinberg²³ showed that three groups of judges varying in psychiatric experience were able to identify correctly the diagnostic category of a large number of the portraits in the test. There were, however, differences with respect to how easily the cards in different categories could be recognized. The manics, homosexuals, and paranoids were the groups most frequently classified correctly. A similar study was made by Best and Szollosi²⁴. These authors also concluded that the diagnostic labels of the pictures can be recognized and that certain categories are more easily identified than others.

Hamilton²⁵ was able to show that there are factors, other than what Szondi states, operating in the choice of photographs. He identified these factors as the incidental

23. Arthur Steinberg, "Szondi's Pictures: Discrimination of Diagnoses as a Function of Psychiatric Experience and of Internal Consistency," in the Journal of Projective Techniques, Vol. 17, No. 3, issue of September, 1952, p. 340-348.

24. Harold Best, and Etienne Szollosi, "Recognition as a Criterion in the Szondi Test," in the Journal of Clinical Psychology, Vol. 9, No. 1, issue of April, 1953, p. 76.

25. John T. Hamilton, "A Study of Incidental Stimulus Values in the Szondi Test," in the Journal of Clinical Psychology, Vol. 15, No. 3, issue of July, 1959, p. 324.

or the fortuitous aspects of the portraits. The study employed a ranking procedure in which each subject ordered the cards in each category along a continuum of liked to disliked. The cards were then reassembled into sets according to the rank value they received and the test administered in the regular manner. As a result of the ranking procedure, the subjects were seen to show less variability in selecting portraits from Szondi's categories. Hamilton failed, however, to control for the fact that in ranking the cards a subject might well receive a set for one or another of the categories. A set would operate to increase the number of portraits chosen from a category. It did seem clear, however, that the cards were ranked on the basis of such incidental stimuli as personal grooming, age, and attire. On the basis of this observation the suggestion was made that these incidental aspects of the stimuli could be considered to influence the choice of the portrait. However, there was no experimental evidence for this claim.

The literature on the effectiveness of the Szondi test appears inconclusive and, as a result, the question can be asked: Why study the Szondi technique? There are a number of what might be termed secondary reasons for interest in this test. First of all, a psychological test should be easy to administer. The Szondi test has one of the least complex administration procedures of all the projective tests.

Second, a test ought to have an objective scoring procedure.

Edwards²⁶ defines an objective test as meaning,

...any test for which the method of scoring responses to the test material is rigorously defined. This use of the term 'objective' implies nothing about the nature of the test materials designed to elicit responses. It refers only to the method of scoring responses.

The method for scoring the Szondi is both simple and objective. Third, a personality test should permit what might be termed definiteness of choice without undue anxiety. One of the main features of Witkins'²⁷ experiments with his tilting chair and room was the fact that the subjects pointed to the vertical or upright position with a great deal of confidence in their choice, although in fact their choice might have been many degrees removed from the actual vertical. Witkins' experiments show that test situations which allow the subject to respond with confidence are less anxiety producing and result in more spontaneity on the part of the subject. Similarly, subjects taking the Szondi test, as a rule, make their choice without obvious concern with whether they are right or wrong.

26. Allen L. Edwards, "Social Desirability and Personality Test Construction," in Bernard M. Bass, and Irwin A. Berg, Objective Approaches to Personality Assessment, Princeton, D. Van Nostrand, 1959, p. 100.

27. H. A. Witkins, H. B. Lewis, et al, Personality Through Perception, New York, Harper, 1954, xxvi-571 p.

The points listed above favoring the Szondi test are of incidental interest. There are, however, a number of studies of an experimental nature with very important theoretical implications for those interested in Szondi's method. Schlosberg²⁸ has shown that three dimensions are sufficient to describe emotional aspects of facial expressions. The first is a pleasantness-unpleasant dimension. The second, an attention-rejection dimension. The third, a sleep-tension dimension. Triandis and Lambert²⁹ compared ratings by Greek subjects with American university students on Schlosberg's three dimensions. The fact that the two groups gave essentially the same ratings suggested that cultural factors were not of great importance in this task. A further study of Schlosberg's pleasantness-unpleasant dimension by Levey, Orr, and Rosenzweig³⁰ involved mental retardates, mental hospital patients, and college students. The authors reasoned,

28. H. Schlosberg, "Three Dimensions of Emotion," in the Psychological Review, Vol. 61, No. 2, issue of March, 1954, p. 81-88.

29. H. C. Triandis, and W. W. Lambert, "A Restatement and Test of Schlosberg's Theory of Emotions with Two Kinds of Subjects from Greece," in the Journal of Abnormal and Social Psychology, Vol. 56, No. 3, issue of November, 1958, p. 321-328.

30. Leon Levey, Thomas B. Orr, and Sanford Rosenzweig, "Judgments of Emotion from Facial Expressions by College Students, Mental Retardates, and Mental Hospital Patients," in the Journal of Personality, Vol. 28, No. 3, issue of September, 1960, p. 343.

Even ignoring cultural differences, it seemed reasonable, at least on the basis of current thinking, that deviations in intellectual status in the case of retardates and in emotional status or reality contact in case of mental hospital patients should make for deviations in their social perception, and hence in their ratings.

The authors report essentially complete agreement of the three groups on their judgment of faces. The correlations for the three groups were: normals with mental patients, .98; normals with retardates, .97; and mental patients with retardates, .99. The authors conclude that the judgments in this area is relatively immune to emotional and intellectual factors.

The three studies mentioned suggest that the perception of faces is not haphazard. The fact that perception in this area shows a strong tendency to cut across cultural, intellectual, and emotional boundaries is extremely promising. Most techniques are to one degree or another affected by these dimensions and the problems of controlling them present constant difficulties in research.

Is the perception of faces in the Szondi test also stable across cultures? There are very few studies reporting reactions to the individual cards in the Szondi test. There are, however, a number of research reports on various groups which give the Szondi profiles most typical of the

subjects studied. Schubert³¹ presents the dominant reactions of fifty American school children. His results are strikingly similar to Fancher's³² group of 200 American seven-year-olds. The profiles reported by both investigators were identical. Fancher, in turn, compared his results with those of Spitz³³ on a group of 110 Swiss Children between ages of five to seven. With the exception of the epileptic factor, which is positive in the case of the American children, the profiles show a complete correspondence in the remaining seven factors.

A comparison of Szondi profiles is possible between Fancher's³⁴ group of eighty-eight American students fourteen to sixteen years old, and Schubert's³⁵ group of twenty-five Israeli students, ages thirteen to fifteen. With the

31. Josef Schubert, "The Stimulus Value of the Szondi Pictures: A Theoretical and Empirical Study," in the Journal of Projective Techniques, Vol. 18, No. 1, issue of March, 1954, p. 97.

