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## **Faculty Working Papers**

### **Leadership Style and Cognitive Complexity**

**L. L. Larson  
Southern Illinois University**

**K. M. Rowland  
University of Illinois**

#41

**College of Commerce and Business Administration  
University of Illinois at Urbana-Champaign**



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**February 21, 1972**

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THE UNIVERSITY OF CHICAGO

DEPARTMENT OF THE HISTORY OF ARTS AND ARCHITECTURE

CHICAGO, ILLINOIS

THE UNIVERSITY OF CHICAGO PRESS

54 EAST LAKE STREET  
CHICAGO, ILLINOIS 60601

TEL: 773-936-3700  
FAX: 773-936-3701



## Leadership Style and Cognitive Complexity

In his contingency model of leadership effectiveness, Fiedler (1967) has identified two styles of leadership based on how the leader views his least preferred co-worker (LPC). Leadership style is defined as the underlying need structure of the individual which motivates his behavior in various leadership situations. The LPC instrument is usually composed of 17 bi-polar adjectives such as friendly-unfriendly, open-guarded, pleasant-unpleasant. The leader who views his LPC in favorable terms (e.g., friendly, open, pleasant) is considered a high LPC leader, while the leader who views his LPC in unfavorable terms (e.g., unfriendly, guarded, unpleasant) is considered a low LPC leader. The high LPC leader is characterized ". . . as a person who derives his major satisfaction from successful interpersonal relationships while the low LPC person . . . derives his major satisfaction from task performance. /Fiedler, 1967, p. 45/."

### LPC and Cognitive Complexity-Simplicity

Although the measurement of high and low LPC leadership styles has been frequently used for predicting performance, it has resisted meaningful interpretation. A number of studies (Bass, Fiedler, and Krueger, 1964; Burke, 1965; Fishbein, Landy, and Hatch, 1965; Golb and Fiedler, 1955; Steiner, 1959) have attempted, with little success, to interpret the LPC score by relating it to a variety of standard personality and attitude measures. Recent studies have indicated that the LPC might be a measure of cognitive process. Six of the ten variables that correlated significantly with the LPC score in the Bass et al. (1964) study were cognitive process

THE HISTORY OF THE UNITED STATES

The first part of the history of the United States is the period of discovery and settlement. The second part is the period of the American Revolution and the formation of the Constitution. The third part is the period of the expansion of the United States to the Pacific Ocean. The fourth part is the period of the Civil War and Reconstruction. The fifth part is the period of the Gilded Age and the Progressive Era. The sixth part is the period of the World Wars and the Great Depression. The seventh part is the period of the Cold War and the Vietnam War. The eighth part is the period of the 1960s and the 1970s. The ninth part is the period of the 1980s and the 1990s. The tenth part is the period of the 2000s and the 2010s.

The history of the United States is a story of a young nation that grew from a small colony to a world superpower. It is a story of the struggle for freedom and democracy, and the triumph of the American dream. It is a story of the courage and sacrifice of the men and women who built this nation, and the challenges they faced. It is a story of the progress and achievement of the United States, and the hope for a better future for all.

variables. It was suggested, therefore, that the main difference between a high and low LPC leader might be the way in which he categorized and structured his perceptions of others. A similar suggestion was made by Schroder, Driver, and Streufert (1967) in their discussion of human information processing. They indicated that the LPC score might be a simple measure of gross differences in how individuals perceived and judged information. Finally, Hill (1969) has reasoned that a high LPC leader might be more cognitively complex than a low LPC leader and thereby better able to differentiate between the interpersonal and task dimensions of his least preferred co-worker.

Although definitions of cognitive complexity differ (Bieri, 1955; Crockett, 1965), there is general agreement that individuals utilize a varying number of constructs to perceive and evaluate their environment. Individuals with low complexity, therefore, are characterized by categorical black-white perceptions as well as relatively few, but rigid rules of integration. On the other hand, individuals who are relatively complex perceive more differences in their environment, are more likely to view others in ambivalent terms, and are better able to assimilate contradictory cues. Hence, the implication is that a high LPC leader, since he distinguishes between his LPC as a worker and as a person and views him in positive as well as negative terms, is more complex than a low LPC leader who apparently does not make this distinction and views his LPC only in relatively negative terms.

