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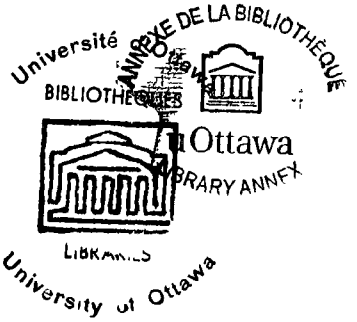
Psychological Differentiation

and

Esteem for One's Co-workers

by Wayne L. Johnston

Thesis presented to the School of Graduate Studies of the University of Ottawa as partial fulfillment of the requirements for the degree of Master of Arts.



Ottawa, Ontario, 1976.

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CURRICULUM STUDIORUM

Wayne Louis Johnston was born at Belleville, Ontario in 1938. He received his Bachelor of Arts degree from Queen's University, Kingston, in 1966.

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INTRODUCTION

There is considerable debate over the use by Fiedler and others of the Least Preferred Co-worker scale as a measure of leadership style. This debate centres on the validity of the interpretation of the scores as indicative of task or social orientation.

The purpose of the present study is to clarify the validity of this interpretation by an analysis of the LPC scale into two factors and then relating the scores derived from the two factors to psychological differentiation, a theory of cognitive organization which has been demonstrated to be related to a large number of personality factors.

The value of establishing such a relationship is that it would connect a major theory of leadership effectiveness with a large body of knowledge on psychological functioning.

The report of this research is arranged in four chapters. In Chapter I there is a review of the literature pertaining to the variables in the study and the hypotheses to be tested. Chapter II contains a description of the research design. The results of analysis of the data are given in Chapter III. Chapter IV presents a discussion of the results.

CHAPTER I

REVIEW OF THE LITERATURE

In this century the psychological study of leadership began with a study of the personality characteristics which identify a person as a leader. It was thought that by isolating these characteristics potential leaders could be trained to be leaders by improving their leadership qualities. The results from this approach to the study of leadership were scant and often confused, so the focus of leadership studies shifted to a study of social climates created by different styles of leadership[1]. The rationale of this approach was that the effectiveness of a work group could be predicted by observing the social climate created by the leader. It is within this context that such concepts as worker morale and job satisfaction became important.

The study of social climates created by differing leadership styles expanded into a study of the context of leadership where investigators attempted to isolate all the factors of the job situation that had a bearing on the leader and the group. In this approach factors such as the nature of the job and the structure of the

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1 Edwin P. Hollander and James W. Julian, "Contemporary Trends in the Analysis of the Leadership Process", in Psychological Bulletin, Vol. 71, No. 5, 1969, p. 387-397.

work group became very important. This situational approach tended to de-emphasize the importance of personality characteristics of the leader and the group members. The Contingency Model of Leadership Effectiveness developed by Fiedler and his associates is an attempt to combine the personality and situational approaches to the study of leadership.

1. The Contingency Model

Fiedler postulates that there are three critical factors which are likely to affect a person's effectiveness as a leader: (a) his personal relations with members of his group, (b) the power and authority which his position provides, and (c) the degree of structure in the task which the group has been assigned to perform[2].

The personal relationship between the leader and the members of the group is a powerful determinant of the effectiveness of the group. The leader who feels accepted by the members of his group is able to act more decisively and with more confidence than the leader who feels rejected or distrusted by the members of his group. The liked and

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2 Fred E. Fiedler, "A Contingency Model of Leadership Effectiveness", in L. Berkowitz (ed.), Advances in Experimental Social Psychology, New York, Academic Press, 1964.

respected leader does not need formal power and is capable of obtaining compliance from his group in his work plans where the disliked leader is incapable of it. The group atmosphere created by these personal relationships may vary because of such external factors as pressure to complete a task or the physical setting in which the group operates.

The leader's position power is the second dimension and is defined by the power inherent in the position. This power includes the power to reward or punish which is traditionally or officially at the leader's disposal, his authority over the members of his group, and the degree to which the organization supports his authority. At the low end of the scale to measure position power would be the chairman of a volunteer group such as canvassers for a charity organization, and at the high end of the scale would be an army sergeant who has the power to discipline the soldiers in his squad and is fully supported in such disciplinary action by the organization.

The third dimension describes the nature of the task in terms of its structure or lack of structure. A structured task is one which can be highly programmed, such as the operation of a machine. An unstructured task is one which has no definite rules or procedures for its accomplishment or one which has an unpredictable outcome. Tasks such as the development of a campaign to improve

a corporation's acceptance by the public or defining organizational goals are examples of unstructured tasks.

Fiedler's basic procedure is to classify any group as high or low on each of these three dimensions so that there are eight possible classifications of the group. These eight possible classifications can be represented by a cube containing eight cells or octants (see Figure I). Fiedler's fundamental hypothesis is that groups that are classified as belonging to different cells or octants may require different "styles" of leadership for effective accomplishment of their group task.

Critical to the understanding of this fundamental hypothesis is the distinction Fiedler makes between leadership behavior and leadership style:

> By leadership behavior we generally mean the particular acts in which a leader engages in the course of his directing and co-ordinating the work of his group members. This may involve such acts as structuring the work relations, praising or criticizing group members, and showing consideration for their welfare and feelings.
>
> Leadership style will be defined here as the underlying need-structure which motivated his behavior in various leadership situations. Leadership style thus refers to the consistency of goals or needs over different situations.[3]

Fiedler in this passage is relating leadership behavior to the traditional study of leadership which began with the

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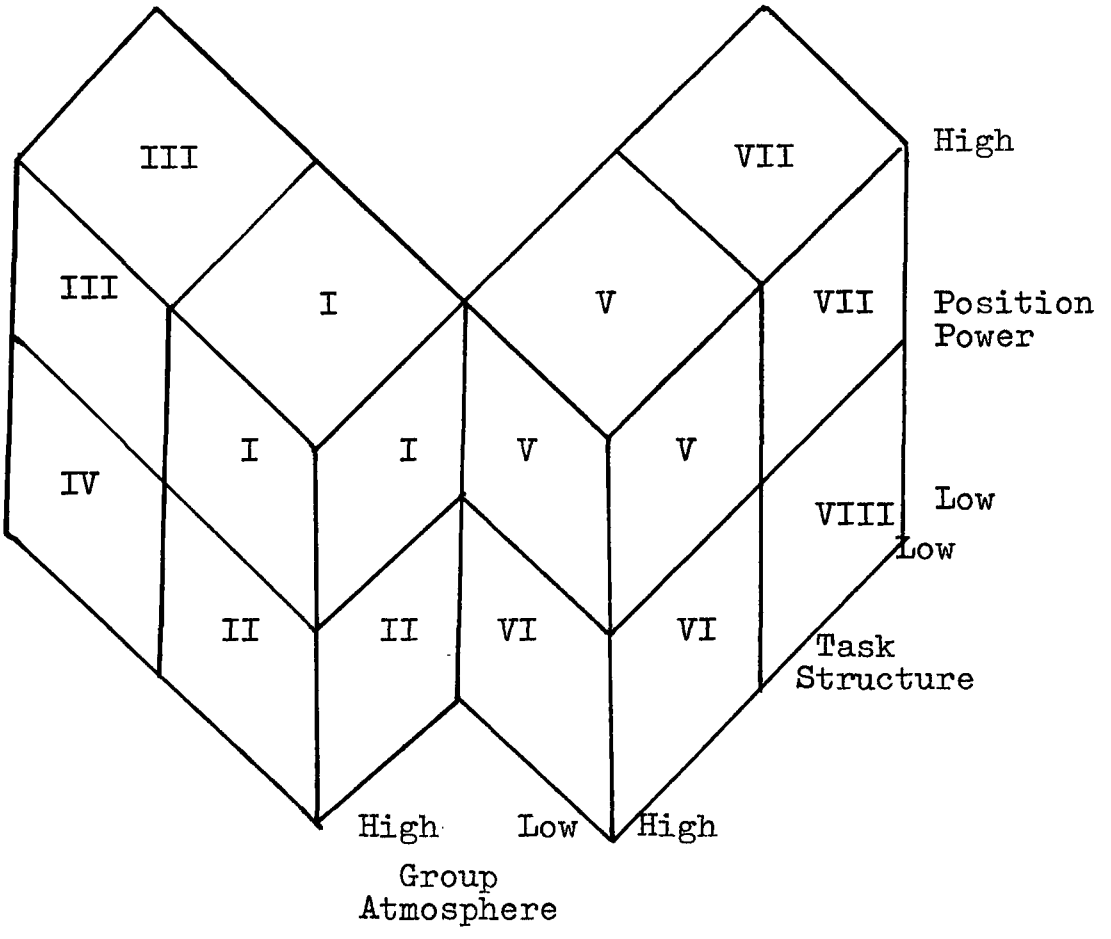
3 Fred E. Fiedler, A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1961, ix + 310 p., p. 6.

Figure I.- A Model for the
Classification of Group Task Situations[4]



4 Fred E. Fiedler, ibid., p. 163.

leadership trait approach and continued with the situational approach. With the situational approach the study was of social climates created by different types of leadership behavior. The passage defines an altogether different approach to the study of effectiveness of leaders. He is suggesting that a common characteristic of leaders is that they have a set of needs which motivates their behavior in such a way that their behavior will satisfy their set of needs.

Fiedler sees two sets of needs being particularly relevant to the study of leadership; one the need for successful interpersonal relations and the other the need for task success[5]. When a person is motivated by the need for successful interpersonal relations he will concentrate on developing good group atmosphere and harmonious relations within the group. When he is motivated by the need for task success his major efforts will be directed toward the accomplishment of the group task in such a way that the job will be well done and will be seen to be well done by all concerned.

These two sets of needs give rise to the two leadership styles, a task oriented style and a socially oriented

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5 Fred E. Fiedler, ibid., p. 45.

style. Fiedler does not believe that a person has one style or the other but rather believes than any leader has both styles and the one he exhibits in a particular leadership situation will depend on whether the leader has a primary motivation for one type of success and whether he perceives the situation to be favourable or threatening[6].

As an example consider a leader who, like anyone else, has a set of needs and desires. In this set are needs for doing a task well and for successful interpersonal relations. Assume that he considers the need for task success to be more important than the need for successful interpersonal relations. In a non-stressful situation he will be reasonably sure that his needs for task success will be fulfilled and he will be free to concentrate on his secondary motivation, the need for successful interpersonal relations. In this situation he will exhibit a socially oriented style of leadership. In a stressful situation he will be in doubt as to whether his primary need for task success will be met so he concentrates on fulfilling the needs of his primary motivation and exhibits a task oriented style of leadership. Another person who has these

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6 Fred E. Fiedler, "Personality, Motivational Systems, and Behavior of High and Low LPC Persons", in Human Relations, Vol. 25, No. 5, 1972, p. 391-412.

motivations reversed in their order of priority would exhibit the other style of leadership in the same situation.

A leader may exhibit a task oriented style of leadership or a socially oriented style of leadership and, depending on the three situational variables, one style would be more effective than the other style.

The details of the construction of the Contingency Model of Leadership Effectiveness require that there be four measures used in any test of the model: a measure for each of the three dimensions and a measure which provides an index of the person's motivational system which can be used to predict the leadership style that a leader will exhibit. This then allows one to predict his effectiveness as a leader.

On the assumption that the way in which a leader views his co-workers reflects important, task relevant attitudes, Fiedler has developed the Least Preferred Co-worker Scale (LPC). The measuring instrument consists of a series of pairs of adjectives which are opposite in meaning and are seperated by an eight part scale (see Figure II). The leader is asked to think of the one person with whom he has had the most difficulty in getting a job done and then to rate the person on all the adjective pairs by putting an X in the appropriate space. The number of

Figure II.-
Some Examples of Items from Fiedler's
Least Preferred Co-worker Scale[7]

Pleasant	:__:__:__:__:__:__:__:__:	Unpleasant
Friendly	:__:__:__:__:__:__:__:__:	Unfriendly
Rejecting	:__:__:__:__:__:__:__:__:	Accepting
Helpful	:__:__:__:__:__:__:__:__:	Frustrating

adjective pairs on the instrument has ranged from sixteen to thirty, depending on the study[8]. The adjective pairs also vary from study to study so that there is no single LPC instrument used in all of the studies which investigate the Contingency Model.

The scoring of the LPC scale is quite simple. The eight spaces between each pair of bipolar adjectives are assigned values from one to eight; one being the value of the space closest to the uncomplimentary term and eight the value of the space closest to the complimentary term. The values are then summed across all the items and the result is the leader's LPC score. When a number of leaders

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7 Fred E. Fiedler, op. cit., 1961, p. 41.

8 Ibid., p. 43.

are being studied it is a common practice to categorize the leaders as High LPC or Low LPC depending on their scores on the instrument. Sometimes this categorizing is done by taking the highest and lowest thirds or quarters of the sample group rather than the upper and lower halves as is the more common case. The item means for the various samples range from 1.2 to 2.2 for Low LPC persons and from 4.1 to 5.7 for High LPC persons[9].

The classification of leaders as High LPC or Low LPC provides the index of the motivational system and by inference the leadership style required by the Contingency Model. How this operates as an index of motivational systems is presented in Figure III.

Figure III.-
Schematic Presentation of Motivational Systems for High and Low LPC Persons[10]

	Primary Motivation Evident in Stressful Situations	Secondary Motivation Evident in Non-stressful Situations
High LPC	Inter personal Relations	Task Success
Low LPC	Task Success	Interpersonal Relations

9 Ibid., p. 44.

10 Fred. E. Fiedler, op. cit., 1972

The interpretation of LPC scores presented above is not the result of constructing an instrument to perform the task of providing an index of motivational systems but is rather the most recent interpretation of the scores in a research effort that has extended over two decades. In the initial development of the scale it was found that LPC scores were unrelated to many commonly used personality measures[11]. In an attempt to find a meaningful interpretation of the scores content analysis was performed on tape recordings of group sessions and the results led the investigators to believe that High LPC leaders tended to be person or human relations oriented whereas Low LPC leader tended to be work or task oriented. This view was later expanded to include motivation as well as orientation so that Fiedler saw the High LPC person "... as a person who derives his major satisfaction from successful interpersonal relationships while the Low LPC person derives his major satisfaction from task performance"[12]. This view was in turn modified by Fiedler's 1972 paper which gave the present two-level motivation scheme presented in Figure III. This modification was made partly because the results of studies involving

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11 A.R. Bass, Fred E. Fiedler, and S. Krueger, Personality Correlates of Assumed Similarity (ASo) and Related Scores, Urbana, Illinois, Group Effectivenes Research Laboratory, University of Illinois, 1964.

12 Fred E. Fiedler, op. cit., 1967, p. 45.

work in the field did not agree with the results of studies involving laboratory or experimental work.

Fiedler suggests that many test or experimental situations are designed to see what an individual will do in a new or unstructured situation. Observations made in this situation will reflect the individual's behavior under some stress; and the stress may be compounded by the fact that he knows an experimenter is watching and evaluating him. Since experiments tend to be stressful situations, the results from them are likely to show High LPC persons as interpersonal relations oriented and Low LPC persons as task success oriented[13].

A number of criticisms of Fiedler's work have centred on the LPC scale as a measure of leadership style. Mitchell et al. point out that the LPC score has been related experimentally to group performance but it has not been consistently related to personality traits or behavior patterns[14]. Ashour points out that the test-retest reliability figures reported in the literature range from 0.70 to 0.31 and a serious question can be raised

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13 Fred E. Fiedler, op. cit., 1972.

14 Terence R. Mitchell, Anthony Biglan, Gerald R. Oncken, and Fred. E. Fiedler, "The Contingency Model: Criticism and Suggestion", in Academy of Management Journal, Vol. 13, No. 3, 1970, p. 253-267.

as to whether the LPC score reflects a stable motivational tendency or that it measures mostly chance response[15].

A point of view which is common in the literature concerning the LPC instrument is that it is a measure of interpersonal perception[16,17,18,19]. The basic assumption is that the rating of one's co-worker depends on how one views that person and how well one is able to isolate in the co-worker's personality the traits which one is required to rate. Consequently any search for a better interpretation of LPC scores should take into consideration the work of those investigating human perception.

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15 Ahmed Sakr Ashour, "The Contingency Model of Leadership Effectiveness: An Evaluation", in Organizational Behavior and Human Performance, Vol. 9, 1973, p. 339-355.

16 Fred E. Fiedler, "Validation and Extension of the Contingency Model of Leadership Effectiveness: A Review of Empirical Findings", in Psychological Bulletin, Vol. 6, No. 2, 1971, p. 128-148.

17 Terence R. Mitchell, "Leader Complexity and Leadership Style", in Journal of Personality and Social Psychology, Vol. 16, No. 1, 1970, p. 166-174.

18 H.M. Schroeder, M.J. Driver, and S. Streufert, Human Information Processing, Holt, Rinehart, and Winston, 1967, vi+224 p.

19 Mitchell et al., op. cit.

2. Psychological Differentiation

Perception is the process of discriminating among stimuli and interpreting the meaning of them. It is an intervening process between the sensory processes and behavior and as such is not directly observable; it is investigated and understood only by observing responses made to stimuli under various conditions[20].