32. Edwin C. Fancher, and Morris Weinstein, "A Szondi Study of Developmental and Cultural Factors in Personality: The Seven-Year-Old," in the Journal of Genetic Psychology, Vol. 88, No. 1, 1956, p. 82.

33. C. Spitz, "Szondi Test and Age: Experimental Studies of Children from Five to Seven Years," in the Szondi Newsletter, Vol. 2, No. 1, issue of July, 1950, p. 3.

34. Fancher, Op. Cit., p. 90.

35. Schubert, Op. Cit., p. 97.

exception of the "m" factor, which is ambivalent in the Israeli students, the two profiles are again identical. A further cross-cultural comparison is given between a group of 1000 Hungarians and 750 Spanish subjects³⁶. Both groups give the same dominant reactions to each of the eight Szondi factors.

There is, then, some evidence to the effect that the perception of faces in the Szondi test is stable across cultures. Admittedly, the findings in connection with the Szondi test do not involve the same degree of control as was found in Schlosberg's work, however the size of the samples used in the Szondi studies was considerably larger.

These reported similarities between Szondi profiles are not the only source of consistency found in the test. As might be expected from the fact that profiles are stable, the reactions to individual cards also appear highly predictable. Harrower³⁷ studied three hundred and fifteen subjects who were classified as normals, males and females, and mental hospital patients. She describes her experiment as follows:

Originally, we presented our findings in terms of 315 subjects, but a breakdown into three separate groups makes our findings infinitely more interesting

36. Szondi, Moser, and Webb, Op. Cit., p. 84-87.

37. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

and telling, for it will be found again and again that regardless of the type of administration (group or regular presentation), regardless of psychological disturbances in the sexes, the graphs are virtually identical within any given category.

This study suggests the frequency of reactions to the individual cards tends to remain stable across different populations.

Harrower's results receive some support in a study by Szollosi³⁸. Employing 285 subjects, the latter compared the differences between the number of times the cards were chosen as liked and disliked. A marked imbalance in ratio of the "like" to "dislike" choices associated with any portrait indicated that the choice of a particular card was biased. When Szollosi correlated these differences with those from the Harrower study, she found a rank-order correlation of .89. This correlation suggested that the biases inherent in choice of the Szondi photographs are exceedingly stable. This finding is made even more interesting when it is considered that, as Edwards³⁹ points out, the correlation between differences in scores is usually smaller than the correlation between the scores themselves. The correlation of .89 is very high in view of the fact that it represents

38. E. Szollosi, D. E. Lamphiear, and H. L. Best, "The Stimulus Values of the Szondi Test," in the Journal of Consulting Psychology, Vol. 15, No. 4, 1951, p. 419.

39. Edwards, Op. Cit., p. 115.

co-variation between two sets of scores, each of which are made up of differences. If Szollosi's and Harrower's data are correlated, using the positive or liked choices for each portrait, a rank-correlation of .92 is obtained.

It is necessary to pause and consider what implications these studies have for the Szondi test. The work of Schlosberg suggested very strongly that there are stable dimensions in the perception of faces. These dimensions were also seen to be relatively stable across cultural, emotional, and intellectual dimensions. Perception of faces in the Szondi test also appeared to show stability from one cultural group to another. Harrower has shown that reactions to Szondi portraits are stable across clinical groupings. Szollosi has presented data which is strikingly similar to that of Harrower. Because Harrower and Szollosi used large numbers of subjects the overall consistency in results suggests that their findings have a wide generality.

What conclusions can be drawn from the above findings? It can be seen that strong biases are operating in the choice of portraits in the Szondi test. These biases appear very stable and show a wide applicability, at least so far as European and North American populations are concerned. The problem is one of studying the relationship between these group biases and an individual subject's reaction to the test.

5. Social Desirability.

The definiteness with which large groups of people react to the Szondi portraits and the resulting biases in their selections has a marked similarity to what has been termed a factor of Social Desirability. Edwards⁴⁰ presented the questions, "I like to be loyal to my friends?", and "I like to avoid responsibilities and obligations?", to 140 college students. He found that approximately ninety-eight per cent of his subjects answered "yes" to the first question. From these results he concluded that the subjects were answering questions on personality inventories in terms of what was socially acceptable or desirable, rather than in terms of personal reflections about themselves. Edwards then proceeded to correlate many of the standard questionnaire-type personality inventories with a dimension of social desirability. He found that in many questionnaires the dimension of social desirability shows exceptional strength. Edwards⁴¹ comments somewhat pessimistically as follows:

Unfortunately,.....the correlations between S. D. (social desirability) and scores on various personality inventories are of such magnitude that the residuals or deviation scores may represent little more than error variance.

⁴⁰. Allen L. Edwards, Edwards Personal Preference Schedule, New York, Psychological Corporation, 1954, p. 17.

⁴¹. Edwards, Op. Cit., p. 115.

If we examine Harrower's⁴² and Szollosi's⁴³ data it will be seen that the groups they employ almost unanimously agree in their choice of the young homosexual boy in the fifth set of the Szondi cards as "liked". They also show a high concordance in their dislike of the hysteric in set two. Statistically, the reaction to the Szondi cards resembles the reactions Edwards obtained to his rather loaded questions. The correlations of .89 seen between Szollosi's and Harrower's findings are of the same magnitude which Edwards reports as existing between the dimension of social desirability and answers to questionnaires. At this point, Edwards' concern for the fact that very little variance is left over once the dimension of social desirability is minimized becomes of uppermost importance in the consideration of choice of Szondi cards. If the bias in popularity existing in the choice Szondi portraits is reduced will there be anything other than error variance left over?

The term 'social desirability' is used to emphasize the impersonal nature of an individual's choice. The implication is that the subjects know or appreciate what is or what is not acceptable in their cultural milieu and their choices are directed by this fact. The term 'social

42. Harrower, Op. Cit., p. 35.

43. Szollosi, Op. Cit., p. 419.

desirability' does not, however, seem to fit with the fact that there is cross-cultural stability in the biases seen in the test. Social desirability does not express the fact that Greek subjects rate faces in an almost identical manner to American university students. There is a stronger commonality in the people's ability to judge faces than is expressed by Edwards' terminology. The use of the terminology 'social desirability' in the present study restricts the generality of this dimension. Perhaps it would have been better to label this dimension after Osgood⁴⁴ the 'evaluative attitude'. Osgood uses this terminology to reflect the fact that people are concerned with good and bad, pleasantness and unpleasantness, happiness-unhappiness, beautiful-ugliness, etc., and that they are able to make impersonal judgments along this scale which show, in Sullivan's⁴⁵ terms, consensual agreement by the fact that others also make the similar judgments. From the standpoint of psychological tests, however, social desirability is the most commonly used terminology for this effect.

44. Charles E. Osgood, George J. Suci, Percy E. Tannenbaum, The Measurement of Meaning, Urbana, University of Illinois Press, 1957, 335 p.