At least two studies have attempted to relate the LPC score to measures of cognitive complexity. Weissenberg and Gruenfield (1966)

2022年12月19日，星期一。上午8:30，在求是大讲堂，浙江大学举行了2023年迎新大会。会场上，红色的横幅写着“浙江大学2023年迎新大会”。会场布置得喜气洋洋，到处都挂着红色的灯笼和彩带。

大会在热烈的氛围中拉开帷幕。首先，由校党委书记陈卫根主持。他代表学校党委和行政班子，向2023级全体新生致以最热烈的欢迎和最诚挚的问候。他回顾了学校深厚的办学历史和辉煌的成就，并勉励全体新生要坚定理想信念，勤奋学习，努力拼搏，为祖国的社会主义现代化建设贡献青春力量。

接着，由校长李卫红作题为“在求是园开启人生新篇章”的报告。李校长结合自身成长经历，勉励新生要胸怀“国之大事”，增强“四个自信”，做到“两个维护”，努力成长为德智体美劳全面发展的社会主义建设者和接班人。他特别强调了求是精神的重要性，希望新生要继承和发扬“求是”精神，不断探索，勇于创新。

随后，多位校领导分别就学风建设、校园生活、体育锻炼等方面对新生提出了殷切期望。他们表示，学校将一如既往地重视新生教育，努力为新生提供优质的学习和生活环境，帮助他们尽快适应大学生活。

大会还邀请了多位优秀学长学姐分享他们的学习经验和心得体会。他们鼓励新生要积极主动地参与各类社团活动，全面发展自己的兴趣爱好，努力成为全面发展的复合型人才。

最后，大会在全体师生的齐唱校歌《求是园歌》中圆满结束。会场气氛热烈，大家纷纷表示，将以崭新的面貌迎接大学生活，为实现中华民族伟大复兴的中国梦贡献青春力量。

会后，迎新工作仍在有序进行。志愿者们热情地为新生提供报到指引和咨询服务，帮助他们顺利入住宿舍，办理入学手续。求是园处处洋溢着喜庆的气氛，迎接着一批又一批充满活力的新同学。

2023年迎新大会的圆满举行，标志着浙江大学新一轮育人征程的开启。全体新生将以饱满的热情和昂扬的斗志，开启在求是园的美好旅程。

found a curvilinear relationship between the LPC and Witkins Embedded Figures Test (EFT). Mitchell (1969, 1970) found a positive correlation between LPC and an adaptation of Scott's (1962) measure of cognitive complexity.

In exploring the relationship between LPC and cognitive complexity, a major consideration is the instrument used to measure complexity-simplicity. Gardner and Schoen (1962) and Scott (1963) have stated that an individual could be cognitively complex in one domain and cognitively simple in another depending on his knowledge and experience in that domain. A first step, then, in testing for a possible relationship between LPC and cognitive complexity is to select a measure of cognitive complexity appropriate to the domain under investigation. A second major consideration pertains to the generality of the cognitive complexity measure. Vannoy (1965) administered to 113 males a battery of 20 different purported measures of cognitive complexity in the person-object domain and factor analyzed the results. Item intercorrelations and factor loadings indicated that cognitive complexity might consist of a number of distinct, possibly independent characteristics, not all of which were included in any single measurement instrument. Based on these results, Vannoy concluded that when conditions do not permit the use of multiple measures, "The Bieri measure, because it loaded in three different factors, appears to be a fairly good general measure of cognitive complexity, i.e., one which represents to a certain degree most of the aspects of cognitive complexity Vannoy, 1964, p. 54."

Preliminary evidence, therefore, has suggested a relationship between LPC and cognitive complexity-simplicity. Previous studies of cognitive

The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for ensuring transparency and accountability in financial operations.

In addition, the document highlights the need for regular audits and reviews to identify any discrepancies or areas for improvement. This process helps to ensure that all financial data is correctly recorded and reported.

Furthermore, the document outlines the various methods and tools used for data collection and analysis. It mentions the use of spreadsheets, databases, and specialized software to manage and analyze large volumes of financial data.

The document also addresses the challenges associated with data management, such as ensuring data security and privacy. It provides recommendations for implementing robust security measures to protect sensitive financial information.

Overall, the document serves as a comprehensive guide for organizations looking to optimize their financial record-keeping processes. It provides practical advice and best practices to ensure that all financial activities are accurately documented and reported.

The document concludes by reiterating the importance of consistent and accurate record-keeping for long-term financial success and compliance with regulatory requirements.

complexity, however, have indicated that cognitive complexity was not a general trait, that all purported measures of cognitive complexity did not measure the same characteristic, and that care should be taken in choosing a measure that was specific to the domain under investigation.

#### Purpose

The purpose of this study was to further explore the proposed relationship between LPC and cognitive complexity, and based on the literature to specifically test the following hypotheses:

1) The LPC score is positively related to measures of a person's cognitive complexity-simplicity in the domain of interpersonal relations. This hypothesis represents an attempt to replicate Mitchell's (1970) initial work and findings. In testing this hypothesis, we have expanded Mitchell's work by using an additional measure of cognitive complexity and a more diverse sample population.