Witkin and his associates have been investigating an area of perception which involves removing an object from an embedding context. This may take different forms depending on the sensory process that is currently under study[21]. In general he has found that people differ markedly in their ability to remove an object from its embedding context. The term which he uses to indicate the ability is field independence, since such persons are not overly influenced by the field or context of the object which should be the focus of their attention. Those who lack the ability are termed field dependent.

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20 Clifford T. Morgan, Introduction to Psychology, (second edition), New York, McGraw-Hill, 1961, xvii+727 p., p. 299.

21 H.A. Witkin, R.B. Dyk, H.F. Faterson, D.R. Goodenough, S.A. Karp, Psychological Differentiation, Lawrence Erlbaum Associates, Potomac, Maryland, 1974. xii+418 p.

Early in his research, Witkin noticed that the trait of overcoming embeddedness was related to a large number of personality variables. This led him to postulate that the trait was related to the total psychological functioning of the individual. Borrowing on the earlier work of Werner, he used the term psychological differentiation to describe this phenomenon. Thus the field independent person would operate at a relatively high level of differentiation and the field dependent person at a relatively low level of differentiation.

The field independent person's tendency to be analytical about himself and his environment extends into other fields than the social-personal field. A tendency towards analytical thinking is an obvious asset in the study of science, and it has been shown that field independents' attitudes towards the study of science and achievement in science studies are superior to field dependents' attitudes and achievemnet[22]. The tendency towards analytical thinking expresses itself, according to Witkin, as an analytical field approach to all the activities in which the subject engages[23], that is, the mode of perception intervenes

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22 Anna Bowles, Extent of Psychological Differentiation as Related to Achievement in Science and Attitude Toward Science, unpublished Master's thesis presented to the University of Ottawa, Ottawa, Ontario, 1973.

23 Witkin et al., op. cit., p. 80.

between the sensory process and behavior and powerfully influences the behavior.

The field dependent person, on the other hand, has a global field approach to his environment[24]. He has a less developed sense of his own identity. He tends to have less capacity for the analysis of his own experience. On the positive side, a number of studies have shown that field dependent persons are selectively attentive to the human content of their environment[25]. For example, they remember faces better. They are more sensitive to praise or criticism by members of their peer groups or authority figures, and are more prone to be guided by the thoughts and positions which they attribute to their peers rather than their own thoughts.

In university, field dependent students tend to take courses that are person oriented while field independent students take courses that are thing or object oriented. The field dependent student will take sociology in preference to engineering while the field independent

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24 Witkin et al., ibid.

25 H.A. Witkin, "The Role of Cognitive Style in Academic Performance and in Teacher Student Relations", in Research Bulletin, Princeton, Educational Testing Service, No. RB-73-11, 1973, 58 p. (mimeo).

student will take engineering in preference to sociology. Even when field independent students take social sciences they gravitate toward research and theoretical topics rather than clinical topics where they would become involved with people.

In their personal relations Witkin found that field dependent persons encounter considerable difficulty in divesting themselves of family dependence and influence and that they are affectionate, considerate, and concerned with the opinions of others. Field independent persons are more concerned with successfully manipulating their environment and are more ambitious, persevering, demanding, manipulative of people, and self-reliant[26]. The picture that emerges is that the field dependent person exhibits a primary motivation system for satisfaction through interpersonal relations and the field independent person a primary motivation system for satisfaction through task success.

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26 Leopold Gruenfeld and Jack Arbuthnot, "Field Independence as a Conceptual Framework for Prediction of Variability of Ratings in Others", in Perceptual and Motor Skills, Vol. 28, 1969, p. 31-44.

3. Research Studies

The description of the High LPC person as a socially oriented person is often referred to in the literature[27]. Althogh Fiedler has qualified this description in a number of ways over the years it still represents his most recent view of the High LPC person. This holds true for the description of the Low LPC person as task oriented also. Witkin's work on psychological differentiation appears to be a good vehicle for examining the validity of these descriptions.

Weissenberg and Gruenfeld investigated the relationship between cognitive style and LPC using the Embedded Figures Test (EFT) as a measure of field independence-field dependence[28]. The subjects were 73 male civil service supervisors with an average age of 51 years and an average experience within the civil service of 24 years. The investigators found by preliminary inspection of the data that the EFT and LPC scores were curvilinearly related

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27 L.W. Gruenfeld, D.E. Rance, and P. Weissenberg, "The Behavior of Task Oriented (Low LPC) and Socially Oriented (High LPC) Leaders Under Several Conditions of Social Support", in The Journal of Social Psychology, Vol. 79, 1969, p. 99-107.

28 P. Weissenberg and L.W. Gruenfeld, "Relationships Among Leadership Dimensions", in Journal of Applied Psychology, Vol. 50, No. 5, 1966, p. 392-395.

and because of this divided the subjects into low, medium, and high groups on the basis of EFT scores, the high group being field dependent and the low group being field independent. The mean for the field independent group was 71.0, the field dependent group 80.3, and the intermediate group 62.0 for the LPC scores. The researchers used analysis of variance and found that differences between the means were significant at the 0.05 level. A Newman-Keuls test showed that the only significant difference between the means was between the intermediate group and the field dependent group. A correlation ratio of 0.87 was calculated.

The standard deviation of the LPC scores for the field independent group was 31.6, for the intermediate group 8.3, and for the field dependent group 7.0. The high variability among the ratings for the field independent persons is not commented on in the report but two possible explanations are found in the literature.

One possible explanation is that the field independent persons rated real co-workers while the field dependent subjects did not. When a subject is asked to rate his least preferred co-worker he must first think of all the persons with whom he has worked and then pick out the one person with whom he worked least well. It may be that the field dependent person has difficulty doing this and instead of making a choice decides to mark a stereotype of all

persons with whom he has difficulty working. Since the field dependent subjects tend to be affectionate and considerate they would also tend to have a similar outlook on their co-workers and this would explain the small standard deviations of the field dependent group. In contrast the field independent subjects would have less trouble determining the persons with whom they worked least well. Since the ratees vary in their personal characteristics and the field independent subjects should be relatively good at differentiating between these characteristics, the variability of the ratings should be high.

Concerning the case of real ratees for the LPC scale, Mitchell asked 119 student subjects at the University of Illinois to state whether persons they had rated on the LPC scale were actual persons[29]. Forty-two percent of the subjects with a low LPC score replied that they had rated a real person compared to eighty-three percent of the subjects with a high LPC score ($p < 0.05$). This shows that for this sample a large number of subjects used stereotypes in the ratings and the previous arguments suggest that field dependent persons would use more stereotypes

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29 Terence R. Mitchell, op. cit., 1970.

than field independent persons. This may account for the greater variability among LPC scores for the field independent subjects.

In a subsequent study, Gruenfeld and Arbuthnot found that when field independent subjects rated several people they showed greater variance in their scores than did field dependent subjects[30]. This supports Witkin's contention that the field independent person should differentiate more highly between others than the field dependent person. The implication for Fiedler's work is that the field independent person may score either high or low on the LPC scale so that there is no simple rule for determining the cognitive style of a person from the LPC score.

Fishbein, Landy, and Hatch have suggested that it may be possible to find at least two attitude dimensions in responses to an LPC scale composed of both task and socially relevant items[31]. Yukl acted on this suggestion and developed an LPC scale based on the work of Fishbein

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30 L.W. Gruenfeld and J. Arbuthnot, "Field Independence as a Conceptual Framework for Prediction of Variability in Ratings of Others", in Perceptual and Motor Skills, Vol. 28, 1969, p. 31-44.

31 M. Fishbein, E. Landy, and G. Hatch, "Some Determinants of an Individual's Esteem for His Least Preferred Co-worker", in Human Relations, Vol. 22, No. 2, 1969, p. 173-188.

et al. which had items not unlike those used by Fiedler and which appeared to be relevant either to task success or harmonious social interactions[32]. The LPC scale was administered to a sample consisting of 21 students, 29 first line supervisors, and 66 second line supervisors. Cluster analysis yielded two clusters which accounted for eighty-seven percent of the communality of the item scores. Six of the items loaded primarily on the task dimension and six items on the social dimension while two of the items had loadings on both factors. The correlation between the two factors was 0.06, indicating a high degree of independence for the two dimensions. Using the independence of the cluster scores as a rationale, Yukl defined Social LPC and Task LPC scores as well as Total LPC scores. He further defined a Net LPC score as the Social LPC score minus the Task LPC score. Task LPC correlated positively with the dimension of Consideration as measured by the Leader Behavior Description Questionnaire ($r = 0.26$, $p < 0.05$) and negatively with the dimension of Initiating Structure ($r = -0.34$, $p < 0.01$). Social LPC correlated negatively with Consideration ($r = -0.16$, n.s.) and positively with

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32 Gary Yukl, "Leader LPC Scores: Attitude Dimensions and Behavioral Correlates", in The Journal of Social Psychology, Vol. 80, 1970, p. 207-212.

Initiating Structure ($r = 0.26$, $p < 0.05$). Total LPC did not correlate significantly with either dimension, which was expected from the work of Fiedler. The Net LPC score correlated negatively with Consideration ($r = -0.32$, $p < 0.01$). While one may question the use of the Net LPC score in view of the high degree of independence of the two factors, the study does make a contribution by providing a better understanding of LPC scores. The results indicate that the LPC score is not independent of the adjective pairs used in the instrument as Fiedler has suggested[33]. Yukl states that non-uniformity of LPC scales used in the study of the Contingency Model of Leadership Effectiveness may partially account for the difficulty researchers have in finding a consistent relationship between LPC scores and leader behavior.

Gruenfeld and Arbuthnot have also attempted an analysis of the LPC instrument[34]. The study was designed to test Fiedler's conclusion that interpersonal orientation was a highly relevant dimension for High LPC persons and

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33 Fred E. Fiedler, A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1967.

34 L.W. Gruenfeld and J. Arbuthnot, "Field Independence, Achievement Values, and Evaluation of a Competancy Related Dimension of the Least Preferred Co-worker Measure", in Perceptual and Motor Skills, Vol. 2, 1968, p. 991-1002.

task orientation was more important for Low LPC subjects. It was hypothesized that field independent persons were task oriented and field dependent persons were socially oriented, basing this hypothesis not only on the work of Witkin, et al., but also on their own research in psychological differentiation and leader attitude and behavior. Fifty-five male undergraduates at Cornell University were given three tests of psychological differentiation and an LPC scale consisting of eighteen items. Five of the items used in this study were the same as the items used in the Yukl study and the other thirteen were different. Principal components analysis yielded four factors; Competence, Social Nurturance, Sociability, and Social Facilitation. The Competence factor appears to be similar to Yukl's Task factor and the other three taken as a group appear to be similar to the Social factor. In the study it was reported that significant negative correlations existed between the Competence dimension and psychological differentiation measures but not between them and the three socially oriented dimensions.

It is regrettable that this study yielded four factors rather than two since this would have aided in the interpretability of the results. It is also regrettable that the Competence sub-scale was based on only three items. As the researchers point out, a scale of this

length is not likely to be very reliable. The study does, however, corroborate Yukl's conclusion that the LPC instrument is not independent of the adjective pairs used in its construction.

4. Summary and Hypotheses

According to Fiedler, "... our incomplete understanding of the Least Preferred Co-worker score clearly represents a weakness in the theory of the Contingency Model"[35]. In spite of this there are many references in the literature to the interpretation of a high LPC score signifying social orientation and a low LPC score signifying task orientation.

Witkin's theory of psychological differentiation appears to be a suitable vehicle for the investigation of this interpretation not only because there is a large body of data which supports the concept of the field independent person being task oriented and the field dependent person being socially oriented, but also because the theory implies that because field independent persons are good at analysis they will rate their least preferred co-worker in a different manner from field dependent persons who have a global

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35 Fred E. Fiedler, op. cit., 1967, p. 47

approach.

The studies discussed indicate the possibility of constructing an LPC scale of commonly used items that by factor analysis will yield a set of items measuring social orientation and another set measuring task orientation. Given such an LPC scale, hypotheses can be developed using Witkin's theory of psychological differentiation.

Since the subject is being asked to rate the person with whom he worked least well, and since the field independent person is concerned with task rather than people, the field independent person will rate his least preferred co-worker lower on the task items than the field dependent person who is more socially oriented and less concerned with task.

The field independent subject will rate his co-worker in a highly variable manner over the items, since rating his co-worker on an item involves isolating a trait in the ratee's personality or behavior. Although the person being rated is the subject's least preferred co-worker, he does come from the ranks of the rater's peers, that is, fellow students, teachers, executives, or group members. As a consequence it is difficult to believe that the person would be totally lacking in good attributes. The field independent subject should be able to distinguish these good attributes and give them a high score. This argument

only applies to the social items because by the argument above the scores on the task items will be uniformly low. The field dependent person, on the other hand, will give a uniform rating across all the items because of his global field apprach. Consequently the variance of the field independent subjects' ratings taken across the social items will be higher than those taken across the task items, and higher than those taken across social or task items by field dependent subjects.

If a subject is asked to rate another person with whom he had difficulty working, the rating of the second person will be related to the rating of the first depending on the cognitive style of the subject. The field dependent subject with his global field approach will see the subjects as very similar and will give ratings that are very similar item by item. As a consequence the item dispersion score found by taking the absolute value of the difference between the pairs of items will be low. The field independent person will see the two ratees as being quite different and consequently the item dispersion scores will be high. The item dispersion score should then correlate positively with psychological differentiation.

The field dependent subject will have difficulty in differentiating the one person with whom he had difficulty in getting a job done while the field independent person

will not. Consequently more of the field independent subjects will rate real persons than the field dependent subjects.

As a consequence of the above discussion, the following research hypotheses are stated:

(1) An LPC scale will yield two factors representing a social dimension and a task dimension.

(2) Scores on Task LPC will be higher for field dependent subjects than for field independent subjects.

(3) Variances taken across the social adjective pairs will be higher for field independent subjects than for field dependent subjects.

(4) The item dispersion scores will be higher for field independent subjects than for field dependent subjects.

(5) The proportion of field independent subjects rating real persons will be greater than the proportion of field dependent subjects.

CHAPTER II

EXPERIMENTAL DESIGN

The experimental method used to implement the general research proposal advanced in the previous chapter is discussed under the following headings: 1. Research Subjects, 2. Measuring Instruments, 3. Collecting and Scoring of the Data, and 4. Data Analysis Methods.

1. Research Subjects

The subjects were 237 students enrolled in graduate studies in Education at a large eastern Canadian university. During the summer session lecturers of classes in Psychology, Administration, and Measurement were asked to co-operate in the project by allowing the students in their classes to complete the measuring instruments in class time. This co-operation was obtained in all classes. The students themselves were then asked to co-operate in a study involving perception. Very few refused.

The ages of the subjects varied from 21 to 64 with a median age of 33. Most of the subjects were full time educators drawn from the ranks of elementary and secondary school teachers, department heads, principals and vice-principals, and consultants. Approximately 40% of the subjects were female. The characteristics of the subjects are detailed in Appendix 2.

Seventeen of the research instruments of the initial test group were discarded because of failure by the research subjects to complete all the items used in tests of hypotheses.

2. Measuring Instruments

Thurstone's Flexibility of Closure Test, also known as the Concealed Figures Test, was used as a measure of field independence - field dependence. It is a ten minute group test composed of fifty-six items consisting of a simple figure and four complex ones. The subject is required to mark which of the complex figures contain the simple one with a check mark (✓) and those which do not contain the simple one with a zero (0). The test is scored by subtracting the number wrong from the number right. Items not attempted by the subject are ignored.

The Flexibility of Closure Test is not one of the measures of field independence - field dependence commonly used by Witkin but is derived from the same source as his Embedded Figures Test (EFT). Several studies have reported correlations between Witkin's measures of psychological differentiation and the Flexibility of Closure Test as high as some of Witkin's measures correlate between

themselves[36,37]. Witkin, et al. explicitly acknowledge this relationship and state that Flexibility of Closure and field independence - field dependence may be different names for the same thing[38]. The instrument has been used either alone or in conjunction with Witkin's measures of cognitive style in investigating such varied topics as concept attainment[39], achievement in science[40], student leadership[41], and age[42]. In these studies the research hypotheses were supported, indicating the construct validity of the Flexibility of Closure Test as a measure of cognitive style.

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36 R. Elliot, "Inter-relationship Measures of Field Dependence, Ability, and Personality Traits", in Journal of Abnormal and Social Psychology, Vol. 63, 1961, p. 27-36.

37 R.W. Gardiner, et al., "Personality Organization in Cognitive Controls and Intellectual Abilities", in Psychological Issues, Vol. 1, 1960, No. 4.

38 Witkin et al., op. cit., p. 52.

39 Louis S. Dickstein, "Field Independence in Concept Attainment", in Perceptual and Motor Skills, Vol. 27, 1968, p. 635-642.

40 Anna Bowles, op. cit.

41 Robert A. Daugherty and Thomas J. Waters, "Closure Flexibility, Field Dependence, and Student Leadership", in Perceptual and Motor Skills, Vol. 27, 1968, p. 256-258.

42 H. Basowitz and S.V. Korchin, "Age Differences in Perception of Closure", in Journal of Abnormal and Social Psychology, Vol. 54, 1957, p. 93-97.

Bowles states the reliability as measured by the Kuder-Richardson Formula 21 as 0.93 which indicates the items in the test are consistently measuring the same property[43].