45. Calvin S. Hall, and Gardner Lindzey, Theories of Personality, New York, John Wiley, 1957, xi-572 p.

6. Szondi Choice and the Hypothesis.

The fact that the cards comprising the Szondi test differ with respect to the frequency with which they are chosen, that is, in popularity, suggests that the social desirability of the portraits constitutes an important variable effecting test results. Social desirability can be defined operationally in terms of the relative popularity of each of the cards.

It is possible to hypothesize that Szondi choice is governed by two factors. The first factor comprises the need-tensions which Szondi believes govern the choice of photographs, while the second results directly from the popularity of the photographs.

Szondi feels that the selection of cards in his test is determined by personal needs which have a genetic background. These needs lead the subject to be differentially selective in choosing from the various categories. Szondi feels personal needs not only determine the category from which a picture is selected but also the quantity chosen. The types of pictures chosen reflect the needs which are operating: a qualitative differentiation, whereas the number of pictures chosen in a particular category reflects the relative strength of the need: a quantitative differentiation.

The introduction of social desirability into Szondi choice is inconsistent with Szondi's drive theory, which assumes that a card has been selected because of a personal need. A factor of social desirability suggests that choices are made in keeping with prevailing social stereotypes and there is nothing individual or personal in conventional or stereotyped reactions.

If, as it has been suggested, Szondi choice is a matter of personal needs and the socially desirability of a portrait, then certain characteristics in the choice of Szondi cards can be predicted. Under these two conditions the selection of a particular card would be governed by both the picture's harmony with existing need-tensions, and its relative popularity. A card might be chosen either as a result of a strong need in the subject or as a result of a weak personal need and the card's high degree of popularity. A situation might also arise where a card reflecting a dominate need in a subject's personality shows socially undesirable characteristics. In such a case a second card which is in keeping with a less forceful personal need, but which displays socially desirable facial characteristics might be selected. The effect of social desirability would be to favor secondary needs.

Without considering social desirability, the question as to why secondary or less forceful needs enter into

the choice of Szondi cards at all is somewhat difficult to understand. It might be supposed that all selections would be in keeping with the most forceful drive tendencies of the subject. However, the fact that only one portrait of each of the eight psychiatric types enters into each set of cards means that the subject has only one opportunity to select in accordance with his dominant need. All other choices will be secondary or tertiary. The structure of the test would explain how the subject comes to pick cards which are related to less forceful needs. It does not, however, explain why a subject fails to choose from the six sets of cards all six of those cards which are in keeping with his strongest need. The question can be asked as to why a subject who selects four of the cards in a category fails to select the other two photographs? If this question is answered by stating that the need is not that strong then it is necessary to postulate that some sort of satiation of the need takes place during the choice of pictures. This answer is difficult to reconcile with the fact that it is often times not the last two pictures which fail to be chosen, as would be the case if satiation were operating.

There is one further possible explanation as to why subjects fail to pick all of the cards in the category representing their dominant need. It is possible to assume that the cards which make up each category have varying degrees

of the quality which the psychiatric category supposedly depicts. Under these conditions it would be possible to understand why it is that subjects are often erratic in choosing from a particular category. The subject would be faced with varying strengths of a particular expressive quality as represented by the pictures. Some pictures might be considered to reflect this quality too strongly and, therefore, would tend to be skipped by the subject with the result that inconsistencies in the choice from this category would occur. The hypothesis that the pictures vary in the degree to which they depict a quality appears to be the theory favored by Szondi⁴⁶. There is, nevertheless, an important difficulty inherent in this hypothesis. If the pictures show varying degrees of the essential qualities supposedly depicted, is it assumed that this is the only possible quality which can be associated with the portrait? The fact that the pictures appear to vary along a dimension of popularity and that certain pictures are chosen consistently as liked, others as disliked, suggests that at least one other factor is operating. Also, the fact that the portraits of well-groomed, prosperous-looking individuals tend to be selected in preference to dishevelled, unkempt

⁴⁶. Marvin W. Webb, "The Rationale, Validative Procedures, Materials and Administration of the Szondi Test," in the Szondi Test, Philadelphia, Lippincott, 1959, p. 7.

types, or what one writer refers to as "bums", cannot be explained as accidental. Szondi choice would seem to involve more than what Szondi claims is operating in his test.

Explaining the choice of cards in the Szondi test becomes somewhat involved when it is necessary to hypothesize, as Szondi does, that personal needs are operating in a subject's selection of portraits. The situation is not improved by the addition of a factor of social desirability which might interact with Szondi's system of needs.

An alternative solution is to make the assumption that the patterns of choice observed in the test result solely from the operation of one factor, social desirability. Such an assumption would be in keeping with Edwards⁴⁷ findings that this factor accounts for most of the observed variance in questionnaires, and implies that the different profiles seen in the routine use of the Szondi test result from the subjects reacting somewhat differently to a single dimension. If the discrepancies in popularity among the portraits comprising the test could be effectively minimized, it might be predicted that Szondi profiles would no longer display individual patterns of choice but would simply show twenty-four choices distributed at random across eight factors. The prediction can be stated in the form of a null

47. Edwards, Op. Cit., p. 115.

hypothesis: When profiles from the regular Szondi test are compared with profiles from a modified Szondi test, designed to control the effects of card popularity, no significant differences will be observed in the distribution of choices over the eight Szondi factors.

The experiment to be reported then is concerned with the effect card popularity has on Szondi profiles. First, the photographs are reassigned in order to reduce the discrepancies in popularity and obtain a modified form of the Szondi test. Second, a comparison of the amount of dispersion in the individual profiles is made between two forms of the test.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter describes the methods used to test the hypothesis.

It begins with a short discussion of the general orientation employed in designing the experiment. This is followed by a description of the subjects. The two forms of the Szondi test used in the experiment are then described with particular reference to the modified form of the test. The procedures used in administering the tests are then presented. Finally, the methods employed to measure profile variability are discussed.

1. Background to the Experimental Design.

The clinical psychologist attempting research with projective methods has had difficulty finding adequate criteria against which to examine his test. Guilford¹ points out the fact that behavior is normally the result of more than one psychological factor and that adequate criteria are very difficult to obtain. He uses the example of school marks and states that they make "rather poor

1. J. P. Guilford, Psychometric Methods, New York, McGraw-Hill, 1954, ix-597 p.

metric material". Similarly, psychiatric diagnosis, length of hospitalization, and clinical impressions in general, have proven to be poor metric material.