2) The person with a middle-range LPC score is more cognitively complex in the domain of interpersonal relations than a person with a high or low LPC score. This hypothesis is based on the Bass et al. (1964) study which concluded that the middle-range LPC person was somewhat more critical and discriminating in his perception of others and perhaps more cognitively complex.

3) A person who responds with high scale variance when rating his LPC is more cognitively complex than a person with low scale variance. This hypothesis is an extension of the definition of cognitive complexity. A person who discriminates more highly between items in rating his LPC would appear to be more complex than a person who does not and therefore tends to rate his LPC relatively high or low on all items.

The first part of the paper discusses the theoretical background of the study, focusing on the concept of organizational commitment and its relationship with organizational identification. It reviews existing literature and identifies gaps in the current understanding of these constructs.

The second part of the paper describes the methodology used for data collection and analysis. It details the sample characteristics, the measurement instruments used to assess organizational commitment and identification, and the statistical techniques employed to test the research hypotheses.

The third part of the paper presents the results of the study. It reports the mean scores and standard deviations for the various constructs measured. The analysis shows a significant positive relationship between organizational identification and organizational commitment, supporting the theoretical framework proposed in the literature.

The fourth part of the paper discusses the implications of the findings for both theory and practice. It suggests that organizations should focus on fostering a sense of identification among employees to enhance their commitment. Practical strategies for achieving this include clear communication of organizational values, consistent leadership behavior, and opportunities for employee participation in decision-making.

Finally, the paper concludes with a summary of the main findings and offers directions for future research. It acknowledges the limitations of the study and suggests areas where further exploration is needed, such as the role of organizational identification in different cultural contexts or the long-term stability of the identified relationships.



## Samples

In testing for a relationship between LPC and cognitive complexity, five sample populations were employed.

Sample I was composed of 24 male, middle and upper-level managers attending a four-week executive development program. Their level of education ranged from those with a high school diploma through those with a doctorate degree. Their base salary was in the \$26,000-\$30,000 range, they averaged 18 years of managerial experience, and ranged in age from 31 to 50 years.

Sample II was composed of 30 male, civil service engineers and technical supervisors attending a four-day management development program. Approximately 95 per cent of the sample had a bachelor's degree and 25 per cent a master's degree. All were in supervisory positions and they ranged in age from 24 to 55 years.

Samples III and IV were composed of 30 and 49 male junior and senior undergraduate students enrolled in two business administration courses.

Sample V was composed of 44 male graduate students in business administration.

In summary, the samples were composed of male managers and executives from different types of organizations with varied educational backgrounds and experience and male undergraduate and graduate students enrolled in business administration courses.

## Measurement Instruments

Three instruments were used for exploring the relationship between LPC and cognitive complexity.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This includes not only sales and purchases but also expenses and income. Proper record keeping is essential for determining the correct amount of tax liability.

2. The second part of the document provides a detailed breakdown of the various types of taxes that may apply to different categories of income. This includes federal income tax, state income tax, and local property tax. The document also explains how to calculate the amount of tax owed for each category.

3. The third part of the document discusses the various methods available for paying taxes. This includes direct payment to the tax authority, payment through a third party, and payment through a withholding agent. The document also explains the consequences of failing to pay taxes on time.

4. The fourth part of the document discusses the various deductions and credits that may be available to reduce the amount of tax liability. This includes deductions for mortgage interest, state and local taxes, and charitable contributions. The document also explains how to claim these deductions and credits on the tax return.

5. The fifth part of the document discusses the various penalties and interest charges that may apply if taxes are not paid on time. This includes penalties for late payment, failure to file, and underpayment. The document also explains how to avoid these penalties and interest charges.

6. The sixth part of the document discusses the various options available for resolving tax disputes. This includes filing a protest with the tax authority, filing a lawsuit in court, and seeking mediation or arbitration. The document also explains the consequences of each option.

7. The seventh part of the document discusses the various options available for reducing the amount of tax liability. This includes taking advantage of tax-exempt investments, such as municipal bonds and 529 college savings plans. The document also explains how to structure investments to minimize taxes.

8. The eighth part of the document discusses the various options available for reducing the amount of tax liability. This includes taking advantage of tax-deferred investments, such as 401(k) plans and IRAs. The document also explains how to structure investments to minimize taxes.

9. The ninth part of the document discusses the various options available for reducing the amount of tax liability. This includes taking advantage of tax-exempt investments, such as municipal bonds and 529 college savings plans. The document also explains how to structure investments to minimize taxes.

LPC. The 17-item version of the Least Preferred Co-worker (Fiedler, 1967) measure was used to obtain an LPC score.

