EMMONS, Jean Franklin, 1924-
USE OF THE DELPHI TECHNIQUE IN ESTABLISHING
CRITERIA FOR THE SELECTION OF A SECONDARY
SCHOOL PRINCIPAL.

The Ohio State University, Ph.D., 1971
Education, administration

University Microfilms, A XEROX Company, Ann Arbor, Michigan

THIS DISSERTATION HAS BEEN MICROFILMED EXACTLY AS RECEIVED
USE OF THE DELPHI TECHNIQUE IN ESTABLISHING
CRITERIA FOR THE SELECTION OF A SECONDARY SCHOOL PRINCIPAL

DISSERTATION

Presented in Partial Fulfillment of the
Requirements for the Degree Doctor of Philosophy in
the Graduate School of The Ohio State University

By

Jean Franklin Emmons, M.B.A.

* * * * *

The Ohio State University
1971

Approved by

Walter G. Hackett
Adviser
College of Education
ACKNOWLEDGEMENTS

The writer expresses deeply felt appreciation to the adviser of this study, Dr. Walter G. Hack, Professor of Education, The Ohio State University, for sustained interest in the study and in the writer. His advice and guidance were strong sources of encouragement throughout the study. Appreciation is extended also to Dr. Desmond Cook, Dr. Carl Candoli, Dr. Paul Klohr, and Dr. Frederick Stocker for their assistance as doctoral advisers.

The writer extends appreciation to the participants in the study: Dr. Harold Eibling, Mr. Cleo Dumaree, Dr. Joseph Davis, Mr. James Wade; Mr. Jack Gibbs, Mr. Edward Willis, Mr. Elmer Smith, Mr. Thomas McCormick, Mr. Amos Lynch, Mr. Waldo Tyler, Dr. Richard Kelsey, Mr. Coleridge Jones; Dr. Luvern Cunningham, Dr. Donald Anderson, Dr. Hugh Laughlin, Dr. Robert Strom.

Appreciation is extended to those many professional university persons who contributed so much in advice and encouragement along the way: Dr. Arliss Roaden, Dr. Roy Larmee, Dr. W. Frederick Staub, Dr. Margaret Mordy, Dr. Raphael Nystrand, Dr. Gregory Trezbiatowski, Dr. Lonnie Wagstaff, Mr. Harold Horton, Mr. Ross Poli. In this category special appreciation is warmly extended to the late Dr. John A. Ramseyer and his wife, Zoa.

Appreciation is extended to many other persons who helped in the preparation, editing and typing of the manuscript. In this category special gratitude is extended to Mrs. Paula Bender, Miss Lois Kaplan,
Mrs. Jean Riessen, Mrs. Ruth Johnson, Dr. Marianne Bray, and Mrs. Birdell Provus.

Appreciation is expressed to my employer, Dr. Scott D. Thomson, for his continual faith as exhibited by his support.

The writer expresses his final but greatest appreciation to his family for the consistent support through understanding and sacrifice given without which this manuscript could not have been completed: my wife, Ruth, my daughter, Meredith, my son Keith, my mother, Anna, my father, John.
VITA

July 11, 1924 ........ Born--Chicago, Illinois

1945 .................. BA, Chicago City College, Chicago, Illinois

1948 .................. Master Business Administration, University of Chicago, Chicago, Illinois

1948-1949 ............ Assistant Professor, School of Business, Southern University, Baton Rouge, Louisiana


1954-1957 ............ Manager of Sales Training and Assistant District Manager, United Insurance Company, Columbus, Ohio

1957-1960 ............ Teacher, Junior High, coach, basketball and track, Urbancrest Public Schools, Urbancrest, Ohio

1960-1962 ............ Teacher, Elementary, Columbus Public Schools, Columbus, Ohio

1962-1964 ............ School Social Worker, Junior High and Elementary, Columbus Public Schools, Columbus, Ohio

1964-1967 ............ Principal, Elementary, Columbus Public Schools, Columbus, Ohio

1967-1969 ............ Administrative Assistant to the Dean, College of Education, Ohio State University, Columbus, Ohio

1968-1969 ............ Visiting Professor of Educational Administration, Central State University, Wilberforce, Ohio

1969- .................. Director of Personnel and Director of Student Teaching, Evanston Township High School District, Evanston, Illinois
FIELDS OF STUDY

Major Field: Educational Administration

Studies in Educational Administration. Professors Walter Hack, John Ramseyer, and Roy Larmee