The Least Preferred Co-worker instrument (see Appendix 1) was constructed from the adjective pairs used in the Yukl study and the Gruenfeld and Arbuthnot study. The items and their sources are given in Table I. Based on the previous studies, a prediction was made for each item as to whether the item would load on the social factor or the task factor. The adjective pairs were assigned their order at random and the left to right orientation of the complimentary term and the uncomplimentary term was also assigned at random.

A standard set of instructions which are commonly used for the LPC scale were written into the test booklet as is the normal practice. Following the LPC scale were instructions for the subject to think of another person with whom he had difficulty in getting a job done. This Next Least Preferred Co-worker (NLPC) was rated on a scale sheet identical to the LPC scale sheet (see Appendix 1).

The last page of the instrument contained a question which asked the subject to state whether or not the persons

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43 Anna Bowles, op. cit., p. 38.

Table I.-
Sources and Predicted Factor Loadings
of Items Used in the Construction of the
Least Preferred Co-worker Scale

Item	Sources	Predicted Factor Loading
1. responsible - irresponsible	1	Task
2. hostile - supportive	2	Social
3. tense - relaxed	2	Social
4. guarded - open	2	Social
5. unpleasant - pleasant	1	Social
6. boring - interesting	1,2	Social
7. careless - careful	1	Task
8. friendly - unfriendly	1,2	Social
9. frustrating - helpful	2	Social
10. enegetic - unenergetic	1	Task
11. considerate - inconsiderate	1	Social
12. efficient - inefficient	1,2	Task
13. lots of fun - serious	2	Social
14. unresourceful - resourceful	1	Task
15. warm - cold	1,2	Social
16. reliable - unreliable	1	Task
17. close - distant	2	Social
18. cheerful - gloomy	1,2	Social

Sources: 1 - Yukl, op. cit.

2 - Gruenfeld and Arbuthnot, op. cit.

rated on the LPC and NLPC scales were real persons.

The first or cover page of the instrument contained questions eliciting the age, sex, teaching experience, position, major subject taken at university, and subject taught. The purpose of gathering this information was to aid in the description of the characteristics of the research subjects.

3. Collection and Scoring of the Data

As described above, subjects were asked in class groups to participate in the research project. Approximately 5% refused. In three of the classes students were asked to participate in the test-retest reliability study four weeks later and they agreed. This request was made prior to the first administration.

The subjects were given five minutes to complete the cover page and then the Flexibility of Closure test was administered according to the instructions in the test manual. At the conclusion of the Flexibility of Closure test the subjects were asked to turn to the next section and follow the instructions. No time limit was placed on the completion of the instrument.

LPC scores were calculated by summing the item scores across the entire list of items. Task LPC and Social LPC scores were calculated by summing across the Task items

or the Social items respectively. Task Variance and Social Variance scores were found by taking the variance across the appropriate items. The Item Dispersion score was found by taking the absolute value of the item difference between the LPC and NLPC scales and then summing across all the items. The scores for each subject are given in Appendix 4.

In order to reduce the error that might be involved in classifying subjects as Field Independent or Field Dependent, subjects were classified as Field Dependent if they ranked in the bottom quarter and Field Independent if they ranked in the top quarter of the Flexibility of Closure scores. Consequently 55 subjects were classified as Field Dependent and 55 were classified as Field Independent.

Four weeks after the first test administration the test was administered again using the same procedure. Forty-nine subjects participated and all responses were usable. These instruments were scored in the same way as the instruments from the first administration.

4. Data Analysis Methods

Items on the LPC scale were factor analyzed to determine whether the two hypothesized factors existed. The following criteria were set for the analysis:

(a) The two factors should have eigenvalues greater than 1.0 and account for more than 5% of the total variance individually.

(b) If another factor accounting for more than 5% of the total variance emerged the analysis should not be classified as successful.

(c) Individual items should load at a level of plus or minus 0.30 on one factor only. If a loading were less than this or if an item loaded on two factors then the item should be discarded.

The analysis was carried out with initial communality estimates set at the squared multiple correlation coefficients. An oblique rotation was carried out. The computer program BMD08M was used[44].

It was proposed that hypotheses 2, 3 and 4 be tested using the t test and that hypothesis 5 be tested using the Fisher Exact Test.

These four hypotheses were tested in the null form at the 0.05 level of significance.

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44 Biomedical Computer Program BMD08M, "Factor Analysis", revised March 27, 1973, Health Sciences Computing Facility, University of California.

CHAPTER III

PRESENTATION OF THE RESULTS

The results of the research are discussed under the headings: 1. Factor Analysis, 2. Reliability of the Data, 3. Statistical Assumptions, and 4. Tests of Hypotheses.

1. Factor Analysis

The LPC scores were analyzed according to the criteria set out in Chapter II. Two factors emerged as predicted. The first had an eigenvalue of 5.69 and accounted for 32% of the total variance. The second had an eigenvalue of 3.33 and accounted for 18% of the total variance. No other factor had an eigenvalue greater than 0.60 or accounted for more than 3% of the total variance. All eighteen items loaded on the factor predicted (see Table II). Two of the adjective pairs, boring - interesting and friendly - unfriendly, loaded above 0.30 on the Task factor as well as the Social factor. Consequently these two items were discarded and the data analyzed again. Again two factors emerged with eigenvalues of 5.03 and 3.28 and accounting for 31% and 21% respectively of the total variance. The correlation between the two factors was 0.13 which indicates a fairly high degree of independence. The loadings of the items are given in Table III.

Table II.-
Factor Loadings of an Eighteen Item LPC Scale

Item	Factor 1 Loading (Social)	Factor 2 Loading (Task)
responsible - irresponsible	-0.04	0.79
hostile - supportive	0.65	0.17
tense - relaxed	0.62	-0.13
guaded - open	0.68	-0.12
unpleasant - pleasant	0.67	0.15
boring - interesting	0.36	0.36
careless - careful	-0.21	0.85
friendly - unfriendly	0.43	0.40
frustrating - helpful	0.68	0.08
energetic - unenergetic	0.11	0.64
considerate - inconsiderate	0.50	0.26
efficient - inefficient	-0.11	0.82
lots of fun - serious	0.59	-0.25
unresourceful - resourceful	0.09	0.55
warm - cold	0.86	-0.05
reliable - unreliable	0.03	0.82
close - distant	0.74	-0.02
cheerful - gloomy	0.77	0.02

Table III.-
Factor Loadings of a Sixteen Item LPC Scale

Item	Factor 1 Loading (Social)	Factor 2 Loading (Task)
responsible - irresponsible	-0.01	0.79
hostile - supportive	0.64	0.18
tense - relaxed	0.61	-0.12
guarded - open	0.67	-0.11
unpleasant - pleasant	0.66	0.16
careless - careful	-0.19	0.82
frustrating - helpful	0.70	0.11
energetic - unenergetic	0.14	0.65
considerate - inconsiderate	0.50	0.26
efficient - inefficient	-0.08	0.81
lots of fun - serious	0.53	-0.24
unresourceful - resourceful	0.11	0.54
warm - cold	0.86	-0.02
reliable - unreliable	0.06	0.83
close - distant	0.74	0.00
cheerful - gloomy	0.78	0.04

Since the data were analyzed according to the criteria set and two independent factors emerged as predicted, the first hypothesis was supported.

2. Reliability of the Data

Forty-nine subjects participated in a retest to determine the stability of the measures used, and the results are detailed in Table IV.

Table IV.-
Test - Retest Reliability of the Measures
After Twenty-eight Days:
(n=49)

Measure	r
Flexibility of Closure	0.80
Least Preferred Co-worker	0.62
Task LPC	0.67
Social LPC	0.57
Item Dispersion Scores	0.48
Task Variance	0.28
Social Variance	0.06

The stability of the Flexibility of Closure scores at 0.80 is satisfactory for instruments of this nature.

The reliabilities of the LPC, Task LPC, and Social

LPC are within the range of 0.35 to 0.70 normally found by Fiedler for LPC scores and are close to the 0.60 he claims for stable populations. The Item Dispersion score reliability is within Fiedler's normal range although somewhat low. The reliabilities of Task Variance and Social Variance are unsatisfactory, consequently the assumption that the variances were reliable measures of the subjects' perceptions of their co-workers was not supported.

The data for the replication group is set out in Appendices 5, 6 and 7.

3. Statistical Assumptions

In testing hypotheses 2, 3 and 4 it was proposed that a t test be used, which depends on a normal distribution of scores. Because of this the Chi Squared Test was used to test for normality of distribution.

The means and standard deviations of the measures used are given in Table V. For the Chi Squared Test an attempt was made to group the scores into fifteen categories but because of problems involving extreme scores the number of groups ranged from 13 to 16. The Task Variance and Social Variance scores were grouped using an interval width of one which yielded 12 and 13 categories respectively. Combining of categories so that the expected frequency in each category exceeded 5 reduced the number of categories in all

Table V.-
Means and Standard Deviations
of the Measures Used
(n=220)

Measure	Mean	Standard Deviation
Least Preferred Co-worker	66.82	19.32
Task LPC	26.43	10.88
Social LPC	40.40	14.36
Item Dispersion Scores	33.60	16.45
Task Variance	1.99	1.81
Social Variance	2.28	1.56

cases. The results of the test are given in Table VI. The results do not support the hypothesis that the scores generally are normally distributed and as a consequence non-parametric tests of hypotheses were substituted.

Table VI.-
Results of Chi Squared Test of Normality
for the Measures Used

Measure	Chi Squared	d.f.	p
Least Preferred Co-worker	10.40	8	n.s.
Task LPC	47.04	11	< 0.001
Social LPC	10.17	9	n.s.
Item Dispersion Scores	27.67	9	< 0.01
Task Variance	62.36	4	< 0.001
Social Variance	34.76	3	< 0.001

4. Tests of Hypotheses

The Median Test was used to test the hypothesis that the scores of Field Independent subjects on Task LPC were lower than the scores of the Field Dependent subjects. Table VII shows the number of Field Independent and Field Dependent subjects scoring above and below the median on Task LPC.

Table VII.-
Number of Field Independent and Field Dependent Subjects Scoring Above and Below the Median on Task LPC

	Field Independent	Field Dependent	Total
Above Median	29	25	54
Below Median	26	30	56
Total	55	55	110

Dependent subjects scoring above and below the median on Task LPC. The Fisher Exact Test was used to calculate the normal deviate $z = 0.76$ (not significant). As a result the hypothesis was not supported.

To obtain a more complete picture of the sub-scales, the test was repeated on the Social LPC scores, except that a t test was used since the Social LPC scores had been found to be normally distributed. The mean for the Field Independent subjects was 42.13 and for the Field Dependent subjects

was 39.65. The t ratio was calculated to be 0.85 (not significant).

The Median Test was also used to test the hypothesis that the Social Variances were higher for Field Independent subjects than for Field Dependent subjects. Table VIII shows the number of Field Independent and Field Dependent subjects scoring above and below the median on Social Variance. The normal deviate was found to be 0.57 (not significant).

Table VIII.-
Number of Field Independent and Field Dependent Subjects Scoring Above and Below the Median on Social Variance

	Field Independent	Field Dependent	Total
Above Median	31	25	56
Below Median	24	30	54
Total	55	55	110

The Task Variance was also analyzed by the Fisher Exact Test and the normal deviate found to be 0.57 (not significant).

Table IX shows the number of Field Independent and Field Dependent subjects scoring above and below the median on the Item Dispersion Score. The normal deviate was found to be -0.57 (not significant).

Table IX.-
Number of Field Independent and Field Dependent Subjects Scoring Above and Below the Median on Item Dispersion Scores

	Field Independent	Field Dependent	Total
Above Median	24	27	51
Below Median	31	28	59
Total	55	55	110

The contingency tables for the number of subjects answering yes to the question about using real ratees for the LPC scale and the NLPC scale are given in Table X. The results of the Fisher Exact Test for the LPC scale was $z = 0.95$ and for the NLPC scale was $z = 1.22$ Neither value is significant.

As a result of these tests, none of the four hypotheses that could be tested for significance was supported.

Table X.-
Number of Field Independent and Field Dependent Subjects Rating Real or Stereotype Persons on LPC and NLPC

LPC

	Field Independent	Field Dependent	Total
Real	46	42	88
Stereotype	9	13	22
Total	55	55	110

NLPC

	Field Independent	Field Dependent	Total
Real	51	47	98
Stereotype	4	8	12
Total	55	55	110

CHAPTER IV

SUMMARY AND CONCLUSIONS

It was proposed to produce a Least Preferred Co-worker instrument which could be factor analyzed into two well defined factors reflecting task ans social facets and to connect these two facets to work that has been done in the field of developmental psychology on psychological differentiation.

The first aim seems to have been accomplished. The sixteen item scale produced has been demonstrated to have factors that are fairly independent of each other and it seems to be as reliable as most LPC instruments. The research suggests that an LPC instrument constructed entirely of task items would have a reliability coefficient of 0.86 as predicted by the general Spearman-Brown formula for an instrument of eighteen items similar to those of the original six task items. A coefficient of reliability this high, if it were achieved, would be most unuasual for an LPC instrument.

The present research supports the contention that the LPC scale is measuring two independent factors. Because of this it seems unreasonable to consider the LPC score as a valid measure of leadership style. Inconclusive results from previous studies may be caused by combining two scores to form a third which is uninterpretable.

In addition, Task LPC and Social LPC scores may

have implications for the Contingency Model of Leadership Effectiveness which are not apparent from the present research. If Fiedler's assumption that a leader's view of his co-workers reflects important task relevant attitudes is correct, then it may also be reasonable to assume that the leader's view of the task and social oriented facets of his co-worker's personality may reflect important task relevant attitudes.

However, the research did fail to provide any link between the two factors of the LPC instrument and psychological differentiation. The reason for this failure may be the way in which the research subjects were chosen.

Teachers in general make up less than 2% of the population. The number of teachers having bachelor's degrees restricts this group severely, and the further restriction of having the group in post-graduate school during the summer creates a very small subset of the population at large.

The result of these restrictions on the sample group would be that a homogeneous group is involved. The members of a homogeneous group are all very much alike and consequently it would take a sensitive measuring instrument to distinguish them. The instruments used may not have had this required degree of sensitivity.

The fact that the research project subjects in the

main were not only educators who would be presumed to be person oriented but were also in the main taking courses in educational administration and educational psychology would tend to make one conclude that the group as a whole was socially oriented. One fact in support of this is that the item mean of the LPC instrument was 4.18 which is within the range 4.1 to 5.7 mentioned by Fiedler as typical of High LPC leaders.

The view of Witkin et al. regarding the operable level of differentiation is that "...whether or not ... a person ... operates at his highest level may depend on motivational factors ..."[45]. The experimental situation described had the great majority of the subjects pursuing socially oriented studies. It is suggested that the particular philosophy expressed throughout the faculty could influence the motivation of the total group of subjects. This may partially account for the non significant results.

Additional research into the nature of the LPC instrument should be based on a broader range of subjects than was used in the present research. Further research may also take into consideration that the number of items in a subscale seems to have some influence on the normality of the distribution of scores, normal distributions being

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45 Witkin et al., op. cit., p. 54.

associated with a large number of adjective pairs. The present study made no attempt to control the amount of stress in the test administration, and control of this variable may lead to interesting results. There appeared to be some evidence that the independence of the factors was correlated with extent of psychological differentiation and research in this area may provide results of general interest in the field of measurement.

The fundamental hypothesis of the research, that the LPC instrument could be factor analyzed into two factors, was supported, but hypotheses relating the two factors to Witkin's theory of psychological differentiation were not supported, possibly because of the makeup of the research group.

ANNOTATED BIBLIOGRAPHY

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A recent criticism of the Contingency Model in which it is suggested that evidence of high test-retest reliability and construct validity of the LPC instrument be obtained before any further use is made of it in tests of the Contingency Model.

Fiedler, Fred E., A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1967.

The most complete statement by Fielder on the Contingency Model which contains a chapter devoted exclusively to research on LPC scores.

-----, 'Personality, Motivational Systems, and Behavior of High and Low LPC Persons', in Human Realtions, Vol. 25, No. 5, 1972, p. 391-412.

A description of the motivational systems of high and low LPC persons and the needs systems arising under stressful and non-stressful situations.

Gruenfeld, Leopold W. and Arbuthnot, Jack, 'Field Independence, Achievement Values, and Evaluation of a Competency-Related Dimension of the Least Preferred Co-Worker (LPC) Measure', in Perceptual and Motor Skills, Vol. 27, 1968, p. 991-1002.

This article provided most of the LPC items for the present research and the results indicated the possibility of constructing a two-factor LPC scale.

Yukl, Gary, 'Leader LPC Scores: Attitude Dimensions and Behavioral Correlates', in The Journal of Social Psychology, Vol. 80, No. 2, 1970, p. 207-212.

The cluster analysis of the LPC instrument contained in this report provided some of the items for the present study.

Witkin, Herman A., 'The Role of Cognitive Style in Academic Performance and in Teacher Student Relations', in Research Bulletin, Educational Testing Service, Princeton, No. RB-73-11, 1973, 58 p. (mimeo).

A paper given by Witkin which summarizes the implications which his theories and research programs have for education.

Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., and Karp, S. A., Psychological Differentiation, Lawrence Erlbaum Associates, Potomac, Maryland, 1974, xii + 418p.