Cognitive Complexity. In an attempt to replicate Mitchell's (1970) study, his revision of Scott's (1962) measure of cognitive complexity was used. Scott's original measure included a list of 20 nations and the subject was asked to arrange these nations into categories which he thought belonged together and to indicate what he thought the nations had in common. For example, Great Britain and New Zealand might be grouped together as island nations. Mitchell (1970) adapted this measure to the domain of interpersonal relations by substituting a list of 20 groups in place of the nations. For example, subjects were asked to make as many categories as possible from such items as University swim team, NAACP, CIA, University Debate Club, etc.

The test can be scored using an H score, where  $H = \log_2 n - \frac{1}{n} \sum n_i \log_2 n_i$ ,  $n$  is the total number of groups in the list, and  $n_i$  the number of groups placed in the same number of categories. The test can also be scored by summing the number of categories generated by the subject (the correlation in our study between the H score and the sum of categories score was .99). The more categories generated by the subject the more complex he is assumed to be. Mitchell's revision of Scott's measure of cognitive complexity-simplicity was administered to Samples I, II, III, and IV.

The second measure of cognitive complexity used in this study was Vannoy's adaptation of Bieri's Rep Test. Vannoy in his factor analysis of 22 measures of cognitive complexity found that Bieri's measure loaded on three of five main factors and suggested that it was the most adequate overall measure of complexity.



The measure used in this study was similar to Bieri's (Tripodi and Bieri, 1963) modification of Kelly's (1955) Rep test where constructs as well as persons were specified on a grid. Subjects were required to rate the persons specified (e.g., Father, Mother, Supervisor, etc.) in terms of the constructs (e.g., outgoing-shy; decisive-indecisive, etc.). Vannoy (1964) made two additional modifications in an attempt to reduce response sets. The constructs specified in the original Bieri measure were in the form of bipolar adjectives with the favorable adjective always appearing on the same side of the bipolar pair. In addition, the subject was required to rate each person on all constructs by using a plus or minus sign. Vannoy counterbalanced the desirable adjectives and substituted the letters "L" and "R" for the plus and minus marks to avoid any response set due to the use of a positive and negative sign. The Bieri measure, as modified by Vannoy, was given to Samples IV and V.

#### Procedure

The procedure in administering the LPC and cognitive complexity measures was straightforward. All tests were administered in a classroom situation and the subjects were informed that the tests were part of a leadership study. The LPC test was administered first, followed by the two measures of cognitive complexity.

The only exception to this procedure occurred with group IV. The Bieri-Vannoy measure of cognitive complexity was administered to this sample approximately three weeks after the LPC and Scott-Mitchell measures. This resulted in a reduced sample size.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for ensuring the integrity and reliability of financial data. This section also outlines the various methods and tools used to collect and analyze financial information, highlighting the need for consistency and transparency in the reporting process.

The second part of the document focuses on the role of internal controls in preventing fraud and errors. It details the various checks and balances implemented within the organization to ensure that all activities are conducted in accordance with established policies and procedures. This section also discusses the importance of regular audits and the role of the audit committee in overseeing the internal control system.

The third part of the document addresses the issue of financial reporting and the preparation of financial statements. It provides a detailed overview of the accounting principles and standards that govern the preparation of these statements, including the recognition, measurement, and disclosure of assets, liabilities, and equity. This section also discusses the importance of providing clear and concise information to investors and other stakeholders.

The fourth part of the document discusses the role of the board of directors in overseeing the financial performance of the organization. It outlines the responsibilities of the board in setting the strategic direction, approving the budget, and monitoring the progress of the organization's financial goals. This section also discusses the importance of effective communication between the board and management.

The fifth part of the document discusses the role of the management team in implementing the financial strategy and ensuring the organization's long-term success. It outlines the responsibilities of management in managing the organization's resources, controlling costs, and maximizing revenue. This section also discusses the importance of regular communication and reporting to the board and other stakeholders.

The sixth part of the document discusses the role of the external auditors in providing an independent opinion on the financial statements. It outlines the scope of the audit and the various procedures used to verify the accuracy and completeness of the financial data. This section also discusses the importance of the auditor's report and the role of the audit committee in overseeing the audit process.

The seventh part of the document discusses the role of the regulatory bodies in ensuring the integrity and reliability of financial reporting. It outlines the various laws and regulations that govern the financial reporting process, including the Securities Exchange Act of 1934 and the Securities Exchange Act of 1933. This section also discusses the importance of compliance with these regulations and the role of the regulatory bodies in enforcing these rules.

The eighth part of the document discusses the role of the investors in providing capital to the organization and the importance of providing them with accurate and timely information. It outlines the various methods used to attract investors, including public offerings and private placements. This section also discusses the importance of providing clear and concise information to investors and the role of the management team in managing the organization's relationship with its investors.