Minor Fields: Research and Design, Professor Desmond Cook: Curriculum, Professor Paul Klohr; Economics and Finance, Professor Frederick Stocker; Economics and Personnel, Professor Harlan Stone
LIST OF TABLES

Table 1. Comparison of Consensus by Item Responses Among Questionnaires II, III, IV ................................ 110
Table 2. Number and Percentage of Consensus Item Responses by Priority Channel Across Questionnaires .................. 112
Table 3. COP Item-Responses by Expert Group Priority Votes Across Questionnaires II, III, IV ............................ 114
Table 4. COP CIR by PMR Across Questionnaires II, III, IV ........ 117
Table 5. OUP Item-Responses by Expert Group Priority Votes Across Questionnaires II, III, IV ............................ 119
Table 6. OUP CIR by PMR Across Questionnaires II, III, IV ...... 120
Table 7. MCP Item-Responses by Expert Group Priority Votes Across Questionnaires II, III, IV ............................ 122
Table 8. MCP CIR by PMR Across Questionnaires II, III, IV ...... 123
Table 9. PEP Item-Responses by Expert Group Priority Votes Across Questionnaires II, III, IV ............................ 125
Table 10. PEP CIR by PMR Across Questionnaires II, III, IV ..... 127
Table 11. A Comparison of the Number of Consensus Item Responses Among Subgroups and the Total Group on Questionnaires. ........................................ 128
Table 12. Matching Consensus Item-Responses Subgroup to Total Group Questionnaires II, III, IV ............................ 130
Table 13. Non-matching Consensus Item-Responses Subgroup to Total Group Questionnaires II, III, IV ...................... 130
Table 14. Total Changes to Subgroups ................................................ 131
Table 15. COP Consensus Item-Responses by Priority Channels .... 133
Table 16. OUP Consensus Item-Responses by Priority Channels .... 135
Table 17. MCP Consensus Item-Responses by Priority Channels .... 137
Table 18. PEP Consensus Item-Responses by Priority Channels .... 139
Table 19. All Groups--Subgroup Consensus Contribution by Priority Channels................................. 142
Table 20. Subgroup Consensus Contribution Across Questionnaires II, III, IV ........................................ 143
Table 21. The Change of the Expert Votes Questionnaires II, III, IV ........................................ 146
Table 22. How Did the Individuals Change? The Movement of the Expert Votes Questionnaires III to IV .................. 147
Table 23. All Groups—How Did the Individual Change?
The Movement of the Expert Votes—Totals of
Movement by Groups—All Questionnaires .............. 149
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>VITA</td>
<td>iv</td>
</tr>
<tr>
<td>FIELDS OF STUDY</td>
<td>v</td>
</tr>
<tr>
<td>LISTS OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>CHAPTER I. THE PROBLEM</td>
<td>1</td>
</tr>
<tr>
<td>Background of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>9</td>
</tr>
<tr>
<td>The Design and Method of Inquiry</td>
<td>9</td>
</tr>
<tr>
<td>The Setting</td>
<td>9</td>
</tr>
<tr>
<td>The Participants</td>
<td>11</td>
</tr>
<tr>
<td>The Instrument</td>
<td>13</td>
</tr>
<tr>
<td>Specific Questions</td>
<td>15</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>16</td>
</tr>
<tr>
<td>Design of the Dissertation</td>
<td>18</td>
</tr>
<tr>
<td>CHAPTER II. SELECTED LITERATURE RELATED TO DECISION-MAKING,</td>
<td>19</td>
</tr>
<tr>
<td>THE DELPHI TECHNIQUE, AND THE ROLE OF THE HIGH SCHOOL PRINCIPAL</td>
<td></td>
</tr>
<tr>
<td>The Decision-Making Process</td>
<td>20</td>
</tr>
<tr>
<td>Summary</td>
<td>37</td>
</tr>
<tr>
<td>The Delphi Technique of Decision-Making</td>
<td>39</td>
</tr>
<tr>
<td>Summary</td>
<td>69</td>
</tr>
<tr>
<td>The Role of the High School Principal</td>
<td>72</td>
</tr>
<tr>
<td>Summary</td>
<td>87</td>
</tr>
<tr>
<td>Summary of Chapter II</td>
<td>90</td>
</tr>
</tbody>
</table>