This is a republication of the 1962 book of the same name. It contains a description of the research which led to the development of the Differentiation Hypothesis.

Zigler, Edward, 'A Measure in Search of a Theory?', in Contemporary Psychology, Vol. 8, No. 4, 1963, p. 133-135.

A review of Psychological Differentiation which criticizes the work of Witkin et al. on the grounds of correlation between measures of psychological differentiation and general intelligence and of lack of an adequate theoretical framework for research. See also the defenses by Witkin et al. (p. 363), Korchin (p. 365) and the rebuttal by Zigler (p. 459) in the same volume.

APPENDIX 1

Research Instrument Used in

Psychological Differentiation and Esteem for One's Co-workers

Note: The instrument Flexibility of Closure contained on the second through the eighth pages of the instrument are omitted.

___Age in years

___Sex (M or F)

___No. of years of teaching experience completed as of September 1, 1974

Indicate by a check-mark (✓) that which best describes your position in the school:

1 ___Teacher, reporting to a department head or dean

2 ___Teacher, reporting to the principal and/or vice-principal rather than the department head or dean

3 ___Teacher, responsible for directing the work of one or two other teachers

4 ___Teacher, responsible for directing the work of three or four other teachers

5 ___Teacher, responsible for directing the work of five or more other teachers

6 ___Vice-principal or principal

Name the one subject which you consider to be your specialty, regardless of your present teaching or responsibility assignment

_____

What is/was your major subject in university? (leave blank if you have never taken university subjects)

_____

STOP

Wait for instructions

People differ in the ways they think about those with whom they work. This may be important in working with others. Please give your immediate first reaction to the items contained on the following scale sheets.

On the scale sheets are pairs of words which are opposite in meaning or nearly so, such as neat and untidy. You are asked to describe someone with whom you have worked by placing an "X" in one of the eight spaces on the line between the two words.

Each space represents how well the adjective fits the person you are describing, as if it were written:

Neat:_____:_____:_____:_____:_____:_____:_____:_____:Untidy

very neat	quite neat	somewhat neat	slightly neat	slightly untidy	somewhat untidy	quite untidy	very untidy

For example, if you were to describe the person with whom you are able to work best, and you ordinarily think of him or her as being quite neat, you would put an "X" in the second space from the word Neat, like this:

Neat:_____:_X_:_____:_____:_____:_____:_____:_____:Untidy

If you ordinarily think of the person with whom you can work best as being only slightly neat, you would put your "X" as follows:

Neat:_____:_____:_____:_X_:_____:_____:_____:_____:Untidy

If you think of him or her as being very untidy, you would use the space next to Untidy:

Neat:_____:_____:_____:_____:_____:_____:_____:__X__:Untidy

Look at the words at both ends of the line before you put in your "X". Please remember there are no right or wrong answers. Work rapidly; your first answer is likely to be the best. Please do not omit any items, and mark each item only once.

Now, think of the person with whom you can work least well. He or she may be someone you work with now, or he may be someone you knew in the past.

He does not have to be the person you like least well, but should be the person with whom you had the most difficulty in getting a job done.

Rate this person on the following scale sheet.

responsible:___:___:___:___:___:___:___:___:irresponsible

hostile:___:___:___:___:___:___:___:___:supportive

tense:___:___:___:___:___:___:___:___:relaxed

guarded:___:___:___:___:___:___:___:___:open

unpleasant:___:___:___:___:___:___:___:___:pleasant

boring:___:___:___:___:___:___:___:___:interesting

careless:___:___:___:___:___:___:___:___:careful

frustrating:___:___:___:___:___:___:___:___:helpful

friendly:___:___:___:___:___:___:___:___:unfriendly

energetic:___:___:___:___:___:___:___:___:unenergetic

considerate:___:___:___:___:___:___:___:___:inconsiderate

efficient:___:___:___:___:___:___:___:___:inefficient

lots of fun:___:___:___:___:___:___:___:___:serious

unresourceful:___:___:___:___:___:___:___:___:resourceful

warm:___:___:___:___:___:___:___:___:cold

reliable:___:___:___:___:___:___:___:___:unreliable

close:___:___:___:___:___:___:___:___:distant

cheerful:___:___:___:___:___:___:___:___:gloomy

GO TO NEXT PAGE

Now think of another person with whom you have worked and with whom you had difficulty in getting a job done.

Other than the person you rated previously, this is the person with whom you can work least well.

Rate this person on the following scale sheet.

responsible:___:___:___:___:___:___:___:___:irresponsible

hostile:___:___:___:___:___:___:___:___:supportive

tense:___:___:___:___:___:___:___:___:relaxed

guarded:___:___:___:___:___:___:___:___:open

unpleasant:___:___:___:___:___:___:___:___:pleasant

boring:___:___:___:___:___:___:___:___:interesting

careless:___:___:___:___:___:___:___:___:careful

frustrating:___:___:___:___:___:___:___:___:helpful

friendly:___:___:___:___:___:___:___:___:unfriendly

energetic:___:___:___:___:___:___:___:___:unenergetic

considerate:___:___:___:___:___:___:___:___:inconsiderate

efficient:___:___:___:___:___:___:___:___:inefficient

lots of fun:___:___:___:___:___:___:___:___:serious

unresourceful:___:___:___:___:___:___:___:___:resourceful

warm:___:___:___:___:___:___:___:___:cold

reliable:___:___:___:___:___:___:___:___:unreliable

close:___:___:___:___:___:___:___:___:distant

cheerful:___:___:___:___:___:___:___:___:gloomy

GO TO NEXT PAGE

When asked to rate someone on scales such as the ones on pages eleven and thirteen of this questionnaire, there is a tendency among some raters to mark a composite of persons that the rater had difficulty in working with rather than a specific real person.

Did you rate a specific real person as your least preferred coworker on page eleven?

___Yes

___No

Did you rate a specific real person as your next least preferred coworker on page thirteen?

___Yes

___No

END

APPENDIX 2

Flexibility of Closure Scores and Subject Characteristics from the Research Instrument

Note: (1) An age or teaching experience of -1 indicates the age or teaching experience was not given by the subject.

(2) The Position Code key is given on page 58 of Appendix 1.

(3) A Position Code of 7 indicates the position code was not given by the subject.

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
1	45	F	12	6	-36
2	35	M	10	5	4
3	63	M	24	1	20
4	40	M	20	6	20
5	27	M	6	3	22
6	42	F	0	6	23
7	39	F	20	6	26
8	27	M	1	1	26
9	25	F	6	2	28
10	33	M	10	2	32
11	50	M	26	5	34
12	-1	M	11	5	34
13	29	M	7	1	34
14	35	M	17	2	34
15	25	F	2	2	34
16	-1	M	20	1	36
17	58	F	21	2	36
18	34	M	10	5	36
19	26	M	2	2	36
20	35	M	1	2	37
21	25	F	3	5	38
22	35	M	10	1	39
23	34	F	11	6	39

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
24	34	M	5	2	40
25	24	M	2	2	42
26	60	F	37	1	42
27	26	M	5	1	43
28	41	M	13	5	43
29	31	M	7	1	43
30	33	M	12	6	43
31	31	F	10	6	45
32	47	F	11	9	45
33	27	M	3	6	46
34	39	M	12	2	48
35	48	F	29	6	48
36	37	M	13	5	50
37	33	M	11	1	51
38	36	M	16	3	52
39	23	F	1	1	52
40	28	M	1	2	52
41	33	M	9	1	52
42	60	M	30	5	52
43	-1	M	8	1	52
44	35	M	13	6	53
45	22	F	1	1	54
46	45	F	3	1	54

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
47	54	M	16	5	54
48	38	M	2	1	54
49	31	F	10	7	54
50	39	M	23	1	55
51	50	M	10	1	56
52	64	M	9	2	57
53	55	M	5	2	57
54	28	M	6	4	56
55	30	F	11	6	57
56	27	M	-1	2	57
57	24	F	1	2	57
58	27	F	1	1	58
59	35	M	15	6	58
60	29	M	5	2	58
61	25	F	2	1	58
62	27	M	4	2	59
63	32	F	11	4	59
64	-1	F	-1	6	60
65	33	M	13	6	60
66	29	M	2	5	60
67	32	M	1	4	62
68	46	F	18	1	62
69	37	F	13	6	62

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
70	48	F	12	6	62
71	-1	F	15	6	62
72	37	M	15	6	62
73	40	M	11	4	62
74	30	M	5	3	64
75	45	M	13	5	64
76	29	F	6	1	64
77	33	M	11	5	64
78	28	F	6	2	64
79	32	M	6	1	65
80	30	M	8	6	65
81	33	M	13	6	65
82	28	M	8	2	65
83	41	M	4	1	66
84	27	F	4	1	66
85	40	M	21	5	66
86	30	F	7	4	66
87	-1	M	15	2	66
88	42	M	18	1	67
89	34	M	13	6	67
90	27	M	4	2	68
91	37	F	18	6	68
92	46	M	12	1	69

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
93	28	F	10	2	68
94	43	M	24	6	68
95	45	M	21	6	68
96	35	F	11	2	69
97	33	M	11	6	70
98	30	M	7	1	70
99	32	M	12	6	70
100	29	M	4	2	71
101	30	M	5	2	72
102	29	F	7	1	72
103	35	F	12	2	72
104	56	M	10	1	72
105	28	M	9	6	72
106	24	F	4	2	72
107	38	M	13	6	72
108	27	M	3	1	73
109	35	F	10	3	74
110	30	F	3	2	74
111	32	M	7	4	74
112	38	M	15	6	74
113	37	M	11	1	74
114	24	M	2	1	74
115	25	F	2	3	75

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
116	28	M	6	2	75
117	36	M	16	6	76
118	31	F	13	2	76
119	46	M	20	6	76
120	35	M	12	6	76
121	33	M	9	5	76
122	27	M	-1	6	76
123	36	M	13	4	76
124	33	F	10	1	77
125	38	F	14	2	78
126	36	M	13	6	78
127	-1	F	0	1	78
128	29	M	7	2	79
129	27	F	2	2	80
130	28	F	5	2	80
131	24	M	1	1	80
132	41	M	15	5	80
133	48	F	12	1	82
134	30	M	8	3	82
135	29	F	2	1	82
136	44	M	22	1	82
137	24	F	0	1	82
138	34	F	12	2	82

APPENDIX 2

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
139	25	F	1	2	82
140	46	M	24	6	83
141	43	M	22	6	83
142	31	M	11	6	83
143	24	M	2	2	83
144	31	F	11	1	83
145	33	M	7	1	84
146	46	F	13	4	84
147	42	M	12	5	84
148	44	M	23	1	94
149	28	F	5	1	84
150	31	M	5	2	94
151	29	F	2	2	84
152	38	M	14	2	85
153	33	M	10	4	85
154	-1	M	8	1	85
155	38	M	14	4	86
156	27	M	0	2	86
157	27	M	5	2	86
158	28	M	4	2	88
159	33	M	3	1	65
160	48	M	29	1	88
161	28	F	5	2	88

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
162	31	F	4	3	88
163	25	F	2	2	88
164	23	F	1	2	89
165	53	M	10	1	90
166	51	F	31	6	91
167	45	F	4	1	91
168	39	M	21	6	92
169	26	F	2	2	92
170	31	F	6	1	92
171	40	M	18	5	92
172	-1	M	16	1	92
173	28	M	2	1	93
174	32	M	12	6	94
175	21	M	1	1	94
176	31	M	7	2	94
177	27	F	2	3	94
178	41	M	11	1	94
179	31	M	6	1	94
180	35	M	14	6	95
181	41	F	19	1	95
182	-1	M	13	3	96
183	28	M	2	1	96
184	37	M	9	1	96

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
185	28	M	5	2	96
186	31	M	9	2	96
187	43	M	11	1	96
188	39	M	16	1	98
189	-1	F	17	1	98
190	27	F	0	1	98
191	30	M	8	1	99
192	33	M	14	6	99
193	29	M	6	1	100
194	34	M	10	6	100
195	37	M	4	2	100
196	40	M	9	1	100
197	40	M	6	1	100
198	28	M	5	1	106
199	34	M	10	6	107
200	34	M	11	2	108
201	28	F	5	2	108
202	28	M	3	1	108
203	36	M	17	6	109
204	39	M	10	1	109
205	35	M	9	2	109
206	37	M	12	5	110
207	31	M	9	6	113

APPENDIX 2

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
208	31	M	13	4	114
209	28	M	5	2	116
210	39	M	16	1	116
211	37	M	13	1	116
212	31	M	8	1	118
213	27	F	5	2	119
214	25	F	1	1	119
215	32	M	10	5	121
216	40	M	13	6	122
217	34	M	12	6	130
218	35	M	9	1	135
219	37	M	12	4	136
220	43	M	15	6	139

APPENDIX 3

Item Scores of Least Preferred Co-worker (LPC) And Next Least Preferred Co-worker (NLPC) Scales

Note: Item Classification codes are as folowws:

O - item omitted after first factor analysis

S - a Social LPC item

T - a Task LPC item

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
1	LPC	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	NLPC	1	4	2	2	4	4	4	2	5	2	2	2	4	4	5	2	2	5
2	LPC	6	4	6	6	3	2	3	4	6	7	4	6	6	5	6	5	5	5
	NLPC	7	2	7	6	5	4	7	6	8	7	6	6	3	4	5	7	7	6
3	LPC	3	3	1	2	2	2	2	2	3	3	3	3	8	1	1	1	1	1
	NLPC	1	1	1	1	1	1	1	1	7	1	1	1	8	1	1	1	1	1
4	LPC	8	7	7	8	7	8	7	8	7	7	8	8	2	8	7	8	8	8
	NLPC	1	1	8	1	1	2	1	2	1	1	1	1	8	2	2	2	2	1
5	LPC	3	4	3	4	2	3	1	1	5	3	5	2	5	6	5	2	3	3
	NLPC	1	4	7	6	5	2	2	2	5	2	5	2	5	3	5	2	5	5
6	LPC	3	3	2	1	4	4	7	2	6	3	7	3	5	3	2	3	5	3
	NLPC	3	7	3	2	6	5	3	2	3	5	2	2	3	2	4	1	2	6
7	LPC	2	6	6	2	4	4	1	3	7	5	7	2	5	2	5	1	6	7
	NLPC	1	4	4	4	4	5	1	1	4	3	3	2	4	2	4	1	4	5
8	LPC	3	4	4	4	2	2	5	2	4	2	2	3	2	4	2	3	3	2
	NLPC	3	3	4	5	5	3	2	4	6	3	3	3	6	6	5	5	3	6
9	LPC	4	5	2	7	5	5	5	5	7	6	3	4	7	5	6	4	3	5
	NLPC	7	4	1	1	4	2	8	4	5	8	5	8	3	8	3	8	2	4
10	LPC	3	6	6	6	6	6	3	6	6	6	3	6	6	5	5	2	5	6
	NLPC	2	3	3	4	4	4	3	5	5	5	5	3	4	3	5	2	5	5
11	LPC	3	6	2	2	7	7	4	3	7	5	7	3	3	4	7	5	4	6
	NLPC	4	6	7	6	7	7	4	5	7	4	4	5	2	6	5	3	3	7
12	LPC	5	1	2	2	4	2	6	1	5	1	1	1	4	1	3	6	5	3
	NLPC	2	3	4	2	5	5	3	1	7	6	1	5	5	4	2	2	2	7
13	LPC	8	1	1	4	3	6	8	1	2	8	1	3	3	8	6	8	6	3
	NLPC	1	1	7	8	1	3	1	1	7	5	1	1	7	1	5	1	2	3
14	LPC	6	3	2	2	1	2	5	2	2	3	4	3	4	3	2	2	2	3
	NLPC	8	6	5	2	4	2	4	2	4	5	1	6	4	7	6	7	5	5
15	LPC	8	6	7	6	6	7	8	8	7	8	7	7	7	8	7	7	7	7
	NLPC	2	3	2	3	3	3	2	2	2	1	2	2	2	2	2	2	2	2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
16	LPC	3	1	1	1	1	1	1	1	1	1	1	7	1	3	2	5	1	1
	NLPC	5	4	2	2	1	3	1	2	3	3	3	4	1	1	1	1	1	1
17	LPC	4	2	3	1	3	1	3	2	5	6	2	4	1	2	2	2	1	1
	NLPC	8	1	2	2	5	1	8	1	8	3	1	4	3	6	2	4	3	1
18	LPC	8	8	1	1	8	1	1	7	8	2	8	1	1	1	3	3	1	1
	NLPC	8	8	1	1	8	1	1	7	8	2	8	1	1	1	3	3	1	1
19	LPC	7	2	4	4	1	3	8	1	5	7	4	7	1	8	1	5	2	3
	NLPC	2	2	7	2	2	2	2	1	2	3	3	3	2	1	1	2	3	2
20	LPC	8	8	6	6	7	7	8	8	8	7	7	8	2	7	7	8	6	5
	NLPC	2	2	2	2	3	3	4	2	2	5	2	4	2	1	2	2	1	2
21	LPC	3	5	7	6	5	3	4	4	6	3	6	4	4	7	4	4	4	4
	NLPC	3	5	4	4	5	1	4	5	4	3	4	4	4	5	5	3	4	5
22	LPC	7	3	1	1	4	6	7	1	2	7	1	2	1	6	1	3	1	3
	NLPC	8	5	1	6	6	8	1	1	7	8	6	2	6	8	7	6	5	7
23	LPC	8	3	2	6	5	5	8	7	7	8	7	8	2	6	2	8	6	7
	NLPC	8	6	2	3	8	7	7	8	7	6	7	7	6	7	7	5	4	8
24	LPC	4	4	1	2	3	4	4	2	3	4	1	3	4	3	3	3	1	5
	NLPC	6	5	6	6	5	6	4	3	3	4	1	3	4	4	4	4	2	3
25	LPC	7	1	1	3	5	2	1	3	1	4	2	1	1	2	1	2	5	1
	NLPC	3	1	1	1	3	2	6	2	6	6	7	8	2	6	4	6	3	4
26	LPC	3	6	5	7	7	3	1	4	8	5	6	2	5	3	3	3	7	8
	NLPC	6	6	1	2	7	3	5	3	2	8	6	4	2	3	4	2	3	3
27	LPC	2	3	3	4	5	6	8	7	3	2	2	2	3	5	3	2	2	2
	NLPC	4	3	3	2	3	4	7	6	4	2	4	2	3	4	4	7	4	5
28	LPC	3	2	2	4	4	5	4	2	4	2	3	3	5	2	3	1	2	3
	NLPC	7	6	4	8	7	7	2	5	7	7	5	2	7	7	6	4	7	7
29	LPC	3	4	5	5	6	6	4	4	4	3	3	5	4	6	3	4	5	3
	NLPC	2	7	8	3	7	4	3	3	6	2	2	2	6	5	4	2	2	5
30	LPC	7	2	2	1	4	6	6	3	4	8	6	5	2	5	3	7	3	3
	NLPC	8	4	2	7	6	6	8	3	2	7	7	4	4	5	5	8	4	4