The lack of dependable criterion measures has resulted in the use of one technique of questionable reliability and validity, as a criterion measure for another technique. The Rorschach became a criterion measure for progress in therapy, and other clinical procedures. Klien² feels that the use of projectives as criterion measures has led to what Ketch has called "tail-chasing research". That is, research which is of a circular nature because the criterion measurement is of doubtful value, and relationships which are established in connection with it require further studies to establish the criterion as reliable. He states that the answer to this problem is to proceed by a process of "internal validation". Such a process involves a search within the measuring instrument for inconsistencies. Test variables are manipulated if the instrument has internal validity, other aspects of test behavior should be consistent with the induced change.

The present study is centered on the concept of internal validity. To this end the experimental design is

2. George S. Klien, "The Personal World Through Perception," in Perception: An Approach to Personality, New York, Ronald Press, 1951, p. 350.

concerned with Szondi's theory covering the choice of pictures in his test and the compatibility of this theory with induced changes in the structure of the test.

2. The Subjects.

The subjects employed in the study were first and second year university students. All subjects had enrolled for an introductory course in Psychology. The first group was registered in the regular academic year. The mean age was 21.2 years with a standard deviation of 4.32. This group consisted of ninety subjects, forty-two males and forty-eight females.

The members of the second group tested were enrolled at an inter-session course. The mean age for this group was 23.8 years with a standard deviation of 6.39. Twenty-six members of the total group of forty-eight were female students. The third group was made up of thirty-nine teachers enrolled in summer school. The mean age for this group was 26.3 years with a standard deviation of 8.74. Sixteen members of this group were males while twenty-three were females. Table I presents in summary form a description of group characteristics.

University students tend to be a somewhat homogeneous population with respect to intelligence. It was felt, however, that by comparing the groups with studies which have

Table I. Means and Standard Deviations for Age and Sex of Three Groups of Subjects.

Group	N	Sex		Age	
		Male	Female	Mean	S. D.
I	90	42	48	21.2	4.32
II	48	22	26	23.8	6.39
III	39	16	23	26.3	8.74

used more heterogeneous subjects^{3, 4} it could be established whether or not the selection of university students had biased the reaction to the cards and therefore reduced the generality of the results.

3. The Tools of the Experiment.

The hypothesis suggested that at least part of the observed variations in the Szondi profiles could be accounted for in terms of social stereotypes. The relative popularity of each card was believed to represent how strongly a group of subjects agreed with respect to the pleasantness or the unpleasantness of the portraits. Portraits with a high popularity show that subjects tend to respond in a redundant manner. For this reason the more popular the portrait the less it tends to discriminate between the subjects.

It was the relative popularity of each card which formed the independent variable in the study, and allowed the test to be manipulated so that the effects on Szondi choice could be observed. Harrower⁵ provided the largest

3. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

4. F. Szollosi, D. E. Lamphiear, and H. L. Best, "The Stimulus Values of the Szondi Test," in the Journal of Consulting Psychology, Vol. 15, No. 4, 1951, p. 419.

5. Harrower, Op. Cit., p. 35.

sample in which the popularity of each of the cards was studied. Table II shows the frequency with which each card was selected in Harrower's study. The importance of Harrower's experiment arose from the fact that the most popular faces were seen to be dispersed unevenly throughout the six sets of cards. Set five was seen to contain one card, the "h" portrait, which was chosen by almost all subjects as liked. Set two contained two cards, "hy" and "k", which most subjects found disagreeable. The assumption was made that the uneven dispersion of the popular choices could be accounted for by the structure of the test. That is, each card's popularity was determined in part by the other cards in its set; a card which enjoyed a high popularity in one set might tend to be ignored in another set. This suggested that the popularity of the cards could be manipulated by rearrangement of the portraits. Rearranging the cards, then, provided the basis for manipulating the independent variable, card popularity.

In order to minimize the effect of these popular cards on Szondi choice a modified test was constructed. A rearrangement of the card was undertaken following Harrower's findings. The cards were first rank-ordered according to the popularity they enjoyed in their original sets. From this rank-order procedure the most popular "liked" portrait in each of the Szondi factors was selected. These portraits formed a new set. The procedure was repeated for the most

Table II. Frequencies of Choice Reactions to the Szondi Test.

Choice	Szondi Factor								
	Set	h	s	e	hy	k	p	d	m
Like									
1	44	31	171	118	2	62	16	172	
11	72	73	15	1	55	95	91	217	
111	71	54	71	4	14	198	86	120	
IV	45	202	65	29	77	155	18	20	
V	200	52	22	53	54	120	30	190	
V1	142	29	80	64	144	31	26	90	
Dislike									
1	109	90	23	7	208	30	138	6	
11	61	104	135	216	24	35	14	15	
111	64	63	25	226	120	13	51	73	
IV	106	22	42	83	41	14	162	117	
V	32	51	135	73	82	68	93	56	
V1	47	135	57	60	53	112	131	21	

6. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

popular "disliked" portraits. Those cards which received a rank value of two made up the second set. The cards from Harrower's data which formed the first two "liked" sets and the first two "disliked" sets were easily identified. The remaining two sets, however, did not show definite statistical trends and had to be assigned somewhat arbitrarily in this first modification.

It was necessary to show that, as a result of manipulating the position of the cards, there had been a significant change in card preference. Three tests were carried out in this connection. First, it was expected that the modified or manipulated Szondi would show a greater tendency than the regular Szondi for choices to be distributed in accordance with chance expectancy. The number of choices expected by chance was subtracted from the frequency with which each card was selected. Because the Szondi and the modified Szondi both received the same number of choices, the expected frequency for each card was the same in both cases. The frequency with which a card was selected minus the expected number of choices was used as the score for that card. The results were tested by a t-test for a correlated sample⁷. The second test of card preference was

7. Solomon Diamond, Information and Error, New York, Basic Books, 1959, xii-307 p.

concerned with the type of choices, whether "liked" or "disliked", each card received. The most popular choices were seen to be chosen predominately in either the "liked" or "disliked" direction. When the cards were rearranged to form a modified test, it was anticipated that these directional trends would be changed. Thus, those choices which were seen to be almost always in a "liked" direction should tend to display an increased number of disliked choices. To test the assumption that directional trends would undergo significant changes the negative choices for each card were subtracted from the positive choices. When this subtraction was made those cards which displayed a bias in one direction received large scores while those cards which displayed approximately the same number of positive and negative choices received scores close to zero. The differences between the positive and negative choices for the regular Szondi were tested against the differences for the modified form of the test by the use of a t-test for correlated samples.

From the foregoing, bias in the choice of the Szondi portraits was seen to operate in two ways. First, in the absolute number of choices the card received. Second, in the distribution of these choices in the "liked" and "disliked" direction. It was decided, however, that a third score representing both types of bias should be employed. The difference between the number of choices a card received

and that expected by chance was added to the difference between the number of "liked" choices and "disliked" choices. This third score then was made up of the first two bias scores and was designed to test the possibility of a combined effect; a more even distribution of choices across the cards coupled with a more even distribution of choices in the liked and disliked direction. A test for possible differences between the experimental and controlled conditions was once again made with a t-test for correlated samples.