The ninth part of the document discusses the role of the government in providing a stable and predictable environment for business operations. It outlines the various policies and programs implemented by the government to support economic growth and development. This section also discusses the importance of effective communication between the government and the business community.

The tenth part of the document discusses the role of the global economy in providing opportunities for international trade and investment. It outlines the various factors that influence the global economy, including trade agreements, exchange rates, and political stability. This section also discusses the importance of understanding the global market and the role of the organization in managing its international operations.

### Results

Correlations between the LPC score and the Scott-Mitchell and Bieri-Vannoy measures of cognitive complexity for all five samples are presented in Table 1. Correlations between the LPC score and the Scott-Mitchell

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Insert Table 1 About Here  
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measure ranged from  $-.013$  to  $.198$  and were not statistically significant. Correlations between the LPC score and the Bieri-Vannoy measure ranged from  $.09$  to  $.365$ ; the latter correlation was significant at the  $.01$  level.

The contingency model involves high and low LPC individuals, but has said nothing about those with a middle-range LPC score. In early studies, the high and low LPC designation depended on whether the score was above or below the median score. Later, the top and bottom thirds were designated high and low, excluding the middle third. Bass et al. (1964) have suggested that the middle LPC individual may in fact be more cognitively complex than either the high or low LPC individual because he tended to be more critical and discriminating in his perceptions of others.

Following this notion, correlations were computed with each sample divided into high, middle, and low LPC categories (Table 2).

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Insert Table 2 About Here  
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Correlations between the LPC score and the Scott-Mitchell measure of cognitive complexity ranged from  $-.452$  (significant at the  $.05$  level) to  $.337$  (nonsignificant) when divided into thirds. When the samples were

1. The first part of the document is a letter from the author to the editor, dated 10/10/1991. The letter discusses the author's interest in the journal and the possibility of publishing a paper. The author mentions that they have been working on a paper for some time and would like to know if the journal is still accepting submissions. The author also asks for information regarding the journal's policies and procedures.

2. The second part of the document is a letter from the editor to the author, dated 10/10/1991. The editor responds to the author's letter and informs them that the journal is still accepting submissions. The editor also provides information regarding the journal's policies and procedures.

3. The third part of the document is a letter from the author to the editor, dated 10/10/1991. The author thanks the editor for the information provided in the previous letter and expresses their interest in publishing a paper in the journal. The author mentions that they have a paper that they would like to submit and asks for the editor's advice regarding the paper's content and format. The author also asks for information regarding the journal's review process and the time frame for publication.

4. The fourth part of the document is a letter from the editor to the author, dated 10/10/1991. The editor responds to the author's letter and informs them that the paper is accepted for publication. The editor also provides information regarding the journal's review process and the time frame for publication. The editor also mentions that the author's paper is one of the best papers in the journal and that it will be published in the next issue.

5. The fifth part of the document is a letter from the author to the editor, dated 10/10/1991. The author thanks the editor for the information provided in the previous letter and expresses their appreciation for the editor's advice and support. The author also mentions that they will be submitting the paper to the journal in the next few days.

6. The sixth part of the document is a letter from the editor to the author, dated 10/10/1991. The editor responds to the author's letter and informs them that the paper is accepted for publication. The editor also provides information regarding the journal's review process and the time frame for publication. The editor also mentions that the author's paper is one of the best papers in the journal and that it will be published in the next issue.



divided into high, middle, and low LPC categories, all of the correlations between the high LPC category and the Scott-Mitchell test were negative, suggesting that the higher the LPC score the lower the cognitive complexity of the individual.

Conceptually, one can reason that a person who rated his least preferred co-worker low<sup>1</sup> on all items was using one construct (task) to view his LPC and was not differentiating within this construct. An individual who rated his LPC high on all items apparently used interpersonal and task constructs to view his LPC, but did not differentiate much within these constructs. He tended to rate his least preferred co-worker high on all items.

It follows that a person who first used interpersonal and task constructs to view his LPC, and then showed variance or discrimination in his ratings within these constructs by rating his LPC high on some items, and middle or low on others, would tend to be more cognitively complex than a person who rated his least preferred co-worker high on all items.

Table 3 shows the correlations between high, middle, and low LPC scores and measures of cognitive complexity with the combined samples divided into high and low variance based on the LPC score. The only significant correlation between the LPC score and the Scott-Mitchell measure was obtained for high variance, low LPC. There were two significant

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<sup>1</sup>Fiedler's LPC measure consists of bipolar adjectives (i.e., pleasant-unpleasant, tense-relaxed, etc.) set against an 8-point scale. The least desirable adjectives are always at the low end of the scale, with the most desirable adjectives always at the high end.



correlations between the LPC score and the Bieri-Vannoy measure. The first, high variance, high LPC would support the hypothesis developed, but the second one, low variance, low LPC is the opposite of that predicted.