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
31	LPC	3	3	4	2	3	4	3	2	5	3	5	1	3	3	3	2	3	4
	NLPC	2	2	2	3	1	4	2	1	3	2	3	3	2	3	3	2	2	3
32	LPC	4	3	1	1	5	4	6	2	4	2	1	4	3	2	2	2	5	2
	NLPC	4	7	7	7	7	5	5	2	7	5	6	3	5	5	6	4	4	5
33	LPC	2	1	2	2	2	1	5	1	4	8	4	4	1	8	5	2	2	5
	NLPC	2	1	4	4	1	1	5	1	5	2	4	3	3	3	1	3	3	3
34	LPC	8	6	3	1	3	7	8	6	6	8	4	8	3	7	5	7	5	5
	NLPC	8	6	6	2	7	7	8	6	6	8	6	8	3	8	5	8	5	5
35	LPC	7	7	8	7	7	7	7	7	7	6	7	6	7	7	7	8	7	7
	NLPC	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
36	LPC	8	2	2	2	3	3	6	3	7	8	4	7	2	2	2	8	1	3
	NLPC	8	7	8	7	7	8	8	7	8	8	7	8	7	8	8	8	7	8
37	LPC	3	2	1	2	8	5	1	5	7	8	4	1	4	4	7	3	7	8
	NLPC	8	2	4	2	3	6	8	3	6	8	2	8	1	8	4	6	3	6
38	LPC	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1
	NLPC	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1
39	LPC	1	3	3	3	4	1	4	4	5	7	1	2	4	5	2	1	2	4
	NLPC	8	1	1	1	2	5	8	1	1	4	1	7	1	4	1	8	1	1
40	LPC	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	NLPC	4	1	3	1	2	5	7	1	1	7	1	6	1	2	1	6	2	3
41	LPC	6	6	4	3	5	5	6	4	6	7	2	8	4	2	5	7	4	7
	NLPC	4	4	5	2	2	3	1	1	2	2	1	2	4	2	2	3	2	3
42	LPC	8	4	4	3	7	3	8	4	5	7	3	7	4	7	3	6	3	5
	NLPC	3	4	6	3	4	6	3	2	6	5	4	2	7	2	4	4	4	4
43	LPC	2	3	3	7	3	1	4	1	5	3	4	3	3	2	3	6	2	2
	NLPC	2	1	2	1	1	2	2	2	2	2	2	2	3	3	2	2	1	3
44	LPC	3	2	2	2	3	4	4	2	2	4	1	3	3	6	1	3	1	2
	NLPC	6	6	7	5	7	6	3	4	7	5	6	2	7	4	7	4	7	7
45	LPC	2	2	7	7	1	2	2	1	2	2	1	1	1	2	1	1	1	2
	NLPC	2	2	2	7	2	2	2	1	1	2	1	2	1	2	1	1	1	2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
46	LPC	2	2	4	1	7	3	5	1	2	2	3	1	2	2	2	3	1	2
	NLPC	4	6	5	5	8	6	5	1	4	4	3	2	1	2	2	2	1	2
47	LPC	3	2	2	2	3	3	2	3	5	6	6	7	5	3	5	5	3	3
	NLPC	6	2	2	2	3	3	3	3	2	3	3	6	2	5	3	4	3	3
48	LPC	3	2	4	3	7	5	2	2	7	2	7	2	7	3	7	3	2	8
	NLPC	6	6	4	4	2	4	4	3	6	3	5	2	7	3	6	4	4	6
49	LPC	7	6	2	3	6	3	7	6	7	7	6	7	5	3	5	7	3	4
	NLPC	3	4	4	6	4	2	4	3	3	3	3	5	5	4	5	3	3	4
50	LPC	7	6	8	8	8	8	7	7	7	8	6	6	8	2	8	8	7	8
	NLPC	1	1	1	1	1	1	8	1	1	1	1	1	1	5	1	1	1	1
51	LPC	3	6	6	5	8	6	3	3	7	7	7	2	7	5	7	5	6	7
	NLPC	5	4	2	2	3	2	7	5	4	2	5	4	2	5	4	4	2	2
52	LPC	1	2	3	3	4	2	1	1	6	1	2	1	4	1	2	1	1	1
	NLPC	6	2	7	7	7	5	6	2	2	7	3	8	6	8	7	8	1	7
53	LPC	5	3	2	2	4	1	4	4	8	4	3	1	8	5	4	2	3	8
	NLPC	7	4	2	2	7	1	5	2	7	8	1	8	1	2	5	2	1	5
54	LPC	7	4	1	1	5	4	8	5	4	8	6	6	1	5	2	8	1	5
	NLPC	8	4	1	1	6	4	8	4	5	8	5	8	1	4	3	8	2	3
55	LPC	2	5	6	5	6	1	5	3	6	3	5	4	7	5	7	3	5	6
	NLPC	3	5	3	6	1	2	2	2	5	3	3	3	7	6	7	3	7	7
56	LPC	2	2	2	2	2	3	4	1	3	2	1	3	2	2	2	2	2	2
	NLPC	2	2	3	2	1	3	2	2	2	2	2	2	2	2	2	2	2	2
57	LPC	5	7	1	1	5	1	7	7	2	1	7	1	1	4	2	1	2	1
	NLPC	4	6	1	3	5	1	5	2	1	4	7	1	1	4	4	2	5	1
58	LPC	7	4	1	3	4	7	6	4	5	8	2	7	6	7	5	7	4	6
	NLPC	3	3	2	7	6	7	2	2	7	2	2	2	7	6	6	2	4	5
59	LPC	7	3	8	3	3	6	2	2	8	8	2	2	7	6	6	6	5	7
	NLPC	6	7	3	3	7	6	7	6	7	7	7	6	6	4	3	6	6	7
60	LPC	2	2	2	3	3	2	2	3	3	4	2	3	2	7	3	2	2	3
	NLPC	2	3	3	2	3	3	3	4	2	6	2	3	2	6	2	2	3	2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
61	LPC	7	2	2	3	2	4	7	1	5	8	2	7	4	5	2	7	2	3
	NLPC	1	6	3	7	5	8	1	1	3	5	3	1	5	8	5	1	5	5
62	LPC	2	6	5	3	6	5	2	2	2	1	3	2	6	2	6	2	5	5
	NLPC	5	2	4	5	2	2	3	3	3	6	1	3	2	4	3	6	2	4
63	LPC	5	6	2	2	5	4	5	3	5	3	6	6	5	1	3	5	2	2
	NLPC	3	1	2	1	1	1	8	3	3	8	1	1	1	1	5	3	1	5
64	LPC	7	1	2	1	1	6	8	2	1	6	1	8	4	6	1	7	2	2
	NLPC	7	4	4	2	4	4	7	2	3	3	3	7	2	3	5	6	2	5
65	LPC	3	4	7	6	3	6	3	3	7	7	7	3	7	4	6	4	5	6
	NLPC	3	4	4	3	5	5	4	6	7	5	3	4	5	6	6	3	4	6
66	LPC	8	4	3	2	5	1	8	3	7	8	3	8	5	3	5	8	6	6
	NLPC	2	3	3	1	7	6	8	1	8	6	7	1	2	8	7	4	7	7
67	LPC	4	5	5	4	4	3	2	1	5	7	1	8	1	1	3	7	3	5
	NLPC	8	1	1	1	1	2	1	3	2	8	1	8	1	4	5	6	2	4
68	LPC	2	6	7	6	8	4	2	2	7	5	1	1	4	2	7	1	4	7
	NLPC	6	7	7	7	8	8	4	8	7	8	8	4	7	8	8	6	6	8
69	LPC	3	4	3	2	6	4	3	1	3	5	3	2	2	2	4	3	3	4
	NLPC	7	6	1	4	6	6	8	1	7	7	6	1	5	6	7	7	7	6
70	LPC	1	5	4	3	3	3	1	1	4	1	3	1	4	5	4	1	3	8
	NLPC	2	2	1	1	3	3	8	1	2	2	1	4	1	5	1	1	3	3
71	LPC	5	1	2	2	4	4	8	2	1	8	3	7	2	5	2	4	1	1
	NLPC	8	8	2	2	7	7	7	3	6	8	6	8	1	8	4	8	2	6
72	LPC	5	3	3	2	4	4	3	3	3	5	3	2	3	6	4	5	3	2
	NLPC	3	4	4	2	3	2	3	2	6	2	3	2	4	2	5	1	2	5
73	LPC	3	3	3	3	4	2	3	2	4	3	4	4	4	3	4	3	5	3
	NLPC	3	3	5	7	5	6	6	3	2	3	2	4	4	3	4	4	2	5
74	LPC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	NLPC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
75	LPC	1	3	2	2	2	2	7	6	7	7	3	7	2	7	2	7	7	3
	NLPC	7	7	2	6	3	2	6	6	7	7	3	7	3	6	3	7	7	3

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION T S S S S O T O S T S T S T S T S S
76	LPC	8 3 3 3 4 3 7 1 2 8 3 7 2 7 1 7 1 2
	NLPC	5 6 5 3 4 6 2 2 8 8 2 1 5 4 5 1 5 7
77	LPC	6 4 2 2 7 5 5 2 3 6 7 4 4 6 6 3 2 6
	NLPC	7 3 1 2 2 2 6 3 6 7 8 6 6 2 7 7 3 7
78	LPC	6 5 5 3 5 5 2 2 3 3 3 3 2 2 2 6 1 1
	NLPC	6 6 6 6 6 4 4 4 4 3 3 4 6 5 4 3 3 5
79	LPC	7 2 1 1 6 5 7 2 2 3 7 2 5 7 7 7 7 5
	NLPC	2 7 1 1 7 1 2 1 2 1 7 1 1 2 2 4 1 3
80	LPC	2 2 8 7 2 6 2 6 3 4 4 4 5 7 5 3 6 6
	NLPC	5 4 2 3 6 6 2 2 7 6 5 6 5 2 6 6 6 6
81	LPC	2 3 5 8 6 3 3 3 8 3 7 1 6 7 4 3 5 5
	NLPC	6 4 2 1 5 4 3 4 5 5 3 2 3 4 1 3 2 4
82	LPC	3 2 7 3 2 5 3 2 6 2 1 5 5 2 4 2 4 5
	NLPC	4 7 3 7 7 5 3 6 8 6 3 2 4 7 5 2 5 5
83	LPC	5 5 1 2 5 5 2 2 5 6 3 1 6 3 4 4 2 6
	NLPC	6 4 3 3 1 1 6 1 1 5 2 3 1 4 1 5 1 1
84	LPC	3 5 2 3 3 4 2 3 4 3 4 3 4 3 3 3 3 4
	NLPC	3 4 5 4 4 3 3 3 4 2 2 3 5 4 3 3 4 4
85	LPC	6 2 4 2 1 2 6 3 1 6 2 7 1 4 2 3 1 2
	NLPC	7 5 5 3 3 2 6 2 4 7 1 6 3 6 5 3 5 5
86	LPC	1 1 1 1 1 1 1 1 1 1 1 1 4 3 2 1 3 2
	NLPC	8 1 2 1 3 5 7 2 1 5 2 8 5 6 2 7 1 2
87	LPC	8 7 3 2 7 5 7 8 8 8 8 7 4 7 7 6 4 6
	NLPC	7 2 2 4 6 5 6 1 7 6 7 4 4 5 4 5 4 4
88	LPC	7 2 1 1 2 4 8 1 2 8 2 7 2 2 1 8 2 2
	NLPC	8 5 3 2 4 3 7 6 3 8 4 7 2 5 1 7 2 3
89	LPC	3 6 7 5 7 4 2 2 8 1 5 2 6 3 6 3 4 7
	NLPC	2 5 8 8 8 7 1 2 7 4 4 1 7 4 5 1 5 5
90	LPC	7 7 5 5 5 5 5 2 6 5 5 4 1 2 6 5 2 6
	NLPC	6 5 2 2 2 2 3 2 2 1 1 1 2 2 3 1 1 2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
91	LPC	8	7	2	1	7	5	7	3	7	7	7	7	2	7	3	7	2	3
	NLPC	2	6	2	1	6	3	2	3	2	6	3	3	1	7	2	3	1	3
92	LPC	5	2	2	1	3	5	8	1	5	8	1	1	2	1	1	1	1	3
	NLPC	1	1	8	1	1	1	1	1	5	1	1	1	3	3	2	1	1	3
93	LPC	3	7	8	2	2	3	2	1	5	1	1	3	4	6	3	1	4	8
	NLPC	2	2	8	3	3	3	4	4	2	2	2	3	8	2	5	2	6	7
94	LPC	2	5	6	2	7	5	2	3	6	6	4	6	5	6	5	2	4	6
	NLPC	5	3	2	3	4	1	7	1	6	5	2	4	4	5	2	4	2	6
95	LPC	1	1	1	2	2	2	2	2	2	2	2	2	4	3	3	2	4	1
	NLPC	7	5	5	5	7	7	8	1	4	8	5	8	2	8	5	6	4	7
96	LPC	8	3	2	2	8	4	8	2	6	5	5	8	2	2	2	8	1	8
	NLPC	2	3	1	2	2	2	1	1	5	1	1	1	5	1	2	1	1	1
97	LPC	5	2	2	1	4	2	5	3	6	5	6	2	3	1	5	5	2	5
	NLPC	2	4	2	1	5	1	2	2	5	3	2	2	4	1	5	3	3	6
98	LPC	1	4	7	7	7	6	2	3	7	5	2	2	7	3	6	3	6	7
	NLPC	2	2	2	2	3	1	1	1	3	2	2	2	5	1	3	1	3	3
99	LPC	2	3	2	1	4	3	2	3	8	4	4	4	4	2	6	2	5	5
	NLPC	4	8	7	8	7	7	5	5	7	7	7	4	8	7	7	4	7	7
100	LPC	3	7	8	4	6	5	4	4	6	4	5	4	6	5	6	3	4	6
	NLPC	4	7	8	4	7	5	3	5	6	1	6	3	5	4	5	2	5	6
101	LPC	3	3	2	2	3	2	7	3	5	4	4	5	2	6	3	6	2	6
	NLPC	3	6	6	6	6	6	4	4	6	6	6	3	6	5	7	4	5	6
102	LPC	3	2	1	1	1	2	3	1	2	3	1	2	3	5	1	1	1	1
	NLPC	3	3	3	3	3	1	6	1	6	1	3	6	1	1	6	6	2	5
103	LPC	6	3	2	2	3	4	3	1	7	7	3	2	5	6	4	2	3	6
	NLPC	6	4	5	2	5	4	5	2	7	2	5	3	3	2	5	3	3	5
104	LPC	6	3	5	2	3	6	7	5	3	7	2	7	1	7	2	7	2	3
	NLPC	2	7	6	5	7	5	3	3	7	3	4	3	6	3	7	3	6	6
105	LPC	5	4	2	2	5	5	4	2	4	4	2	4	2	7	3	4	3	3
	NLPC	1	1	1	1	1	7	4	1	1	3	1	8	5	7	2	1	1	3