viii
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>THE TECHNIQUE</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Selection of Categories</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>Selection of Experts</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Initiating the Process</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>Questionnaire I</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>Questionnaire II</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>Questionnaire III</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>Questionnaire IV</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Questionnaire V</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Definitions</td>
<td>100</td>
</tr>
<tr>
<td>IV</td>
<td>ANALYSIS OF THE DATA</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>Generation of Criteria</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>The Selected Criteria</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Examples of Original Criterion Statements</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>Promotion of Consensus</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>Movement Toward Consensus</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>The Character of Consensus Level and the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dynamics of the Participating Groups</td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>How Did the Groups Move Toward Consensus?</td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>How Did the Groups Change?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation of the Data</td>
<td>115</td>
</tr>
<tr>
<td></td>
<td>Comparison of Subgroup to Total Group</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>How Did the Groups Contribute to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Consensus?</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>Summary, Interpretations, and Conclusions</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>How Did the Individuals Change?</td>
<td>144</td>
</tr>
<tr>
<td>V</td>
<td>SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Summary and Findings</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Conclusions</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>Recommendations</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>BIBLIOGRAPHY</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td>APPENDICES</td>
<td>166</td>
</tr>
</tbody>
</table>
CHAPTER I
THE PROBLEM

Background of the Problem

Many of the recent developments of the urban sector have tended to emphasize the degree of difficulty involved in the administration of inner-city schools. One of these developments is embedded in a new concept of local control. Havighurst defines local control as, "The redistribution of power to make important decisions and choices about the operation of the schools so as to give parents and citizens authority over their local school."¹ Parents of the inner city are today demanding the power to decide. Shagaloff believes that in the nation's twenty largest school systems the most promising hope for relief of citizens' grievances against the urban society lies in the exercise of local control.²

The citizenry of the inner city are calling for an improvement in what they define as quality education in the schools. They are demanding educational institutions relevant to the needs of the community

²June Shagaloff, "Children Apart: Crises and Conflict," Ibid., pp. 27-44.
which it serves. The writings concerned with relevancy of our educational system to the needs of an inner-city local community are abundant; four are examined here. Farmer states:

Traditionally we have demanded that the schools perpetuate our "American Values" as part of their educative function. One of these, whether we care to admit it or not, has been the concept of inferiority and superiority of races, particularly that black people are inferior. I do not suggest that an individual superintendent or principal or teacher himself may be prejudiced, but the system has often, in subtle ways built prejudice in. For example, one of the questions asked in some standardized tests which I know are used in various cities has three pictures: a picture of a man in a tuxedo, a picture of a man in work clothes, a picture of a man in a business suit; and the question asked is: Which of these pictures shows a father going to work? Now, obviously there is a built-in culture bias; and the poor youngster in the ghetto, who perhaps has never seen his father in a business suit except Sunday when he puts on his go-to-meeting clothes, would give the wrong answer. The child whose parent is a waiter or even a musician going to work in the uniform of his trade would also give the wrong answer; for obviously the correct answer is the man in the business suit. Here is the built-in cultural bias. With that and similar questions the child finds himself trapped in a lower track, and he comes out of school like the 87% in Bedford-Stuyvesant with a general diploma, when in large measure it has been the built-in cultural bias which has doomed him there.\(^3\)

Weinberg writes about relevancy in a different way. He posits that:

Total expenditures on city schools rise as complaints are heard that the quality of inner-city education fails. At the same time, academic achievement levels rise in more privileged suburbs and in schools located at the outer fringes of the central city. The factor of residence has replaced the county board. The funds are still tax money collected from the general public; and superior political power operates to enforce their differential disbursal. The seeming impersonality of the inequality has undoubtedly led some to consider it a simple inevitability of contemporary urban life. In fact, however, the developing civil rights movement has, in a sense, personalized the
inequality. By insisting upon a change, the civil rights movement has represented the situation as capable of alteration. By insisting upon equality of educational opportunity, irrespective of region and, increasingly of residence, the civil rights argument presses the authorities to recognize new meanings to the doctrine of equal protection.4

Kirp developed an impressive argument using the equal protection clause of the 14th Amendment to support the thesis that the exclusion of the power of determination leads to irrelevancy. And irrelevancy, he states, leads to the inability to be guaranteed equal protection.5

Hamilton supports the thesis that representative democracy has consistently failed a large portion of its population, especially the poor. To make its educational system relevant, he feels that the larger system must have a major overhaul.6