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Insert Table 3 About Here  
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As a final step, correlations for each sample were tested for possible curvilinear relationships. An Eta test did not yield significant results.

In summary, the results did not support the hypothesis that the LPC score is related to measures of cognitive complexity-simplicity and we were unable to replicate Mitchell's study. The only significant correlation was between the Bieri-Vannoy measure of cognitive complexity and LPC. However, this was obtained in only one of the samples and we must conclude that it occurred under conditions that cannot be explained or replicated.

#### Summary and Conclusions

While the LPC score has remained uncorrelated with standard personality measures, there has been some evidence that the LPC score might, in part, be a measure of an individual's cognitive complexity. One hypothesis tested in this study was that an individual's LPC score is positively related to measures of his cognitive complexity in the domain of interpersonal relations. The results of correlational analysis failed to support this hypothesis.

The failure to support the hypothesized relationship between the LPC score and measures of cognitive complexity was disturbing for several reasons. First, there was a significant amount of theoretical support for

1. The first part of the document is a letter from the author to the editor, dated 10/10/1954. The letter is addressed to the Editor of the Journal of the Royal Society of Medicine, London. The author is Dr. J. H. M. J. van der Vliet, who is a member of the Royal Society of Medicine. The letter is a request for the publication of a paper on the subject of the "Effect of the use of the word 'disease' in the medical literature".

### THE EFFECT OF THE USE OF THE WORD 'DISEASE' IN THE MEDICAL LITERATURE

The author begins by stating that the word "disease" is a very common word in the medical literature, and that it is often used in a very general sense. He then goes on to discuss the history of the word, and how it has changed over time. He notes that the word "disease" was first used in the 17th century, and that it was then used to describe a wide range of conditions, from simple infections to complex chronic diseases. He then discusses the problems that arise from the use of the word in a general sense, and how this can lead to confusion and misunderstanding. He concludes by suggesting that the word "disease" should be used more carefully, and that it should be reserved for conditions that are clearly defined and distinct from other conditions.

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such a relationship; support provided by those who had studied the LPC score, as well as those who had conducted research in the area of cognitive complexity. Second, a previous empirical study (Mitchell, 1970) had reported finding a modest linear relationship between the LPC score and a measure of cognitive complexity--a finding that this study, using the same instruments, failed to replicate. Also, following the work of Vannoy (1965), who reported that different measures of cognitive complexity appeared to measure different aspects of the concepts, two separate measures of cognitive complexity were used to test for the relationship. Neither measure consistently produced significant correlations. Furthermore, Eta tests for curvilinear relationships failed to yield significant results. The subjects in the five sample populations used in this study were of varied backgrounds which ranged from executives in their fifties with 18 years or more of supervisory experience to undergraduate students in their twenties with limited supervisory experience. Age and experience, therefore, apparently had no effects on the LPC-cognitive complexity relationship. And finally, following the definition of cognitive complexity, which had indicated that individuals who showed greater variance in scoring the LPC items were more complex than those with less variance, the samples were separated into high and low variance categories. Again the findings were inconsistent, with significant correlations being found for both high and low variance individuals.

In view of these findings, as shown in Tables 1,2, and 3, we must conclude that there is no simple linear relationship between the LPC score and the Scott-Mitchell or Bieri-Vannoy measures of cognitive complexity.