One further statistic was calculated in connection with the independent variable. Social desirability had been operationally defined in terms of card popularity. It was, therefore, necessary to determine the reliability of card preference or bias in the regular Szondi test. Product-Moment correlations were calculated, using first the plus and then the minus score, between the three groups of subjects used in this study and Harrower's⁸ and Szollosi's⁹ samples. These correlations were used to reflect the stability of the biases observed in the choice of cards in the Szondi test.

8. Harrower, Op. Cit., p. 35.

9. Szollosi, Op. Cit., p. 419.

4. The Two Experimental Conditions.

Two conditions were used in the experiment. The first consisted of one administration of the Szondi following regular instructions¹⁰. The second employed the same instructions and a modified form of the Szondi test.

Both forms of the test were made up on slides for purposes of group administration. In one set of slides the cards were placed in the same order and position as they appear in the Szondi test. In the other set of slides, the modified form of the test, the portraits were placed in the rank positions they obtained after a pilot study following Harrower's¹¹ data.

In administering the test it was felt necessary to have each subject act as his own control and for this reason both forms of the test were administered to each group. The possibility that the test form administered first would effect the second presentation was controlled by alternating the order of presentation. That is, one group received the regular Szondi first followed by the modified test, while the second group received the modified form of the test first.

10. Lipot Szondi, Ulrich Moser, and Marvin W. Webb, The Szondi Test, Philadelphia, Lippincott, 1959, p. 21.

11. Harrower, Op. Cit., p. 35.

For purposes of analysis the Szondi results from both administrations of the standard form of the Szondi were combined and compared with combined results for both administrations of the modified test. The statistic used was a t-test for correlated samples¹².

5. Distribution of Choices in the Individual Profiles.

It was predicted in the null hypothesis that change in the independent variable or card popularity would not result in a tendency for a subject's choices to be spread more evenly over the eight Szondi categories. The degree of dispersion over these categories reflects the extent to which a subject tends to make his selections from one or two categories while neglecting other categories. Conversely, when a subject makes his selections from all categories the profile will show a broad distribution of choices.

In the clinical use of the Szondi test a profile which shows that a subject's choices are confined to a small number of factors is referred to as "load". If a single category or factor receives four choices in either the "liked" or "disliked" direction, it is marked with an exclamation mark. Two exclamation marks mean five choices in a category while three marks signify six selections. The use

12. Diamond, Op. Cit., p. 115.

of this system for indicating a subject's tendency to confine his selections to one or two categories is very simple but has the disadvantage that only the extreme profiles are coded. A more accurate means of indicating the dispersions of choices in the individual profiles was needed.

The least dispersion a single Szondi profile can display occurs when either the twelve positive or the twelve negative choices are divided equally between two factors: six and six. The greatest dispersion twelve choices can show occurs when each of four factors contain two and the remaining factors one choice each: 22221111. When the "liked" or "disliked" choices in each factor are squared and added together a score representing the extent to which the choices tend to fall within the same factors or are scattered across the profile is obtained. Thus, the score for the least dispersion a profile can show is seventy-two, six squared plus six squared, while the score for the most dispersion in a profile is twenty. The sum of squared scores makes it possible to measure the dispersion of choices when the sum of the individual choices remains the same for all Szondi profiles.

The scores obtained by squaring and summing the choices in the individual factors was coded by use of the following formulae: $\bar{X} = \frac{X}{2} - 10$. This reduced the size of the numbers dealt with and resulted in a range of scores,

indicative of dispersion, from zero to twenty. Each score represents a probability value with zero being what is expected by chance and twenty as an almost totally unexpected occurrence. A score of twenty was obtained when six choices fell in one and six choices in another of the factors.

The profiles obtained from the use of the regular Szondi and its modification were scored individually for the amount of dispersion in both the "liked" and "disliked" direction. A t-test for correlated samples was again used to test the significance of the difference between means.

CHAPTER III

PRESENTATION OF RESULTS

This chapter presents the results of the experiment. The first section is concerned with the reliability of the dimension of card popularity and demonstrates, by means of correlations, the similarities between groups used in this study and groups employed by two other investigators. Particular reference is then made to an effort to control card popularity and construct an alternative or modified form of the Szondi test. This is followed by a comparison of the regular form of the Szondi with its modification. A final section shows the effect of the modified form of the test on the structure of the individual profiles.

1. Similarity Between Groups.

Because the study was intended to investigate the effects of manipulating card popularity on individual profiles, it was necessary to examine the reliability or consistency of the observed discrepancies in card preference. Each of the three groups studied received one administration of the regular Szondi test. It was possible, then, to test the stability of card preference between groups by means of correlations. A high correlation would suggest that the popularity of the cards was stable, whereas a low correlation

would indicate that card popularity was unstable and, therefore, could not be effectively manipulated.

The results of two other studies^{1, 2} were available and allowed a general comparison of choice frequencies. If the discrepancies in the selection of cards found in the present study correlated with those found by other investigators, the stability of the biases in popularity would be established.

Table III presents the product-moment correlations resulting from a comparison of the preferred choices for five groups of subjects. Harrower's and Szollosi's groups show the highest correlation, $r = .89$. The second group employed in the present study is closely correlated with these two studies, $r = .76$ and $r = .8$. The first group's reactions show the lowest inter-correlation. Group One correlates .59 with Harrower's sample and .61 with Szollosi's findings.

The correlations found among the three groups in the present study are relatively high, but do not reach the same magnitude as the correlations between Harrower's and Szollosi's groups.

1. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

2. E. Szollosi, D. E. Lamphiear, and H. L. Best, "The Stimulus Values of the Szondi Test," in the Journal of Consulting Psychology, Vol. 15, No. 4, 1951, p. 419.

Table III. Correlations Between Plus Scores on the Szondi for Five Groups of Subjects.

	<u>Harrower</u>	<u>Szollosi</u>	<u>I</u>	<u>II</u>	<u>III</u>
<u>Group</u>	<u>N = 315</u>	<u>N = 283</u>	<u>N = 90</u>	<u>N = 48</u>	<u>N = 39</u>
<u>Harrower</u>					
<u>Szollosi</u>	.89				
<u>I</u>	.59	.61			
<u>II</u>	.76	.8	.69		
<u>III</u>	.67	.76	.69	.75	

3. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

4. E. Szollosi, D. E. Lamphiear, and H. L. Best, "The Stimulus Values of the Szondi Test," in the Journal of Consulting Psychology, Vol. 15, No. 4, 1951, p. 419.

Table IV presents the correlations for the negative or least preferred reactions. A comparison of this table with Table III shows that the correlations among negative reactions are somewhat higher than those among the positive choices.