Johnson and Usdan support the four basic arguments for relevance. They posit that, "The consequences of inadequate education are beginning to affect visibly all aspects of our national life--social, cultural, moral, economic, and political as well as deny to countless thousands of children the opportunity to live rich and full lives."7

---


Though there has been a call for change, there is great conflict over the appropriate method to achieve change. One position indicates the need for redefining the role of the inner-city principal. There is evidence that the inner-city citizenry is beginning to be insistent upon a more community responsive principal, i.e., one who can accept and shoulder their demand for local accountability. Shagaloff relates local control and administrator accountability, "I am perfectly convinced that decision-making by parents is the only hope, now, of assuring teacher-administrator accountability."8 John H. Fischer, President of Teachers College at Columbia, writes in support of the local control argument. He states the need for "means by which principals and faculties can obtain from their communities--far more regularly than they do now--both signals and their rewards."9 Allen calls for "the selection and employment of administrative staff and teaching staff...to meet local needs...."10

What are the criteria for the selection and employment of a principal to serve in an inner-city school of a local-control setting? This is the searching question. Also, who is to determine what those criteria will be? The community contends that they should begin to determine the guidelines. The "establishment" holds that it must continue to determine the guidelines.

Is the problem of determination complicated by inconsistency of perceptions as to what those criteria and guidelines should be? The above questions, in turn, raise another basic question: What is an appropriate method to answer the questions of criteria and who is to establish them? The nature of the problem involves the changing role of the principal. When one speaks of "principal" today, is one speaking of the same type of individual who filled the position yesterday? Cunningham, in a provocative discussion of the changing role of the inner-city principal, states:

The problems in school-community relationships mystify many school administrators, teachers, and school board members. Professional educators feel that they have dedicated their lives to the achievement of public school purposes. They have worked doggedly at establishing what they believe to be good approaches to school and community understanding. Now many of them sense that they are being vilified for failing at one of the tasks upon which they worked the hardest. As a consequence, some have become despondent, embittered, disenchanted. Such school people cannot understand why they are not understood. They ask: what has happened that has caused many of the friends of the schools and school officials to turn suddenly on them and often with a vengeance? Where have school people dropped the ball? What has gone wrong?11

Part of the problem may lie in the inability of the establishment to recognize that the role of the principal is in the process of change. Also, part of the problem may lie in the impatience of the community. It no longer seems willing to wait upon the "establishment" to recognize that the role of the principal is in the process of change.

The community feels that it trusted the "establishment" and was failed; the "establishment" feels that it tried and was misinterpreted.

Now, where does the fault really lie? Is it within the local school? the principal? the larger school system? the university? or perhaps within the community itself? Cunningham continues to discuss a significant part of the reason for this dilemma. He states:

Part of the problem stems from a basic fallacy in school system approaches to school public relations. The preparation programs developed by colleges and universities for administrators have emphasized an 'information-giving' philosophy. School administrators in training have been urged to: tell people about the schools, and bring parents into your schools, sell the schools to the people. Very few efforts of a continuing type have been mounted which allow parents and students opportunities to share their feelings about the schools with school officials. Information flow has been primarily one way. Legitimate outlets have not been provided for protest or discontent. PTA's and similar organizations have ruled out-of-bounds discussions of local school weaknesses in order to perpetuate an atmosphere of peace and tranquility and all is well. And as a consequence, school systems have not had safety valves. There are no designed schemes for absorbing or dealing with pressure; no organized way of facing dissatisfaction. The emphasis has been on 'how well we are doing' as reported and defined only by us school people. This is true at the university level as well as at the elementary and secondary levels. Organizations like PTA's have been co-opted by us much too often. I suppose that PTA's and similar symbolic kinds of organizations have paid a high price for being loved by us as school personnel.\(^{12}\)

Cunningham continues, arguing the plight of the "establishment":

Inability to deal with discontent has caused school people to withdraw, to isolate themselves from their constituencies (even their students), and communicate an intensely defensive posture. The tragic part of this phenomenon is that no one really wills it be that way. Such institutional withdrawal and protectionist behavior is simply the natural response of an organism that has failed to locate an adequate coping (mechanism) capacity.\(^{13}\)


The direction that all components of the large system concerned with the educative process must take is to develop programs for the identification, selection, and preparation of strong leadership at the local school level. The new principal will be an integral part of the concept of local control, yet he and that community will have to realize, as Shagaloff observes, that "School decentralization...must include clearly defined city-wide educational standards; clearly stated criteria and procedures for selection and placement of principals and teachers throughout the school system. . . ."¹⁴