	Chlorophyll <i>a</i>	Chlorophyll <i>b</i>	Chlorophyll <i>c</i>	Carotenoids	Pigment content index
0.00	21.19	17.92	3.41	5.90	48.43
0.25	21.33	17.23	3.15	5.53	47.24
0.50	21.35	17.27	3.15	5.54	47.31
0.75	21.29	17.17	3.12	5.50	47.08
1.00	21.33	17.23	3.15	5.53	47.24
1.25	21.28	17.18	3.13	5.51	47.10
1.50	21.30	17.20	3.14	5.52	47.16
1.75	21.32	17.22	3.14	5.52	47.20
2.00	21.33	17.23	3.15	5.53	47.24
2.25	21.34	17.24	3.15	5.53	47.27
2.50	21.35	17.25	3.15	5.53	47.28
2.75	21.35	17.25	3.15	5.53	47.28
3.00	21.35	17.25	3.15	5.53	47.28
3.25	21.35	17.25	3.15	5.53	47.28
3.50	21.35	17.25	3.15	5.53	47.28
3.75	21.35	17.25	3.15	5.53	47.28
4.00	21.35	17.25	3.15	5.53	47.28
4.25	21.35	17.25	3.15	5.53	47.28
4.50	21.35	17.25	3.15	5.53	47.28
4.75	21.35	17.25	3.15	5.53	47.28
5.00	21.35	17.25	3.15	5.53	47.28
5.25	21.35	17.25	3.15	5.53	47.28
5.50	21.35	17.25	3.15	5.53	47.28
5.75	21.35	17.25	3.15	5.53	47.28
6.00	21.35	17.25	3.15	5.53	47.28
6.25	21.35	17.25	3.15	5.53	47.28
6.50	21.35	17.25	3.15	5.53	47.28
6.75	21.35	17.25	3.15	5.53	47.28
7.00	21.35	17.25	3.15	5.53	47.28
7.25	21.35	17.25	3.15	5.53	47.28
7.50	21.35	17.25	3.15	5.53	47.28
7.75	21.35	17.25	3.15	5.53	47.28
8.00	21.35	17.25	3.15	5.53	47.28
8.25	21.35	17.25	3.15	5.53	47.28
8.50	21.35	17.25	3.15	5.53	47.28
8.75	21.35	17.25	3.15	5.53	47.28
9.00	21.35	17.25	3.15	5.53	47.28
9.25	21.35	17.25	3.15	5.53	47.28
9.50	21.35	17.25	3.15	5.53	47.28
9.75	21.35	17.25	3.15	5.53	47.28
10.00	21.35	17.25	3.15	5.53	47.28
10.25	21.35	17.25	3.15	5.53	47.28
10.50	21.35	17.25	3.15	5.53	47.28
10.75	21.35	17.25	3.15	5.53	47.28
11.00	21.35	17.25	3.15	5.53	47.28
11.25	21.35	17.25	3.15	5.53	47.28
11.50	21.35	17.25	3.15	5.53	47.28
11.75	21.35	17.25	3.15	5.53	47.28
12.00	21.35	17.25	3.15	5.53	47.28

Because of time limitations only two measures of cognitive complexity were used. The Scott-Mitchell measure was used in an attempt to replicate Mitchell's (1970) study and the Bieri-Vannoy measure was used because it appeared to be the best overall measure of cognitive complexity. Future research might explore the relationship between the LPC score and additional measures of cognitive complexity suggested by Vannoy's (1965) factor analysis of some 20 measures of cognitive complexity.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In addition, the document highlights the need for regular audits. By conducting periodic reviews, any discrepancies can be identified and corrected promptly. This proactive approach helps in maintaining the integrity of the financial information.

Furthermore, it is noted that clear communication is essential. All parties involved should be kept informed of the current status and any changes that may affect the records. This collaborative effort is key to successful financial management.

Finally, the document concludes by stating that adherence to these guidelines will not only improve the accuracy of the records but also enhance the overall efficiency of the organization's financial operations.



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"The first thing I did when I got to the office was to  
 check the mail. I found a letter from the  
 bank. It was from the manager and it was  
 about the money that I had borrowed. He  
 said that I had to pay it back by the  
 end of the month. I was a bit nervous  
 because I didn't have the money. I  
 had to think of a way to get it. I  
 decided to sell my car. It was a bit of a  
 hassle but I managed to do it. I sold  
 the car for a good price and I was able  
 to pay the bank. I was relieved. I  
 had a bit of money left over. I  
 decided to use it to buy a new car. I  
 found a nice one and I bought it. I  
 was happy. I had a new car and I  
 didn't owe any money. I was free. I  
 was able to start my business. I was  
 able to make a living. I was able to  
 support my family. I was able to do  
 what I wanted to do. I was able to  
 live my life. I was able to be happy.  
 I was able to be free. I was able to  
 be me. I was able to be who I wanted  
 to be. I was able to be the person I  
 wanted to be. I was able to be the  
 person I needed to be. I was able to  
 be the person I deserved to be. I was  
 able to be the person I wanted to be.  
 I was able to be the person I needed to  
 be. I was able to be the person I  
 deserved to be. I was able to be the  
 person I wanted to be."

TABLE 1  
Correlations between LPC Score and the Scott-Mitchell  
and Bieri-Vannoy Measures of Cognitive Complexity

Sample	N	$\bar{X}$ LPC	$\bar{X}$ Scott	$\bar{X}$ Bieri	r LPC/Scott	r LPC/Bieri
I	24	67.7	14.2	--	-.013	--
II	30	64.0	10.0	--	.029	--
III	30	62.4	11.1	--	.092	--
IV	49	71.2	10.5	22.4 <sup>1</sup>	.198	.09 <sup>1</sup>
V	44	59.3	--	33	--	.365*

<sup>1</sup>N = 31

\*p  $\leq$  .01

Table 11

(1)

1980-1989

1990-1999

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
$Y_{it}$										
$X_{it}$										
$U_{it}$										
$\epsilon_{it}$										
F										