The Harrower and Szollosi groups show a correlation of .92. Group One again shows the smallest correlation with the other groups while Group Three is correlated .86 with Szollosi's sample. Group Two showed the strongest association with Harrower's and Szollosi's findings in the positive choices, whereas Group Three shows the stronger correlations in the negative choices. All correlations are high, the lowest being .66.

When the correlations are considered from the standpoint of the size of the samples employed, there does not appear to be any systematic trends. Although the largest sample in this study was Group One, the inter-correlations with other groups tends to be comparatively small. Group Two and Three were known to be more heterogeneous with respect to the variable of age, and this might account for their correlating more closely with the Harrower and Szollosi samples.

The correlations between groups were sufficiently high for both the positive and negative reactions to suggest

Table IV. Correlations Between Minus Scores on the Szondi for Five Groups of Subjects.

	Harrower	Szollosi	I	II	III
Group	N = 315	N = 283	N = 90	N = 48	N = 39
Harrower					
Szollosi	.92				
I	.69	.7			
II	.72	.77	.66		
III	.79	.86	.75	.72	

5. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

6. E. Szollosi, D. E. Lamphiear, and H. L. Best, "The Stimulus Values of the Szondi Test," in the Journal of Consulting Psychology, Vol. 15, No. 4, 1951, p. 419.

that card popularity was a stable dimension, and therefore could be systematically manipulated.

2. The First Modification of the Szondi Test.

An examination of the Szondi test suggested that card popularity could be controlled by rearranging the portraits in such a manner that the most popular choices in each of the factors fell in the same set of cards. Table V presents the rank order preference, based on Harrower's⁷ sample, of the individual cards. In each factor those portraits which received the greatest number of "liked" choices were assigned the first rank position, while those portraits which received the greatest number of negative choices were assigned the sixth rank position.

An examination of the first set of cards in Harrower's group indicated a marked imbalance in rank preference among the various portraits. The portraits of the epileptic and the hysteric are each the most popular in their respective factors. In contrast, the pictures of the homosexual and catatonic are the least popular in their respective factors; each receives a rank value of six. Although set number five does not show the same imbalance as was found in the first set, wide variations in the rank popularity of the cards are

7. Harrower, Op. Cit., p. 35.

Table V. Rank-Order Preference of Portraits in the First Modification of the Szondi Test.

Set	Szondi Factors							
	h	s	e	hy	k	p	d	m
I	6 ^a	5	1	1	6	3	5	2
II	3	4	6	5	3	4	1	1
III	4	3	4	6	5	1	2	5
IV	5	1	3	4	2	2	6	6
V	1	2	5	3	4	5	3	4
VI	2	6	2	2	1	6	4	3

8. M. R. Harrower, "Experimental Studies with the Szondi Test," in the Szondi Newsletter, Vol. 4, No. 1, issue of January, 1949, p. 35.

a. Cards showing the largest number of "liked" choices received a rank position of one.

observed and the homosexual picture receives a rank value of one while the paranoid is rated sixth.

The first modification of the Szondi was constructed simply by placing each card with a rank value of one in set one, cards with a rank value of two in set two, and by following this procedure through to a sixth set of cards which contained the most unpopular portrait from each of the eight factors.

The modified Szondi was then presented to the first group of subjects, and a further study made of the frequency with which each card was chosen. On the basis of Harrower's data, the paranoid portrait in the third set received a rank position of one, while the paranoid portrait in the fourth set received a rank position of two. In the modified test these cards were placed in sets one and two. It was anticipated that as a result of this manipulation the number of times these two cards were picked as "liked" would tend to equal the number of times they were picked as "disliked". In the modified test, however, the paranoid picture in set one was picked only six times as "liked" and fifty-nine times as "disliked". In Harrower's study the same card received 198 "like" choices and thirteen "dislike" choices. The reactions to the card had reversed. After the cards had been reassigned the paranoid picture which was second in popularity in Harrower's study received sixty-three "liked"

choices and only ten "disliked" reactions. This card, unlike the first card, had maintained its relative popularity.

An inspection of the choice frequencies showed many of the cards in the modified test had been misplaced. The first attempt to construct an alternative form of the Szondi test then was clearly not successful and as a result it was necessary to carry out a further manipulation of the position of the cards.

3. The Second Modification of the Szondi Test.

The data obtained from administering the first modified form of the Szondi test provided a basis for a further rearrangement of the cards. The portraits were again rank-ordered. Table VI gives the rank value each card obtained. When these rank values are compared with those based on Harrower's data, twenty-five of the cards can be seen to show a change in their rank position.

A second modification of the Szondi test was undertaken. The portraits were reassigned on the basis of the rank standing they obtained following an administration of the first modified test. The same procedure used in connection with Harrower's data was followed. All cards in Table VI having a rank value of one made up the first set of cards, those with a rank value of two the second set. The procedure was repeated through to the sixth set of cards.

Table VI. Rank-Order Preference of Portraits in the Second Modification of the Szondi Test.

Set	Szondi Factors							
	h	s	e	hy	k	p	d	m
I	5 ^a	5	1	3	5	5	4	1
II	3	4	6	5	3	4	2	5
III	6	3	4	6	6	3	1	3
IV	4	1	2	1	1	1	5	6
V	1	2	3	4	4	2	3	2
VI	2	6	5	2	2	6	6	4

a. Cards showing the largest number of "liked" choices received a rank position of one.

When the rank standings of the cards in Table VI are inspected it can be observed that the placement of many of the cards in the second modification corresponded to groupings in the regular Szondi. Set four of the original Szondi contains four of the most frequently "liked" portraits and one card which had a rank value of two. Set five also shows consistency in the rank values assigned to the portraits. This finding suggested that in the original Szondi test the cards had not been assigned to their sets on a random basis, and that a selective factor probably had been operating.

Throughout the modification of the test certain cards were seen to retain their popularity. The homosexual picture in set five received a rank position of one in the original Szondi test and in both modifications. In the original test this card received sixty-four "liked" and four "disliked" choices. In the first modification the same card received fifty-two "liked" and thirteen "disliked" choices. In the second modification the card received sixty-one "liked" and seven "disliked" choices. Although this card was placed with the better portraits from each of the other factors, its popularity was not effected. In the disliked direction, the hysteric in the third set remained extremely unpopular throughout modifications of the test.

Table VII presents the differences between the number of times a card was picked as "liked" and number of times it was chosen as "disliked" in the second modification of the Szondi test. Had the modification been successful in completely reducing the bias associated with each card, then it would be anticipated that the number of "liked" choices would counter-balance the number of "disliked" choices and the scores would be close to zero. The large numbers shown in this table indicated that a strong bias in choice was still operating in the modified form of the test, and necessitated a test of significance to establish a difference, if any, between the modification and the regular form of the Szondi test.