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
106	LPC	6	7	8	8	8	6	1	5	8	6	6	1	5	3	8	1	7	8
	NLPC	6	8	5	7	8	7	3	8	8	5	8	4	5	5	8	4	6	8
107	LPC	5	2	3	2	4	6	3	2	5	5	3	6	2	6	3	3	2	3
	NLPC	3	6	2	6	7	5	7	7	7	7	8	5	6	7	7	3	6	1
108	LPC	3	5	1	7	3	4	2	2	6	2	4	3	4	5	5	4	4	4
	NLPC	7	4	4	6	6	4	7	5	7	2	7	6	4	7	7	6	5	5
109	LPC	7	8	5	4	8	8	7	8	8	7	8	8	4	4	4	5	6	8
	NLPC	7	6	3	5	7	4	5	7	8	6	7	7	8	7	4	7	6	8
110	LPC	4	5	6	5	5	4	3	3	5	2	5	2	6	2	5	5	5	5
	NLPC	5	5	6	3	5	3	3	3	5	2	5	2	6	2	5	5	5	5
111	LPC	1	1	2	1	7	3	2	3	3	1	5	2	5	2	2	2	1	6
	NLPC	6	4	1	3	2	1	8	3	8	7	7	7	1	1	1	5	2	1
112	LPC	8	8	8	7	7	7	7	7	7	7	7	7	4	8	2	7	4	7
	NLPC	5	3	4	4	4	4	3	3	5	4	5	4	4	5	4	4	4	5
113	LPC	4	3	6	4	3	7	1	2	7	2	4	1	6	1	6	2	1	7
	NLPC	8	5	1	1	5	1	6	1	8	8	4	2	7	1	3	8	2	5
114	LPC	7	2	3	2	3	5	7	7	7	8	7	8	2	7	2	8	3	6
	NLPC	7	6	7	7	3	7	3	7	7	7	3	7	3	7	6	7	7	6
115	LPC	6	3	3	3	6	5	5	2	3	6	4	6	3	3	4	5	3	3
	NLPC	4	6	3	7	7	8	2	3	7	7	7	2	3	7	6	3	6	7
116	LPC	6	6	4	2	4	3	7	3	3	4	4	5	2	7	3	6	2	4
	NLPC	6	3	4	3	3	3	6	2	3	3	3	6	2	6	3	6	3	2
117	LPC	8	5	5	2	7	3	6	2	4	5	5	4	4	6	4	2	5	5
	NLPC	3	6	6	3	4	2	4	4	6	2	4	2	3	5	2	3	4	5
118	LPC	8	6	4	7	7	2	7	7	7	7	7	7	4	7	6	7	5	7
	NLPC	6	2	2	2	4	4	7	2	3	5	4	6	3	2	3	7	4	2
119	LPC	4	8	5	4	5	5	7	7	4	4	4	5	1	5	4	7	4	2
	NLPC	1	5	3	4	5	7	4	5	4	1	6	4	3	8	4	1	3	3
120	LPC	3	1	1	1	4	5	4	4	1	3	3	5	1	6	1	1	1	1
	NLPC	3	4	7	4	5	3	3	3	6	3	5	3	3	5	4	3	4	4

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
121	LPC	7	4	4	2	5	6	6	3	4	6	3	4	2	6	3	4	2	3
	NLPC	6	5	6	4	5	6	7	5	5	4	5	5	3	7	5	5	4	4
122	LPC	5	5	1	2	6	6	6	2	3	3	5	4	6	5	4	3	4	4
	NLPC	7	2	2	7	3	3	7	2	2	7	3	6	2	4	2	7	2	2
123	LPC	2	3	6	3	1	2	3	3	7	1	3	3	4	5	3	3	3	2
	NLPC	3	3	4	3	3	4	3	2	3	2	2	2	2	2	2	2	2	3
124	LPC	5	4	2	5	6	4	6	2	5	7	5	5	2	4	6	6	5	5
	NLPC	6	4	2	4	4	2	6	2	5	5	5	7	2	2	5	7	2	2
125	LPC	5	5	6	6	6	4	4	4	3	5	2	3	4	3	5	3	3	3
	NLPC	2	3	3	3	3	2	2	2	4	2	2	2	4	2	3	2	2	1
126	LPC	7	7	6	7	7	7	7	7	7	7	7	6	7	8	8	7	7	7
	NLPC	6	6	2	8	6	6	6	6	6	6	3	6	3	3	3	3	3	3
127	LPC	4	5	3	6	4	4	4	5	5	7	5	5	6	5	6	4	6	5
	NLPC	4	4	5	3	3	3	4	2	4	7	5	4	6	5	4	3	4	5
128	LPC	1	2	2	2	2	1	1	3	3	2	2	1	5	2	2	2	2	2
	NLPC	2	3	2	2	3	2	2	3	3	2	2	1	3	2	2	2	2	2
129	LPC	3	4	5	4	4	6	2	2	3	2	2	2	4	3	3	2	4	4
	NLPC	7	6	2	2	6	3	7	1	6	5	7	6	2	6	4	4	2	5
130	LPC	2	2	5	7	2	2	2	2	4	3	1	4	4	3	3	2	4	2
	NLPC	4	3	5	3	5	3	7	2	4	2	2	2	2	5	4	2	4	4
131	LPC	5	5	2	3	7	5	2	3	7	2	5	2	7	6	5	2	7	5
	NLPC	2	4	1	2	5	4	6	4	4	2	2	1	4	2	2	2	2	5
132	LPC	8	3	6	2	4	4	6	1	4	5	2	5	2	7	1	5	2	4
	NLPC	5	2	3	1	5	6	5	1	5	6	2	6	3	6	3	6	3	2
133	LPC	3	3	3	3	3	6	2	3	5	6	3	2	2	4	6	2	6	6
	NLPC	2	2	2	3	2	4	3	3	3	2	3	3	4	3	6	4	3	4
134	LPC	4	2	6	5	3	1	1	1	5	3	6	2	1	1	4	2	5	2
	NLPC	4	7	2	2	7	7	3	1	7	7	1	4	6	8	6	5	5	2
135	LPC	3	3	2	7	7	2	2	2	7	2	6	2	4	2	5	3	5	3
	NLPC	2	3	2	2	4	3	2	2	3	7	4	2	4	2	4	3	4	3

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
136	LPC	7	4	3	2	3	5	7	3	7	6	3	5	3	6	1	6	2	4
	NLPC	7	1	3	2	3	6	7	4	5	8	2	7	1	7	1	8	2	4
137	LPC	6	2	1	2	2	3	6	3	5	5	2	6	2	6	4	5	2	3
	NLPC	3	4	5	5	5	4	2	2	4	7	3	5	5	7	6	5	4	5
138	LPC	6	4	3	2	4	5	6	3	5	3	5	5	4	4	4	5	3	3
	NLPC	6	6	2	3	6	4	7	4	6	6	6	5	7	5	6	5	4	3
139	LPC	1	4	5	3	5	7	2	3	3	2	5	2	4	2	5	2	3	5
	NLPC	2	4	4	4	4	3	2	3	5	2	4	2	4	2	4	2	5	4
140	LPC	6	7	6	2	8	5	8	6	8	6	7	1	2	2	5	8	3	4
	NLPC	6	6	1	1	4	1	7	2	4	8	1	4	4	3	2	7	4	6
141	LPC	2	2	2	2	1	4	3	2	6	4	6	5	7	4	8	3	3	2
	NLPC	8	1	1	3	4	4	5	4	4	5	3	4	4	4	4	2	3	3
142	LPC	5	5	3	4	5	3	5	4	6	5	5	5	5	5	4	5	3	4
	NLPC	4	5	4	7	5	5	4	4	6	7	5	4	5	7	5	5	5	6
143	LPC	3	5	6	3	4	4	7	7	4	3	4	2	6	4	4	2	4	4
	NLPC	5	5	6	5	5	1	5	3	5	4	4	3	1	2	3	3	4	3
144	LPC	5	3	2	3	5	2	7	4	3	5	4	6	1	4	3	5	3	3
	NLPC	6	4	3	3	6	4	7	5	5	6	5	7	3	4	4	5	2	4
145	LPC	8	7	6	1	6	6	8	2	7	5	8	7	5	7	6	7	6	4
	NLPC	2	7	8	8	8	6	1	5	7	2	2	1	5	4	4	2	3	6
146	LPC	6	4	2	2	6	5	7	5	7	5	6	6	5	3	6	7	7	5
	NLPC	3	5	8	8	6	3	2	5	8	1	5	3	7	3	7	3	6	8
147	LPC	3	3	1	3	3	1	1	2	2	1	1	2	7	1	1	1	1	1
	NLPC	1	1	8	3	2	3	1	1	2	1	1	1	7	1	2	1	2	1
148	LPC	5	8	5	0	8	7	8	2	4	8	6	8	3	6	7	6	5	6
	NLPC	5	3	7	5	6	5	6	2	8	3	4	5	6	6	5	5	4	6
149	LPC	1	2	5	3	6	5	2	3	6	3	5	3	7	4	5	2	7	6
	NLPC	1	2	2	3	2	4	7	3	2	7	5	4	2	2	2	7	2	2
150	LPC	1	1	1	1	1	1	1	1	7	1	6	1	6	2	3	2	5	3
	NLPC	1	5	8	7	7	7	1	1	8	1	6	1	6	6	7	1	6	7

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
151	LPC	5	2	2	3	7	7	4	1	2	6	2	3	7	6	2	2	7	7
	NLPC	2	5	8	2	6	4	2	1	6	1	1	1	6	2	6	1	4	6
152	LPC	2	3	3	3	5	6	5	3	4	6	3	3	2	5	4	3	3	3
	NLPC	5	6	7	6	7	6	3	5	7	2	7	3	6	6	7	4	6	6
153	LPC	3	3	6	6	5	5	2	3	3	2	2	2	6	5	5	2	6	5
	NLPC	3	3	6	6	5	5	2	3	3	2	2	2	6	5	5	2	6	5
154	LPC	6	8	6	7	8	8	6	7	6	4	6	5	5	6	7	7	7	8
	NLPC	2	2	2	2	1	1	4	3	4	4	3	7	4	2	4	2	2	4
155	LPC	2	2	3	2	3	4	3	3	4	6	6	3	4	3	4	5	3	4
	NLPC	7	3	3	3	3	3	7	3	3	7	4	7	2	5	3	7	2	4
156	LPC	4	4	4	5	5	6	7	5	5	4	3	7	4	7	4	6	2	5
	NLPC	3	6	4	5	7	5	7	2	2	6	3	3	5	6	5	2	5	5
157	LPC	3	7	4	7	7	6	6	5	7	6	6	5	5	4	7	7	5	5
	NLPC	5	3	1	2	4	5	4	2	5	4	2	2	4	5	5	4	4	3
158	LPC	5	2	3	1	4	5	5	4	5	2	5	5	4	4	2	5	2	1
	NLPC	6	4	1	5	5	1	8	2	5	8	4	8	8	5	3	8	4	2
159	LPC	6	8	5	6	8	6	3	5	8	8	5	3	6	7	7	4	7	7
	NLPC	4	4	1	3	5	4	6	2	6	1	6	3	5	2	6	3	4	3
160	LPC	7	7	7	6	8	1	2	3	2	3	1	1	6	3	5	2	6	6
	NLPC	1	3	6	7	6	2	2	2	2	3	2	2	7	3	6	2	6	7
161	LPC	6	5	8	5	6	7	4	2	7	7	5	5	7	2	3	3	3	6
	NLPC	6	6	5	3	7	3	4	3	6	2	7	3	3	1	5	5	3	5
162	LPC	8	1	1	1	1	6	7	2	1	7	2	5	1	5	2	4	1	2
	NLPC	8	4	6	1	5	5	8	1	5	2	3	3	4	6	4	4	4	4
163	LPC	3	7	1	7	6	1	1	1	8	7	3	2	5	6	6	3	7	6
	NLPC	3	4	1	3	6	7	8	1	7	5	1	8	5	6	5	6	6	2
164	LPC	4	2	8	1	5	8	8	3	4	8	2	8	2	7	2	7	1	4
	NLPC	3	7	8	6	8	6	4	5	7	4	4	1	4	6	7	2	5	6
165	LPC	7	6	4	2	3	3	7	5	5	7	3	7	3	7	3	6	3	1
	NLPC	2	4	3	6	3	3	4	3	5	3	2	2	3	5	4	2	2	2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
166	LPC	8	4	2	1	4	6	7	3	3	8	3	8	5	7	1	6	1	4
	NLPC	4	1	1	7	1	4	4	1	1	8	4	4	4	2	4	5	3	2
167	LPC	6	7	6	5	7	4	3	3	5	2	4	1	2	1	4	3	5	2
	NLPC	3	7	1	2	7	6	2	1	6	2	4	1	2	1	5	2	4	4
168	LPC	5	5	7	2	6	1	8	2	8	2	7	5	5	3	5	2	3	6
	NLPC	6	6	1	2	7	5	4	2	8	8	6	5	7	7	8	6	6	7
169	LPC	2	4	6	8	5	2	2	2	8	8	3	3	5	3	6	2	7	7
	NLPC	2	5	2	5	4	4	1	1	8	6	1	1	7	1	8	1	6	8
170	LPC	6	4	3	4	3	6	5	1	6	6	1	4	5	2	5	3	4	5
	NLPC	8	1	2	6	1	5	4	1	5	5	5	5	3	6	6	8	5	1
171	LPC	4	3	4	2	4	4	3	4	3	3	3	4	4	3	4	3	2	4
	NLPC	3	7	6	6	6	3	2	6	6	2	3	3	2	3	2	3	2	4
172	LPC	6	3	7	2	2	2	4	8	4	6	7	5	1	8	2	5	6	3
	NLPC	3	2	1	2	2	3	7	7	4	6	7	6	3	2	3	5	5	5
173	LPC	3	5	8	3	8	4	2	2	8	2	7	6	7	6	7	2	6	7
	NLPC	2	3	8	7	7	7	2	2	6	8	1	2	7	2	7	1	7	7
174	LPC	8	1	1	4	2	3	8	1	2	7	1	8	5	8	1	8	1	1
	NLPC	1	4	5	8	8	5	1	1	8	2	2	2	4	1	6	1	5	5
175	LPC	2	4	7	3	5	4	2	2	3	7	2	4	3	5	4	3	2	4
	NLPC	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
176	LPC	7	2	1	1	4	4	7	2	4	8	1	7	7	8	5	8	5	5
	NLPC	1	6	8	8	8	1	1	1	8	8	5	1	8	4	8	1	8	8
177	LPC	3	3	3	3	2	3	2	3	2	2	2	2	5	1	4	2	1	4
	NLPC	5	4	4	3	3	4	4	4	5	5	5	3	7	3	5	3	4	5
178	LPC	6	5	1	2	5	7	7	4	6	7	3	5	6	7	2	6	2	3
	NLPC	6	2	5	2	3	5	6	1	3	6	3	6	3	2	2	6	2	4
179	LPC	2	7	8	6	8	6	8	8	8	2	4	3	4	1	3	3	3	4
	NLPC	1	2	7	1	3	4	1	1	2	1	1	1	3	1	3	1	1	1
180	LPC	1	3	6	7	3	2	1	1	7	5	1	1	6	4	6	1	4	3
	NLPC	1	3	6	7	3	2	1	1	7	1	1	1	2	2	3	3	2	2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
181	LPC	7	7	1	3	6	4	4	2	5	3	4	3	4	6	4	6	4	5
	NLPC	6	2	2	2	3	4	7	1	2	7	5	7	5	6	2	7	2	2
182	LPC	3	5	8	3	7	5	2	3	7	5	7	2	5	3	6	3	5	6
	NLPC	2	2	3	3	3	6	3	3	4	5	2	4	3	4	2	1	1	4
183	LPC	8	3	1	3	3	4	5	1	6	6	2	6	4	6	3	3	3	2
	NLPC	6	6	8	7	8	6	1	3	8	4	8	1	3	5	8	4	8	6
184	LPC	3	5	7	8	8	5	3	4	8	6	8	3	8	3	8	4	7	8
	NLPC	8	4	3	7	6	7	3	3	8	6	8	3	7	3	8	8	8	7
185	LPC	5	2	2	5	4	2	2	2	7	7	6	2	4	6	6	2	5	4
	NLPC	2	6	3	4	6	7	2	3	7	2	6	2	7	6	6	2	5	4
186	LPC	3	5	5	4	4	7	2	2	6	5	1	5	5	7	5	4	4	7
	NLPC	3	6	6	3	7	2	3	1	7	4	6	5	4	2	6	3	5	7
187	LPC	8	1	1	1	5	6	8	3	3	2	2	7	4	7	2	7	2	2
	NLPC	7	4	4	3	5	5	7	3	3	3	2	7	4	7	2	7	3	3
188	LPC	7	7	8	7	7	7	8	7	8	8	7	8	6	8	7	8	6	7
	NLPC	2	3	1	1	4	3	1	2	4	3	2	3	4	2	3	4	2	3
189	LPC	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1
	NLPC	3	2	4	6	4	2	4	2	4	2	2	2	3	2	3	4	4	4
190	LPC	4	2	6	1	1	2	6	2	7	1	4	7	2	2	2	7	2	2
	NLPC	5	5	5	2	5	3	6	3	5	3	3	4	3	4	3	6	2	3
191	LPC	7	3	4	3	5	6	7	2	5	5	2	7	5	7	4	2	2	6
	NLPC	2	7	8	7	2	5	2	1	7	5	2	5	5	7	7	1	6	7
192	LPC	2	3	6	2	6	2	2	2	6	4	3	1	4	3	6	2	6	6
	NLPC	6	3	4	2	4	4	5	2	5	5	4	2	4	5	2	4	2	4
193	LPC	4	4	1	2	3	2	6	1	6	7	6	3	2	5	4	3	4	2
	NLPC	7	7	7	6	6	7	5	4	2	5	7	2	4	5	7	6	4	6
194	LPC	3	4	6	3	3	3	4	4	2	2	3	1	5	2	2	2	2	4
	NLPC	8	6	1	5	6	7	8	6	6	8	1	8	1	8	4	6	1	6
195	LPC	8	5	7	8	7	7	8	7	7	6	8	8	3	8	6	8	5	5
	NLPC	2	8	3	2	3	2	1	2	2	3	1	1	1	1	2	1	1	1