Therefore, the tenuousness of the position of school principal demands close evaluation of the selection process for local school administrators--the principals. The new demands call for new strategies that will be supportive to the needs emanating from the components which inevitably must share in the development of the criteria for these new men of leadership. Chief among these components will be the university, the superintendent and his cabinet, the principals, and last but perhaps the most important at this point, the local power persons of the neighborhood.¹⁵ If the components just stated are going to be the prime determinants in the selective process for local school principals; if the community has become distrustful of the "establishment"; and if the "establishment" cannot seem to understand how the seeming failure for consensus has occurred; then to fulfill this new task the system needs a new method or device. It is proposed that the Delphi technique is such a method.

The Delphi technique or process is a method of predicating the future through the use of informed, intuitive judgment. A panel of between twenty (20) and fifty (50) experts whose identity is unknown during the course of the procedure submit opinions concerning a given issue by answering a questionnaire. Through the use of a series of questionnaires, the divergent opinions of the various members of the panel are combined into convergent thinking on a specific issue. Criteria are established as a basis for the decision-making process, i.e., selection of administrator, be he business executive, school superintendent or high school principal. Helmer, the originator of the Delphi process has defined it as an operations research technique, a carefully designed program of sequential, individual interrogations which flow from questionnaires interspersed with information on opinions of the feedback of other groups as well as individuals. His definition has been corroborated and refined by such other researchers as Boehm, Dalkey, Martino, Barkwell and Campbell. The technique was designed to replace the traditional round table discussion thus eliminating some of the weaknesses and disadvantages of that method.

The Delphi technique allows the influential groups in the selection process to identify, evaluate and establish the parameters of their concerns within the comfort and security of their own setting before moving to the consideration of the other sector. An assistance to dialogue through the reduction of the insecurity factor makes Delphi a viable approach to the determination of criteria by subgroups, for the selection of a secondary school principal to serve an inner-city local control setting.
Statement of the Problem

It is essential that school superintendents, school principals, community leaders, professors of education, and others charged with the responsibility of producing the best possible educational environment understand the changing dynamics which encapsulates their decision area.

In the present research an attempt has been made to identify a process which would assist persons so charged in the decision-making process, through the application of a technique called Delphi. Specifically the present research was concerned with several general but fundamental questions:

1. Can the Delphi technique generate criteria for the selection of a secondary school principal in a model neighborhood setting?

2. Can the Delphi technique promote consensus from the participants in the process for the establishment of criteria to select a secondary school principal in a model neighborhood setting?

3. If consensus is found, what is the character of it and what are the dynamics of the participating groups as they move toward consensus?
   a. How did the subgroups move toward consensus-level?
   b. How did the subgroups change?
   c. How did the subgroups contribute to total consensus?
   d. How did the individuals change?

The Design and Method of Inquiry

The Setting

The study was limited to the city of Columbus, Ohio, with special emphasis upon an area identified as a sub-community. The sub-community was defined, identified, and named Model Neighborhood in a Demonstration City:
Columbus, Ohio. 16

The creation of this area concept arose from Title I of the Demonstration Cities and Metropolitan Development Act of 1966. The definition of "The Model Neighborhood" as set forth in the guidebook states:

Local Model Cities programs should focus on specific Model Neighborhoods, and eligible projects and activities should be closely related to the problems in those areas. 17

The guidelines express the need for cooperation with the total community and/or the Metropolitan Area on projects that are of such nature as to be too large and/or comprehensive for the sub-community.

The area or size of the sub-community depended upon the particular community in which the sub-community was located with maximum consideration given to the locale. The guidelines stated that no precise size is required. It should be a sizable, compact, and adhesive area large enough to create a viable neighborhood.... The guidelines continued to state specifically that:

The selected area must be large enough to permit programs to deal effectively with problems of education, health, employment, and social services, as well as to provide for physical rehabilitation of housing and to influence the development of the city as a whole. 18

The proposal asked the communities to restrict the Model City sub-community area to no more than ten per cent (10%) of the area of the total community.

16 Model City Commission, Manual of Operation, Model City Coordinating Unit Comprehensive City Demonstration Program: Part I - Education Sub-Section, MP-34-033 (Columbus, Ohio: January 20, 1969), pp. 1-10.