4. Two Forms of the Szondi Test.

Table VIII shows the means and standard deviations for three measures of bias. The first measure represents the differences between "liked" and "disliked" choices for each of the cards. In the regular Szondi there was an average discrepancy of 20.7 between "liked" and "disliked" choices. The standard deviation for this discrepancy was 16.95. In the modified test the mean discrepancy was 17.39 with a standard deviation of 13.26. A t-test of differences between means gives a value of 1.66 which is significant at the .1 level of probability. There was a trend in the

Table VII. Differences Between Plus and Minus in the Modified Szondi Test.

Card Set	Factors							
	h	s	e	hy	k	p	d	m
I	0	- 4	14	-31	-52	- 8	-14	20
II	11	-18	27	-34	3	- 5	10	7
III	20	-22	- 4	-29	-45	-22	-21	50
IV	- 2	3	-25	11	- 8	- 8	6	25
V	54	-22	21	2	11	24	-13	32
VI	23	- 6	- 5	-14	16	10	- 7	16

Table VIII. Means and Standard Deviation for Three Bias Scores.

Score	Szondi		Modified	
	Mean	S. D.	Mean	S. D.
Difference Score	20.7	16.95	17.39	13.26
Dispersion Score	9.12	6.59	7.39	6.12
Combined Score	29.8	21.2	24.3	17

predicted direction, however it was not at an acceptable level of significance.

The second measure reflected the dispersion of choices over the cards. It was predicted on the basis of chance selection that each card would be chosen forty-three times. Table VIII indicates that the average deviation in the original Szondi from this expectancy was 9.12 with a standard deviation of 6.59. In the modified form of the test the mean deviation from the expectancy was smaller; 7.39 with a standard deviation of 6.12. A t-test showed a value of 1.86. This value was significant at better than the .1 level but fell short of the .05 level of probability.

In order to test for a possible interaction effect, a greater tendency for balanced frequencies between the "liked" and "disliked" choices plus more even dispersion of choices among cards, both scores were combined. A test of significance revealed a t-value of 2.01 which was significant at better than the .05 level of confidence.

The results of the t-test for combined scores suggested that in the second modified form of the test there was a significant tendency for the choices to be distributed more in accordance with chance expectancy. It was anticipated that this reduction in bias would effect the structure of the individual Szondi profiles. In order to examine this possibility, a study of the individual test records was made.

5. The Distribution of Choices in Individual Profiles.

It had been predicted that a significant reduction in the observed discrepancies in popularity would result in Szondi profiles which were more in keeping with chance expectancies. A score with a range of zero to twenty was designed to reflect the structure of each profile. A score of zero was obtained if the maximum spread of twelve choices over the eight factors occurred; e.g., 22221111. A profile received a score of twenty when all twelve choices fell in two factors.

Table IX gives the means and standard deviations for the scores representing dispersion of choices within the Szondi factors. The mean scores are between 3.25 and 4.93. An examination of the two types of choice shows that the mean values for the "liked", or plus reactions, are higher than those for the "disliked", or minus reactions. Both groups of subjects give approximately the same values in both forms of the test.

A comparison of the Szondi and the modified test reveals that the means are higher in the modification. This tendency is in the opposite direction to that predicted. Table X presents the t-values found in testing the differences between the means for the Szondi and its modification. Although the means are somewhat larger in the modification,

Table IX. Distribution of Scores on the Regular and Modified Forms of the Szondi Test.

Groups Test Form	Plus Scores		Minus Scores	
	Mean	S. D.	Mean	S. D.
I				
Szondi	4.23	2.75	3.95	2.29
Modification	4.93	2.91	3.97	2.26
II				
Szondi	3.94	2.53	3.25	2.10
Modification	4.23	3.03	3.30	1.80

Table X. Comparison of the Regular and Modified Forms of the Szondi Test.

Group	N	Plus Scores		Minus Scores	
		t-value	Level of Significance ^a	t-value	Level of Significance
I	48	1.42	.16	.17	N. S.
II	39	.64	N. S.	.11	N. S.
Combined Groups	87	1.58	.11	.28	N. S.

a. The probability values for t scores less than 1.4 have not been listed.

none of the t-values reach a significant level. Of the six t-tests, only that between combined groups tended to approach a noteworthy level of significance. The t-values suggested that the obtained reduction in card popularity had not reduced the consistency with which portraits are selected from one or another of the eight Szondi factors.

CHAPTER IV

DISCUSSION OF RESULTS

In this chapter the implications and limitations of the results are discussed. The experiment was intended to demonstrate that the configurations observed in Szondi profiles can be explained by the operation of a single factor of social desirability or card popularity and therefore do not result, as Szondi believes, from the operation of eight individual needs. Demonstrating a dimension of card popularity presented the first important task in the experiment. The chapter begins by considering the evidence for such a dimension.

In order to obtain a modified form of the test, one which did not display the same biases in card preference as were found in the original Szondi, a manipulation of the Szondi cards was undertaken. The shortcomings of this manipulation are given close attention as they represent the limitations that have to be placed on interpreting the results of the experiment. A final section is concerned with the effect on the individual profiles of modifying the Szondi test.

1. The Dimension of Card Popularity.

The high correlations in the preference for Szondi cards found among the groups used in this study and those of other investigators suggested that a marked stereotypy existed in the subject's choice of portraits. Several of the correlations were sufficiently strong to be acceptable in a test re-test study of reliability; that is, the groups displayed a consistency of choice which is normally anticipated when a test is readministered to the same subject.

The similarity of response to the portraits among different groups indicated a general redundancy in Szondi choice. The redundancy was labelled, in keeping with the literature on other psychometric techniques, a factor of social desirability. The question arose, however, as to why the subjects showed this agreement in their preference for faces. If it is assumed that the preference for faces is learned, then strong similarities exist in social experiences of the subjects.

The tendency for large groups of subjects to choose pictures from the Szondi test with approximately the same frequency lent support to the impression that if this dimension could be effectively manipulated marked changes in the structure of the test profiles would result.

2. Limitations of the Experiment.

The attempt to reduce the biases in choice observed in the test was only moderately successful and, therefore, limits the generality of the results. It had been anticipated that, after the cards were manipulated, each portrait would receive about the same number of choices and that these would be equally divided between "liked" and "disliked" selections. The fact that the bias connected with the total number of choices and the bias connected with the distribution of the "liked" and "disliked" choices had to be combined in order to obtain an acceptable level of significance suggested that the manipulation of cards was not as effective as was hoped. The combination of these two scores, however, yielded a significant t-test and was accepted as evidence that the test had been successfully manipulated.

A number of factors were operating to minimize the reduction in bias obtained through modifying the test. Five Szondi portraits represented extremes along a dimension of pleasantness-unpleasantness and their popularity remained unchanged by rearranging the cards. The cards showing extreme popularity or bias appeared unaffected by their new setting and they received approximately the same number of choices as they had using Szondi's arrangement. In order to minimize the biases connected with the selection of these

cards, it would have been necessary to alter the appearance of these portraits.