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
$Y_{it}$										
$X_{it}$										
$U_{it}$										
$\epsilon_{it}$										
F										

10 = F

1 = 10



Table 2

Correlations between LPC score and the Scott-Mitchell  
and Bieri-Vannoy Measures of Cognitive Complexity  
Samples Divided into Thirds Based on LPC Score

Sample	Upper 1/3 LPC			Middle 1/3 LPC			Lower 1/3 LPC		
	N	$\bar{X}$ LPC	r LPC/Scott	N	$\bar{X}$ LPC	r LPC/Scott	N	$\bar{X}$ LPC	r LPC/Scott
I	8	86	-.375	8	68	-.077	8	48	.256
II	10	87	-.064	10	62	-.192	10	42	.467
III	10	78	-.121	10	61	.291	10	47	.244
IV	17	94	-.452*	16	69	.205	16	48	.377
V	--	--	--	--	--	--	--	--	--

Sample	Upper 1/3 LPC			Middle 1/3 LPC			Lower 1/3 LPC		
	N	$\bar{X}$ LPC	r LPC/Bieri	N	$\bar{X}$ LPC	r LPC/Bieri	N	$\bar{X}$ LPC	r LPC/Bieri
I	--	--	--	--	--	--	--	--	--
II	--	--	--	--	--	--	--	--	--
III	--	--	--	--	--	--	--	--	--
IV	12	92	.136	9	69	-.300	10	51	-.064
V	13	80	.367	15	60	.574**	15	38	.331

\*p  $\leq$  .05

\*\*p  $\leq$  .025

1917

1918

1919

1920

1921

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1961

1962

Table 2

Correlations between LPC score and the Scott-Mitchell  
and Bieri-Vannoy Measures of Cognitive Complexity  
Samples Divided into Thirds Based on LPC Score

Sample	Upper 1/3 LPC			Middle 1/3 LPC			Lower 1/3 LPC		
	N	$\bar{X}$ LPC	r LPC/Scott	N	$\bar{X}$ LPC	r LPC/Scott	N	$\bar{X}$ LPC	r LPC/Scott
I	8	86	-.375	8	68	-.077	8	48	.256
II	10	87	-.064	10	62	-.192	10	42	.467
III	10	78	-.121	10	61	.291	10	47	.244
IV	17	94	-.452*	16	69	.205	16	48	.377
V	--	--	--	--	--	--	--	--	--

Sample	Upper 1/3 LPC			Middle 1/3 LPC			Lower 1/3 LPC		
	N	$\bar{X}$ LPC	r LPC/Bieri	N	$\bar{X}$ LPC	r LPC/Bieri	N	$\bar{X}$ LPC	r LPC/Bieri
I	--	--	--	--	--	--	--	--	--
II	--	--	--	--	--	--	--	--	--
III	--	--	--	--	--	--	--	--	--
IV	12	92	.136	9	69	-.300	10	51	-.064
V	13	80	.367	15	60	.574**	15	38	.331

\*p  $\leq$  .05

\*\*p  $\leq$  .025

Year	1971	1972	1973	1974	1975
10	100	100	100	100	100
20	100	100	100	100	100
30	100	100	100	100	100
40	100	100	100	100	100
50	100	100	100	100	100
60	100	100	100	100	100
70	100	100	100	100	100
80	100	100	100	100	100
90	100	100	100	100	100
100	100	100	100	100	100

100 100

100 100

Table 3

Correlations between LPC Score and the Scott-Mitchell  
and Bieri-Vannoy Measures of Cognitive Complexity.  
Combined Samples Divided into Thirds Based on LPC and Divided  
at the Median Based on Variance on LPC

	Low Variance	High Variance
X upper 1/3 LPC	90.5	88.1
r LPC/Scott	-.356	-.036
N	51	15
X middle 1/3 LPC	62.9	65.9
r LPC/Scott	.094	.037
N	21	17
X lower 1/3 LPC	44.5	46.5
r LPC/Scott	-.087	.580*
N	15	19
X upper 1/3 LPC	84.7	87.8
r LPC/Bieri	.284	.551*
N	14	11
X middle 1/3 LPC	62.1	62.5
r LPC/Bieri	.389	.082
N	9	11
X lower 1/3 LPC	42.3	46.9
r LPC/Bieri	.596*	.021
N	16	11

\*p  $\leq$  .01

The following table shows the results of the experiment. The first column is the number of trials, the second column is the number of correct responses, and the third column is the percentage of correct responses.

Number of trials	Number of correct responses	Percentage of correct responses
10	7	70%
20	14	70%
30	21	70%
40	28	70%
50	35	70%
60	42	70%
70	49	70%
80	56	70%
90	63	70%
100	70	70%

The results show that the percentage of correct responses is constant at 70% across all trial numbers.













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