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
196	LPC	8	6	4	2	4	4	8	2	6	8	5	8	2	8	4	8	4	2
	NLPC	7	6	4	8	8	5	5	6	7	8	6	7	5	7	6	6	5	4
197	LPC	7	5	2	2	3	2	7	3	5	7	3	7	2	6	2	3	2	5
	NLPC	6	3	1	1	5	3	2	2	5	6	4	2	2	3	3	6	3	2
198	LPC	7	3	3	1	6	4	6	3	6	7	3	8	6	7	4	6	4	4
	NLPC	4	8	1	8	8	2	4	2	8	2	8	2	5	3	8	2	7	6
199	LPC	7	7	3	3	7	7	7	6	7	6	6	7	6	7	6	7	6	7
	NLPC	6	6	6	7	5	6	3	3	6	5	5	4	6	1	7	6	4	6
200	LPC	7	7	1	7	8	2	5	4	8	8	5	5	4	3	8	8	8	6
	NLPC	4	1	1	8	5	5	3	1	8	2	2	2	3	5	7	5	8	1
201	LPC	2	3	4	3	2	2	2	2	4	3	2	2	5	3	3	3	3	3
	NLPC	3	6	7	7	6	4	3	3	7	3	4	3	6	3	6	3	6	5
202	LPC	2	3	4	3	6	2	2	1	7	6	1	1	3	6	5	1	2	5
	NLPC	6	8	7	8	7	5	1	1	8	7	1	1	8	1	8	1	5	8
203	LPC	5	6	3	4	2	2	4	3	7	7	6	2	4	3	5	2	4	5
	NLPC	5	6	3	4	4	2	4	2	5	6	3	2	3	3	5	3	5	5
204	LPC	6	6	5	7	4	5	4	2	5	4	2	2	5	3	4	3	3	5
	NLPC	7	4	4	2	5	5	7	3	4	5	3	7	3	4	4	6	2	5
205	LPC	5	1	1	1	2	1	7	1	6	2	1	3	1	2	2	1	1	2
	NLPC	8	4	1	3	3	5	7	1	6	8	6	8	7	8	3	8	3	4
206	LPC	6	2	3	6	6	6	7	6	5	6	5	7	7	6	5	7	2	5
	NLPC	5	6	6	7	6	3	3	6	6	5	4	3	5	3	6	6	5	7
207	LPC	3	6	7	3	6	3	6	2	7	2	7	3	6	5	6	7	3	6
	NLPC	7	7	3	3	7	6	8	5	8	7	6	7	6	6	6	8	3	6
208	LPC	2	5	8	6	8	5	2	2	8	3	2	2	8	3	8	2	7	8
	NLPC	2	5	8	7	8	6	2	1	8	2	4	2	8	4	8	2	7	8
209	LPC	3	1	1	1	3	8	7	1	4	2	7	2	3	3	1	1	2	4
	NLPC	6	3	1	3	6	3	7	2	6	2	4	1	5	4	4	2	3	4
210	LPC	6	1	1	1	4	3	6	1	5	8	4	6	2	5	2	7	4	6
	NLPC	7	3	3	4	6	5	8	3	7	8	3	7	3	5	5	7	4	6

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
211	LPC	3	6	8	4	5	1	2	2	5	7	4	7	4	2	4	7	4	5
	NLPC	7	6	2	2	4	2	4	7	6	6	3	4	4	5	2	4	3	6
212	LPC	8	7	2	7	5	5	2	1	2	8	3	2	3	5	4	3	3	6
	NLPC	7	4	5	2	4	2	7	2	4	4	3	6	2	4	1	6	2	2
213	LPC	1	1	2	2	1	2	2	1	1	1	1	1	4	1	1	1	4	1
	NLPC	6	4	1	3	5	4	8	4	4	8	4	7	4	6	2	7	5	4
214	LPC	2	5	3	1	2	3	7	1	5	1	1	6	5	1	2	3	2	7
	NLPC	2	7	8	7	7	5	2	3	8	2	7	2	6	2	7	1	7	6
215	LPC	7	6	5	2	4	3	6	2	4	5	4	5	4	6	2	6	3	5
	NLPC	3	4	6	4	5	4	4	3	5	5	3	5	5	5	3	4	2	4
216	LPC	5	5	5	7	7	3	2	5	7	2	5	4	5	5	7	3	5	6
	NLPC	5	4	3	3	5	4	5	5	6	6	6	5	5	5	5	5	5	5
217	LPC	1	3	8	8	2	2	1	2	7	2	1	1	5	3	5	1	5	7
	NLPC	1	3	8	8	5	2	1	2	2	2	1	1	6	3	6	1	6	6
218	LPC	7	5	2	2	4	3	8	5	5	6	4	7	4	5	5	4	4	5
	NLPC	6	6	8	5	6	7	6	5	7	3	7	5	6	7	7	8	6	7
219	LPC	3	5	7	4	7	7	2	2	7	6	2	2	5	7	4	1	6	7
	NLPC	7	7	7	1	4	5	7	2	4	4	6	4	5	5	6	6	5	4
220	LPC	7	3	2	1	7	3	8	1	5	7	4	8	1	6	3	8	1	2
	NLPC	6	4	2	3	6	5	6	3	6	3	3	3	3	3	5	5	3	4

Table of Responses

Relating to LPC Scales and

Rating of Real Persons or Stereotypes

Question No. 1: Did you rate a specific real person as your least preferred co-worker on page eleven?

___ Yes

___ No

Question No. 2: Did you rate a specific real person as your next least preferred co-worker on page thirteen?

___ Yes

___ No

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
1	117	47	70	62	0 00	0 00	N	Y
2	83	32	51	24	1 56	1 09	N	Y
3	38	13	25	17	0 81	4 05	N	Y
4	115	46	69	95	0 22	2 89	Y	Y
5	56	17	39	20	2 47	1 09	N	Y
6	60	22	38	36	2 22	3 36	Y	Y
7	68	13	55	22	1 81	2 25	Y	Y
8	49	20	29	27	0 89	0 89	Y	Y
9	78	28	50	40	0 56	3 00	Y	Y
10	80	25	55	23	2 47	0 85	Y	Y
11	75	24	51	25	0 67	4 09	Y	Y
12	50	20	30	38	5 56	2 00	Y	Y
13	73	43	30	59	3 47	3 20	Y	Y
14	47	22	25	40	1 89	0 85	Y	Y
15	113	46	67	79	0 22	0 21	N	N
16	31	20	11	23	4 56	0 09	N	N
17	47	21	21	31	1 92	1 49	N	Y
18	56	16	40	0	6 22	11 00	Y	Y
19	69	42	27	42	1 00	2 01	Y	Y
20	108	46	62	70	0 22	2 76	Y	Y
21	76	25	51	14	1 81	1 09	Y	Y
22	50	32	18	51	4 22	1 16	Y	Y
23	93	46	47	29	0 56	4 41	Y	Y

NO	LPI	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
24	48	21	27	20	0 25	1 81	Y	Y
25	38	17	21	49	4 47	2 49	Y	Y
26	79	17	62	41	1 47	2 16	Y	Y
27	51	21	30	22	5 25	0 80	Y	Y
28	47	15	32	52	0 92	0 96	Y	Y
29	67	25	42	29	1 14	0 96	N	Y
30	68	38	30	25	1 22	1 80	Y	Y
31	50	15	35	18	0 58	0 85	N	Y
32	47	20	27	46	2 22	2 21	Y	Y
33	58	29	29	29	6 14	2 09	Y	Y
34	87	46	41	12	0 22	2 29	Y	Y
35	112	41	71	83	0 47	0 09	N	N
36	67	39	28	55	4 58	2 56	Y	Y
37	70	20	50	49	5 56	6 60	Y	Y
38	18	6	12	1	0 00	0 36	Y	N
39	51	20	31	47	4 89	1 29	Y	Y
40	35	13	22	29	0 14	0 36	N	Y
41	82	36	46	43	3 67	2 04	Y	Y
42	84	43	41	37	0 47	1 49	Y	Y
43	55	20	35	28	1 89	2 05	Y	N
44	42	23	19	56	1 14	0 49	Y	Y
45	35	10	25	8	0 22	5 25	Y	Y
46	41	15	26	19	1 58	2 84	Y	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
47	62	26	36	22	3 22	2 04	Y	Y
48	69	15	54	25	0 25	5 04	Y	N
49	85	38	47	34	2 22	2 41	Y	Y
50	112	38	74	93	4 22	0 64	N	N
51	91	25	66	50	2 81	0 64	Y	Y
52	34	6	28	66	0 00	2 16	Y	Y
53	66	21	45	37	2 25	5 65	Y	Y
54	72	42	30	11	1 33	3 60	Y	Y
55	80	22	58	21	1 22	0 56	N	N
56	35	15	20	7	0 58	0 20	Y	Y
57	48	19	29	16	5 47	5 49	N	Y
58	87	47	40	38	0 33	2 40	Y	Y
59	83	31	52	37	5 47	4 76	Y	Y
60	45	20	25	11	3 22	0 25	Y	Y
61	68	41	27	54	0 81	1 01	Y	N
62	58	11	47	41	0 14	2 01	Y	Y
63	63	25	38	44	2 81	2 76	Y	Y
64	58	42	16	31	0 67	0 84	Y	Y
65	82	24	58	22	2 00	1 76	Y	Y
66	89	43	46	40	3 47	2 24	Y	Y
67	65	29	36	31	7 14	2 24	Y	Y
68	70	13	57	39	1 81	4 01	Y	Y
69	57	18	34	45	1 00	1 24	Y	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
70	51	10	41	35	2 22	2 09	Y	Y
71	56	37	19	39	2 47	0 89	Y	Y
72	54	26	30	25	1 89	0 40	Y	Y
73	56	19	37	20	0 14	0 41	N	Y
74	16	6	10	0	0 00	0 00	N	N
75	69	36	33	19	5 00	3 61	N	N
76	68	44	24	51	0 22	0 64	Y	Y
77	73	30	43	29	1 33	3 81	Y	Y
78	57	27	30	28	2 89	2 20	Y	Y
79	76	33	43	44	4 58	5 81	Y	Y
80	70	22	48	37	2 89	3 76	N	Y
81	76	19	57	39	3 47	2 41	Y	Y
82	56	17	39	38	1 14	3 29	Y	Y
83	60	21	39	37	2 92	2 89	N	Y
84	52	17	35	13	0 14	0 65	Y	N
85	50	32	18	28	1 89	0 76	Y	Y
86	25	8	17	40	0 56	1 01	N	Y
87	99	43	56	26	0 47	4 24	Y	Y
88	57	40	17	17	4 56	0 21	Y	Y
89	75	14	61	22	0 56	1 29	Y	Y
90	76	28	48	42	2 22	3 16	Y	Y
91	84	43	41	34	0 14	5 89	Y	Y
92	45	24	21	31	10 00	1 49	Y	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
93	60	16	44	29	2 89	5 84	Y	N
94	74	24	50	32	4 00	1 80	Y	Y
95	34	12	22	64	0 33	1 16	N	Y
96	78	39	39	54	5 25	6 29	Y	Y
97	59	23	36	21	2 81	3 04	Y	Y
98	76	16	60	41	1 56	2 60	Y	N
99	58	16	42	48	0 89	3 56	Y	Y
100	81	23	58	13	0 47	1 36	N	Y
101	63	31	32	38	1 81	1 76	Y	Y
102	31	17	14	43	1 47	0 44	Y	Y
103	64	26	38	25	4 22	2 56	Y	Y
104	67	41	26	59	0 14	1 04	Y	Y
105	58	28	30	31	1 22	1 00	Y	Y
106	93	20	73	21	7 56	1 01	N	N
107	57	28	29	43	1 56	0 89	Y	Y
108	62	19	43	32	1 14	2 41	Y	Y
109	101	38	63	20	1 89	3 21	Y	Y
110	70	18	52	3	1 33	0 16	N	N
111	43	10	33	55	0 22	4 61	Y	Y
112	105	44	61	42	0 22	3 69	N	N
113	58	11	47	42	1 14	3 61	Y	N
114	82	45	37	33	0 25	4 01	Y	Y
115	66	31	35	40	1 14	0 85	Y	Y

NO	LPI	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
116	67	35	34	13	1 14	1 44	Y	Y
117	77	31	46	27	3 47	1 44	Y	Y
118	103	43	60	41	0 14	1 40	N	Y
119	73	32	41	30	1 56	3 09	Y	Y
120	37	22	15	37	2 56	1 05	Y	Y
121	64	33	32	21	1 25	0 96	Y	Y
122	66	26	40	34	1 22	2 40	Y	Y
123	52	17	35	21	1 47	2 85	Y	N
124	78	33	45	18	0 92	1 85	Y	Y
125	66	23	43	28	0 81	2 01	Y	N
126	112	42	70	41	0 33	0 20	N	N
127	80	29	51	14	1 14	0 89	N	Y
128	33	9	24	6	0 25	0 84	N	N
129	51	14	37	44	0 22	0 61	Y	Y
130	50	16	34	26	0 56	2 84	Y	Y
131	72	19	53	34	2 81	2 81	Y	Y
132	66	36	30	21	1 33	2 00	Y	Y
133	59	19	40	22	2 14	2 20	Y	N
134	52	13	39	48	1 14	2 89	Y	Y
135	63	14	49	22	0 22	3 09	Y	Y
136	69	37	32	15	0 47	2 36	Y	Y
137	59	34	25	34	0 22	1 25	N	Y
138	66	29	37	19	1 14	0 81	Y	Y

NO	LPI	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
139	53	11	42	11	0 14	0 76	Y	Y
140	83	31	52	37	7 47	4 96	Y	Y
141	60	21	39	30	0 92	5 89	Y	Y
142	74	30	44	16	0 00	0 84	Y	Y
143	65	21	44	20	2 92	0 84	Y	Y
144	62	32	30	14	0 89	1 00	Y	Y
145	98	42	56	54	1 00	3 44	Y	Y
146	84	34	50	41	1 89	3 00	N	Y
147	32	9	23	15	0 58	3 21	N	N
148	93	41	52	37	1 47	5 36	Y	Y
149	67	15	52	40	0 92	2 36	N	N
150	42	8	34	38	0 22	5 24	Y	Y
151	67	26	41	42	2 22	5 69	Y	Y
152	57	24	33	43	2 00	0 61	Y	Y
153	63	16	47	0	1 22	2 01	N	N
154	102	34	68	57	0 89	0 96	N	N
155	57	22	35	27	1 89	1 25	Y	Y
156	76	35	41	24	1 81	0 89	Y	N
157	91	31	60	40	1 81	1 20	Y	Y
158	55	26	29	35	1 22	2 09	Y	Y
159	98	31	67	44	3 81	1 21	Y	Y
160	72	18	54	19	3 67	4 44	N	Y
161	82	27	55	27	2 92	2 45	Y	Y

NO	LPI	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
167	49	36	13	36	2 00	0 21	Y	Y
163	78	22	56	34	4 56	4 04	Y	Y
164	73	42	31	53	2 00	4 29	Y	Y
165	74	41	33	34	0 14	1 81	Y	Y
166	72	44	28	41	0 56	1 96	Y	Y
167	63	16	47	18	2 89	2 81	Y	Y
168	79	25	54	37	4 47	3 04	Y	Y
169	79	20	59	25	4 56	2 49	N	N
170	66	26	40	35	2 22	1 80	Y	Y
171	53	20	33	23	0 22	0 61	Y	Y
172	66	34	32	21	1 56	3 36	Y	Y
173	87	21	66	32	3 25	2 24	Y	Y
174	66	47	19	77	0 14	1 89	Y	Y
175	60	23	37	28	3 14	2 01	Y	N
176	80	45	35	69	0 25	4 05	Y	Y
177	41	12	29	27	0 33	1 29	N	N
178	73	38	35	24	0 56	3 05	Y	Y
179	74	19	55	44	5 14	4 05	Y	Y
180	59	13	46	18	2 81	3 84	Y	Y
181	72	29	43	35	2 47	2 41	Y	Y
182	77	18	59	39	1 00	1 89	Y	Y
183	64	34	30	57	2 22	1 60	Y	Y
184	97	22	75	20	1 22	0 85	Y	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
185	69	24	45	19	4 33	2 45	Y	Y
186	72	26	46	23	2 56	2 24	Y	Y
187	62	39	23	13	4 25	1 61	Y	Y
188	117	47	70	75	0 14	0 40	Y	Y
189	19	6	13	36	0 00	0 81	N	Y
190	56	27	29	24	5 58	3 89	Y	Y
191	74	35	39	38	3 47	1 69	Y	Y
192	62	14	48	29	0 89	2 36	Y	Y
193	62	28	34	40	2 22	2 64	Y	Y
194	48	14	34	59	0 89	1 64	N	Y
195	107	46	61	80	0 56	2 29	N	N
196	87	48	39	28	0 00	2 09	Y	Y
197	68	37	31	30	2 14	1 69	Y	Y
198	81	41	40	57	0 47	2 40	Y	Y
199	99	41	58	32	0 14	2 16	N	Y
200	98	36	62	39	3 33	4 76	Y	Y
201	47	15	32	31	0 25	0 76	N	Y
202	57	18	39	40	4 67	3 09	Y	Y
203	69	23	46	11	3 14	2 04	Y	Y
204	68	22	46	28	1 56	1 84	Y	Y
205	38	20	18	49	4 22	2 16	Y	Y
206	87	39	46	32	0 25	2 64	Y	Y
207	83	26	57	25	3 22	2 01	Y	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
208	87	14	68	5	0 22	3 56	Y	Y
209	45	18	27	24	3 67	3 41	Y	Y
210	68	38	30	20	0 89	3 00	Y	Y
211	77	28	49	31	5 56	1 49	Y	Y
212	70	28	42	41	6 56	3 36	Y	Y
213	25	7	18	55	0 14	1 36	N	Y
214	53	20	33	52	5 56	3 81	Y	Y
215	74	35	39	21	0 47	1 49	Y	Y
216	80	21	59	24	1 58	0 89	Y	Y
217	60	9	51	12	0 58	5 49	N	Y
218	77	37	40	39	1 81	1 20	Y	Y
219	75	21	54	41	4 92	2 64	Y	Y
220	73	44	29	32	0 56	3 49	Y	Y