It was not possible to assign correctly several of the portraits within the six sets of Szondi cards. These portraits showed a degree of attractiveness such that they were popular choices in one set of cards and unpopular choices in another set. For example, several cards showing a relatively high number of positive reactions in the Szondi displayed a predominance of negative choices when they were reassigned to a set containing more attractive portraits. This suggested that the popularity of certain cards was very closely associated with their individual settings. Many of the portraits in the modified Szondi, then, were observed to be of intermediate popularity. That is, they received too many positive choices to be correctly placed in one setting but were not sufficiently attractive to be re-allocated among more pleasing pictures.

A greater reduction in the discrepancy in choice among cards would have been possible by dividing the forty-eight portraits into more than six sets. Additional sets would have created the intermediate stages necessary for the correct placement of many cards. The test, however, requires that each set of cards contain one portrait from each of the eight factors. It could not, therefore, be divided into more than six groups without altering its structure.

A reduction in card popularity depended on changes in the arrangement of the cards. An inspection of the two forms of the Szondi test revealed several groupings of cards in the original Szondi which were identical to groupings in the modified test. The similarities in card position in the two tests suggested that the placement of the portraits in the regular Szondi had not been carried out in a random manner.

The similarities in card position between the regular and the modified Szondi tests also appeared to explain why it was necessary to combine the two scores indicating bias in order to show a significant difference between the two tests. Those portraits which remained together after the cards were reassigned continued to display the same relative discrepancies in popularity among themselves as they had in their original position. The effect of moving cards as a group to a setting with more attractive portraits was to reduce the total number of choices these cards received. Their new position, however, did not alter their rank standing in relationship to each other and the more popular cards maintained their superiority over the other portraits in the group. A reduction in the total number of choices a popular card received was reflected in the test involving the dispersion of choices over the cards. A change in the relative standing of a popular card, however,

was more likely to be reflected in the difference between the number of times it was "liked" and the number of times it was "disliked". Because there were many similar groupings of the cards in the two tests, it might have been anticipated that the test involving a dispersion of choices over the cards would approach a higher level of significance than the test involving the differences between "liked" and "disliked" frequencies. The changes in the selection of the portraits, then, tended to be connected with either the total number of choices or the distribution of "liked" and "disliked" selections.

3. The Szondi Profiles.

The manipulation of card popularity did not result in significant differences in the structure of Szondi profiles. The assumption was that if the structure of the profiles was closely associated with discrepancies in popularity then a significant reduction in these discrepancies would be accompanied by a significant change in the structure of the Szondi profiles. The fact that the popularity of the individual cards could be manipulated without a noticeable effect on the profiles suggests that this dimension is not highly influential in a subject's choice of portraits.

The experiment was designed to show that the subjects were not selecting cards on the basis of Szondi's categories but were reacting to a single dimension of card popularity. The failure to demonstrate a relationship between an individual's selection of cards and the popularity of these cards is in keeping with Szondi's contention that card choice is a matter of individual preference. The results, then, lend some support to the categorization of the portraits in the Szondi test.

SUMMARY AND CONCLUSIONS

An experiment was conducted to investigate the possibility that the profiles observed when the Szondi test is administered result from discrepancies in the popularity of the portraits making up the test.

The first part of the experiment was concerned with the identification and measurement of a dimension of card popularity. Different groups were found to show marked agreement in their preference for certain portraits over others. An attempt was made then to minimize these observed discrepancies in popularity by rearranging the Szondi cards. It was shown that a modified form of the Szondi test, one which did not display the same discrepancies in popularity, could be constructed.

No significant differences were found in the distribution of choices in the individual profiles when the modified Szondi test was compared with the regular Szondi test. The failure to demonstrate a difference in the distribution of choices upheld the null hypothesis that the observed configurations in the test profiles do not result from variations in the popularity of test items.

The results demonstrated that the general popularity of the individual cards is not the determining factor in a subject's selection of portraits. The possibility that

personal needs or drives are operating in a subject's choice of cards was supported by these findings.

Three main suggestions concerning future research emerged from this study:

1. The popularity of each of the cards should be established by having all forty-eight portraits rank-ordered.
2. A study involving portraits should include in the experimental design controls for possible sex differences in choice preferences.
3. The overall stability of the popularity of the cards suggests that individual cards could be given reliable weightings along this dimension. From these weightings an index reflecting the degree of conventionality in a subject's choice of portraits could be constructed.

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An excellent source of experimental data on emotional involvement and the perception of faces.

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The study suggesting that the rating of faces on a dimension of pleasantness-unpleasantness is stable across cultures.

APPENDIX 1

Frequencies of Choice Reactions in Szollosi's Sample

Choice Set	N = 283		Szondi Factor					
	h	s	e	hy	k	p	d	m
Like								
1	54	34	147	94	9	55	30	143
11	92	92	24	10	48	78	81	141
111	71	81	48	14	21	125	73	133
IV	74	164	40	41	80	117	30	20
V	206	43	43	43	56	70	23	82
VI	141	48	67	91	75	24	36	84
Dislike								
1	83	95	35	26	191	46	82	8
11	46	72	110	191	30	53	34	30
111	64	54	24	221	118	32	12	41
IV	57	30	69	54	64	27	151	114
V	9	68	109	61	70	72	92	85
VI	20	111	43	64	84	118	83	43

E. Szollosi, D. E. Lamphiear, and H. L. Best, "The Stimulus Values of the Szondi Test," in the Journal of Consulting Psychology, Vol. 15, No. 4, 1951, p. 419.

APPENDIX 2

ABSTRACT OF

Social Desirability and the Perception of Faces in the Szondi Test¹

An experiment was carried out to test the hypothesis that patterns of choice in the Szondi test result from discrepancies in the popularity of the test items.

The first task in the experiment was the identification of a dimension of card popularity. The correlations between different groups indicated that there was a marked redundancy in frequency with which subjects select the various Szondi portraits. The stereotypy in the choice of cards was labelled, in keeping with other psychometric methods, a factor of social desirability. An attempt was then made to reduce the discrepancies in popularity among the portraits by changing their position in the test. It was shown that a modified form of the Szondi test, one in which the portraits did not show the same discrepancies in popularity found in the regular Szondi, could be constructed.

1. John T. Hamilton, doctoral thesis presented to the School of Psychology of the University of Ottawa, Ontario, December, 1961, viii-79 p.

The prediction made was that the modified test would result in a random distribution of choices in the Szondi profiles. A comparison of profiles from the modified test with those from the regular Szondi did not, however, reveal significant differences. The failure to demonstrate a relationship between the popularity of the cards and an individual's selection of portraits was interpreted as supporting Szondi's contention that the choice of faces in his test is a matter of individual preference.