Retest Responses for Flexibility of Closure Scores and Subject Characteristics from the Research Instrument

APPENDIX 5

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
12	-1	M	11	5	60
13	29	M	7	1	42
19	26	M	2	2	40
20	35	M	1	2	64
29	32	M	7	1	73
39	28	M	1	2	70
40	33	M	9	1	62
43	35	M	14	6	74
52	29	M	7	6	81
60	27	M	4	2	42
63	33	M	13	6	80
64	29	M	2	5	76
70	37	M	15	6	92
72	30	M	6	1	84
74	29	F	6	1	110
75	34	M	11	6	70
78	30	M	8	6	88
82	39	M	20	5	83
85	42	M	18	1	70
95	32	M	12	6	106
96	29	M	5	2	96
97	30	M	5	2	94
108	38	M	15	6	86

APPENDIX 5

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
113	36	M	16	6	85
116	35	M	12	6	98
126	28	F	5	2	108
130	30	M	8	4	90
138	32	M	11	6	115
148	38	M	14	2	102
149	33	M	9	3	106
150	-1	M	8	1	100
153	27	M	4	2	81
155	33	M	4	4	122
156	48	M	29	6	71
161	53	M	14	1	88
166	40	M	18	6	115
169	31	M	11	6	64
174	34	M	14	6	134
180	31	M	9	2	120
182	39	M	17	1	95
186	33	M	14	6	120
190	40	M	9	1	112
193	34	M	11	6	105
194	34	M	11	2	120
195	29	F	4	2	126
196	29	M	3	1	108

APPENDIX 5

SUBJECT NUMBER	AGE	SEX	TEACHING EXPERIENCE	POSITION CODE	FLEXIBILITY OF CLOSURE
198	39	M	10	1	131
200	37	M	12	5	134
211	34	M	12	6	130

Retest

Item Scores of Least Preferred Co-worker (LPC)

And Next Least Preferred Co-worker (NLPC) Scales

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
12	LPC	5	2	3	3	4	2	2	1	5	2	2	1	4	1	3	5	2	3
	NLPC	5	1	2	1	3	5	6	1	2	7	1	5	4	3	1	5	2	4
13	LPC	2	4	7	8	6	2	2	1	7	5	2	1	3	4	7	3	5	5
	NLPC	8	4	4	3	3	4	6	1	5	8	1	7	6	7	4	4	3	5
19	LPC	7	2	7	1	2	2	8	2	1	8	4	7	1	8	1	5	2	4
	NLPC	2	2	2	1	2	3	2	1	1	6	2	2	5	8	6	6	6	5
20	LPC	8	6	6	3	6	5	8	6	6	7	7	8	6	6	5	8	4	6
	NLPC	1	5	8	7	6	3	1	3	8	8	3	5	7	3	6	3	6	6
29	LPC	5	4	6	1	4	6	6	5	6	3	4	6	6	5	5	2	2	4
	NLPC	3	3	7	2	3	3	6	4	5	1	1	4	6	3	3	2	2	3
39	LPC	5	1	2	2	1	3	4	2	4	6	1	6	1	6	1	5	1	6
	NLPC	2	8	8	7	6	1	4	4	7	5	6	3	5	3	6	5	5	5
40	LPC	2	3	3	3	4	5	7	4	6	7	3	7	3	7	4	7	3	6
	NLPC	4	3	2	5	3	2	3	2	5	6	2	2	3	5	4	4	4	5
43	LPC	6	3	3	3	4	4	4	2	5	3	4	4	4	6	4	4	3	3
	NLPC	2	6	6	6	6	7	3	3	8	6	6	3	6	4	6	4	6	6
52	LPC	8	3	1	1	5	5	7	2	6	8	4	6	1	7	2	6	1	3
	NLPC	8	4	3	1	6	5	7	6	3	7	6	8	2	3	3	8	2	5
60	LPC	2	4	5	2	5	5	1	2	6	2	2	3	5	3	5	2	5	4
	NLPC	1	2	4	2	2	2	2	2	3	3	3	4	3	2	2	2	2	2
63	LPC	2	3	4	8	4	4	3	2	8	3	7	3	7	3	7	4	4	6
	NLPC	3	3	3	3	4	4	3	3	7	3	5	3	3	5	5	3	4	5
64	LPC	7	6	3	2	6	1	7	7	7	7	7	8	7	4	7	7	7	7
	NLPC	2	2	3	2	7	6	8	2	7	7	2	2	2	7	7	1	6	7
70	LPC	1	2	5	7	3	3	1	1	1	1	1	1	6	2	1	1	2	2
	NLPC	7	6	5	2	5	6	8	4	4	6	6	8	6	7	4	7	4	4
72	LPC	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	NLPC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
74	LPC	7	3	1	3	4	3	7	4	6	8	3	7	1	5	3	7	2	3
	NLPC	7	4	2	3	5	3	7	2	3	8	4	8	2	5	2	7	2	2

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
75	LPC	2	2	4	3	6	7	2	1	5	8	6	2	4	3	6	3	2	6
	NLPC	2	1	2	2	4	7	4	1	5	6	2	2	1	5	4	2	2	1
78	LPC	8	5	2	6	4	1	7	2	5	7	4	8	3	5	5	6	4	6
	NLPC	1	3	3	3	3	2	2	3	5	3	3	3	1	5	3	2	1	3
82	LPC	5	7	5	4	8	7	4	7	1	6	1	6	2	3	1	5	1	1
	NLPC	6	4	4	5	6	7	3	7	3	7	2	6	2	4	3	4	2	4
85	LPC	7	3	1	1	3	4	8	1	4	8	3	6	2	3	1	7	3	2
	NLPC	7	3	1	1	2	3	8	4	2	7	5	6	1	3	1	6	1	1
95	LPC	2	5	1	8	3	2	3	2	8	6	3	2	4	2	4	2	4	4
	NLPC	2	7	7	7	7	2	5	7	8	7	7	2	8	7	8	2	7	7
96	LPC	1	1	5	3	2	2	1	2	2	2	2	1	2	2	2	1	2	2
	NLPC	3	3	2	2	3	4	1	3	8	1	6	2	6	2	8	5	6	7
97	LPC	4	4	3	2	5	3	7	3	5	4	4	4	3	4	3	5	3	4
	NLPC	3	6	6	6	6	6	3	5	6	5	5	3	7	6	7	3	6	6
108	LPC	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	3	4	4
	NLPC	4	5	4	4	4	3	3	4	4	4	4	3	4	4	4	4	4	4
113	LPC	7	5	2	3	7	5	7	3	5	7	5	7	6	3	5	7	2	5
	NLPC	2	5	5	4	5	3	5	4	4	3	4	2	4	5	3	2	4	4
116	LPC	2	1	1	1	4	5	7	2	7	4	7	4	2	3	2	2	2	2
	NLPC	4	5	3	1	7	3	7	1	6	6	6	4	2	5	6	5	3	6
126	LPC	1	4	5	1	6	2	7	1	5	1	2	2	4	5	4	2	2	4
	NLPC	2	1	2	2	1	2	3	2	3	2	2	3	4	3	3	3	4	1
130	LPC	7	4	3	1	6	5	8	1	6	7	1	2	6	8	5	3	2	4
	NLPC	5	1	7	3	1	1	2	1	6	7	4	6	5	1	5	5	6	5
138	LPC	4	6	4	6	5	5	4	4	4	4	3	3	4	6	4	3	4	5
	NLPC	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4
148	LPC	3	2	2	2	3	6	3	2	3	6	1	3	2	6	3	3	2	3
	NLPC	3	7	7	7	7	3	2	3	7	5	7	2	6	3	7	4	6	7
149	LPC	2	5	6	3	4	6	1	2	5	2	2	2	3	4	5	2	5	6
	NLPC	2	5	6	3	4	6	1	2	5	2	2	2	3	4	5	2	5	6

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
150	LPC	3	4	4	2	3	1	4	4	4	6	4	5	5	3	5	3	3	4
	NLPC	4	4	4	4	4	2	3	4	5	4	3	5	5	3	4	3	3	4
153	LPC	2	5	2	3	5	4	3	3	4	4	2	3	4	6	4	2	2	2
	NLPC	6	7	7	7	7	5	6	5	7	5	5	5	5	3	7	5	4	6
155	LPC	3	7	3	4	6	3	4	2	8	2	3	4	3	2	4	4	2	2
	NLPC	6	7	7	7	7	8	8	8	8	8	7	7	7	8	8	6	7	8
156	LPC	6	7	6	7	7	6	6	7	7	7	6	7	3	7	7	7	7	7
	NLPC	3	2	2	5	3	3	3	5	3	4	3	3	3	3	3	3	3	3
161	LPC	6	4	3	2	5	3	7	5	5	7	4	7	4	7	4	6	3	2
	NLPC	3	3	3	4	3	4	2	5	3	4	5	2	3	5	3	2	4	2
166	LPC	2	4	4	2	4	2	2	3	4	3	2	1	5	1	3	1	2	6
	NLPC	1	6	6	6	6	3	1	1	6	2	3	1	7	2	4	1	5	7
169	LPC	8	1	1	8	1	4	8	1	1	7	1	8	3	6	1	8	2	2
	NLPC	1	3	6	6	6	6	3	1	8	4	3	2	4	5	7	2	4	5
174	LPC	1	2	2	2	2	2	1	1	2	2	2	1	3	2	2	4	2	3
	NLPC	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
180	LPC	2	5	4	3	3	7	1	1	5	5	1	2	7	7	4	3	4	6
	NLPC	5	5	5	5	6	3	6	1	6	4	4	2	4	2	5	5	4	5
182	LPC	8	4	2	4	7	6	8	8	7	8	8	8	3	7	6	8	5	6
	NLPC	4	4	1	2	3	1	3	1	3	4	2	2	4	2	4	2	3	2
186	LPC	2	4	6	3	5	3	3	3	6	4	2	2	5	4	5	2	4	4
	NLPC	4	4	2	2	4	4	4	3	3	4	3	3	5	4	1	3	3	4
190	LPC	5	5	4	6	5	5	6	5	4	4	6	6	4	5	4	5	4	5
	NLPC	4	3	4	4	3	3	6	4	4	4	4	3	2	4	4	6	2	4
193	LPC	8	7	1	3	4	3	8	1	7	8	1	8	1	8	6	8	3	7
	NLPC	7	1	5	2	2	6	3	7	7	1	8	5	7	7	6	7	3	6
194	LPC	7	4	2	2	5	5	4	1	4	8	7	7	6	3	7	8	7	7
	NLPC	4	1	1	3	3	2	6	2	5	3	7	5	1	3	5	5	8	5
195	LPC	2	5	5	6	4	4	7	5	5	2	4	2	5	4	5	2	5	5
	NLPC	4	3	4	3	3	3	4	3	3	2	3	2	6	4	4	3	4	3

SUBJECT NUMBER	INSTRUMENT TYPE	ITEM CLASSIFICATION																	
		T	S	S	S	S	O	T	O	S	T	S	T	S	T	S	T	S	S
196	LPC	2	4	3	3	2	1	2	1	8	2	1	1	6	2	6	1	3	6
	NLPC	7	7	1	2	8	6	3	1	8	6	2	1	7	6	8	1	2	6
198	LPC	2	4	3	4	4	2	2	1	6	2	2	3	5	2	5	2	4	5
	NLPC	2	5	4	2	2	3	4	1	5	5	3	3	5	2	5	3	4	7
200	LPC	5	6	6	7	7	4	3	4	7	4	6	3	7	2	7	5	6	7
	NLPC	6	2	4	3	7	6	7	3	7	6	6	7	6	6	4	6	3	6
211	LPC	1	2	8	7	6	3	1	2	7	1	1	1	7	3	6	1	6	7
	NLPC	1	3	8	7	6	5	1	1	6	1	1	1	6	2	6	1	6	6

APPENDIX 7

Table of Retest Responses Relating to LPC Scales and Rating of Real Persons or Stereotypes

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
12	47	16	31	27	2 89	0 89	Y	Y
13	71	17	54	45	1 81	3 44	Y	Y
19	68	43	25	40	1 14	3 45	Y	Y
20	100	45	55	43	0 58	1 25	Y	Y
29	69	27	42	19	2 25	2 56	Y	Y
39	52	32	20	55	0 56	2 60	Y	Y
40	75	37	38	25	3 47	1 36	Y	Y
43	63	27	36	37	1 25	0 44	Y	Y
52	40	47	27	23	0 67	3 01	Y	Y
60	56	13	43	25	0 47	1 61	Y	Y
63	76	18	58	20	0 33	3 16	Y	Y
64	99	40	59	37	1 56	3 09	Y	Y
70	37	7	30	62	0 14	4 40	N	Y
72	23	6	17	7	0 00	4 41	N	N
74	70	41	29	11	0 81	1 89	Y	Y
75	64	20	44	27	4 56	2 44	Y	Y
78	85	41	44	43	1 14	1 44	Y	Y
82	60	29	31	21	1 14	6 69	Y	Y
85	62	39	23	11	2 92	1 01	Y	Y
95	61	17	44	39	2 14	4 24	Y	Y
96	31	8	23	44	0 22	1 01	N	Y
97	64	28	36	36	1 22	0 84	Y	Y
103	65	24	41	6	0 33	0 09	N	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
113	83	38	45	38	2 22	2 45	Y	Y
116	51	22	29	29	2 89	4 89	Y	Y
126	55	18	37	30	5 00	2 21	Y	Y
130	73	35	38	44	5 81	3 56	Y	Y
138	69	24	45	12	1 00	0 85	Y	N
148	47	24	23	52	2 00	0 41	Y	Y
149	57	13	44	0	0 81	1 64	Y	Y
150	63	24	39	9	1 33	0 49	Y	Y
153	53	20	33	45	1 89	1 41	Y	Y
155	61	19	42	55	0 81	3 96	Y	Y
156	104	40	64	55	0 22	1 44	Y	Y
161	76	40	36	33	0 22	1 04	Y	Y
166	46	10	36	24	0 56	1 64	Y	Y
169	66	45	21	63	0 58	4 29	Y	Y
174	33	11	22	17	1 14	0 16	Y	N
180	62	20	42	31	4 22	2 56	Y	Y
182	99	47	52	56	0 14	3 36	Y	Y
186	61	17	44	20	0 81	1 44	Y	Y
190	78	31	47	19	0 47	0 61	Y	Y
193	88	48	40	45	0 00	6 00	Y	N
194	88	37	51	33	3 81	3 69	Y	Y
195	68	19	49	21	3 47	0 29	Y	N
196	52	10	42	31	0 22	4 36	Y	Y

NO	LPC	TASK LPC	SOC LPC	ITEM DISP	TASK VAR	SOC VAR	QUEST #1	QUEST #2
148	55	13	42	16	0 14	1 16	Y	Y
200	80	22	66	34	1 22	0 24	Y	Y
211	65	8	57	5	0 56	4 81	Y	Y

ABSTRACT OF

Psychological Differentiation and Esteem For One's Co-workers[46]

The purpose of this study was to develop a Least Preferred Co-worker scale which had a Task orientation factor and a Social orientation factor and to show certain relationships between the two factors and Witkin's theory of psychological differentiation. The research subjects were 220 graduate students. Factor analysis of the LPC instrument yielded the two factors as predicted. Tests of normality of the dependent variables showed that all scores except the Social LPC score were not normally distributed. As a consequence the specific hypotheses were tested with non-parametric tests of significance. None of the research hypotheses was supported. Possible reasons for this are discussed. Implications of the existence of the two factors for the Contingency Model of Leadership Effectiveness are also discussed and suggestions for additional research are made.

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46 Wayne L. Johnston, master's thesis presented to the School of Graduate Studies of the University of Ottawa, Ottawa, 1976, viii + 116 p.