17 Ibid.

18 Ibid.
The area was bound by the Pennsylvania Railroad on the North, the East-West Freeway on the South, the Norfolk and Western Railroad on the East and the North-South Freeway on the West. The area contained approximately 17,500 dwelling units of which approximately 6,200, thirty-five per cent (35%) were classified as substandard. The area contained one high school, three junior high schools and thirteen elementary schools.19

The Participants

The investigator followed Helmer in the identification and selection of the "experts" to receive the Delphi letters.20 Helmer explained the rationale for expertise as follows: "While in some cases the expert judgment that is available may be derived from explicit application of existing theories, more often it may be highly intuitive in character and based on insights that, although no less reliable may have thus far defied articulation within a theoretical framework."21 This expertise could be of great value in practical policy considerations, i.e., the teasing-out of criteria for the selection and employment of a secondary school principal in a local-control setting. It was believed that decision-makers have always used the opinion of experts to aid in the decision-making process, a procedure which was followed to prove the thesis of this study.

19Ibid.


21Ibid.
Four groups of experts were identified to assist in the test of the Delphi instrument. These experts were selected on the basis of their reputations. As Helmer explained, "This process of selection, which in itself requires a certain amount of expertise, breaks down logically into two parts: the determination of which categories of expertise are needed, and the determination of whom among the available persons is most expert in each such category." For this investigation four categories of expertise were determined as necessary: 1) the schools' cabinet-level administrators, 2) the schools' attendance-level administrators, 3) the Model-Neighborhood's top-level administrators, and 4) a group of university professors who have had considerable experience in the areas of the secondary school principalship, inner-city communities and their problems, and the Delphi Technique. To select the experts from these categories a priori recognition of the various person's qualifications was used. The judgments were based upon performance, years of service and status among peers. The approach was very close to the reputational approach used in many other studies. The following selections were made:

1. Superintendent and his cabinet-level administrators
2. Attendance-level administrators located in the Model Neighborhood area

---

22 Ibid.
24 Columbus Public Schools, Columbus Public Schools Staff Directory, 1968-69 (Columbus, Ohio: 1968).
25 Ibid.
The total "expert" group were asked to help establish criteria to test if a procedure such as the Delphi technique has any relevance for the selection and employment of a high school principal in a model-neighborhood setting.

The Instrument

Martino states, "...the Delphi procedure involves the successive interrogation of a panel of experts using a sequence of questionnaires." Anderson in his discussion of the Delphi technique explained the process as follows: "The Technique...is built on the strength of informed intuitive judgment, it is intended to get expert opinion without bringing the experts together in a face-to-face confrontation. Contact is generally made with the experts through successive questionnaires and feedback with each round of questions being designed to produce more carefully considered group opinion." Campbell and Hitchin stated, "The Delphi technique requires that a panel of experts on the subject

---

27 Ohio State University, Ohio State University Faculty and Staff Directory, (Columbus, Ohio: 1968).
under study be selected. These individuals are then asked to indepen-
dently develop their best answers to the questions being asked, for ex-
ample, to forecast changes within a specific industry or technology." 30

Helmer posits, "The selection of experts for consultation is usu-
ally made on the basis of what may vaguely be called their reputa-
tions. 31 The study will poll the opinion of experts, i.e., school lead-
ers, community leaders, and university professors on the same questions.
The procedure will be quite similar to the traditional straightforward use of a panel of experts. Helmer argues, "the...Delphi technique has the virtue of not requiring face-to-face confrontation and (has the ad-
vantage) of a method of substituting a computer consensus for an agreed on majority position." 32

The Delphi Technique as an instrument involved:
1. Successive questionnaires to the experts
2. Criteria selection by the experts through the questionnaires
3. Ordering and successive reordering of these criteria
4. Final ordering and emergence of consensus patterns

For use as an educational technique, Pfeiffer delineated Delphi:


1. The first questionnaire may call for a list of opinions involving experienced judgment, say a list of criteria or competencies.

2. On the second round each expert receives a copy of the list, and is asked to rank each item in terms of importance, probability of success, and so on.

3. The third questionnaire includes the list and the rankings, indicates the consensus, if any, and in effect asks the experts either to revise their opinions or else to specify their reasons for remaining outside the consensus.\(^33\)

The specific problem was identification, ordering and establishment of criteria for the selection of a high school principal in a model-neighborhood setting. The investigation used a panel of experts who were administrators, community leaders, and university professors interested in education. Successive questionnaires designed to fulfill the Helmer type procedure were sent to the panel of experts.

**Specific Questions**

An attempt was made to answer the following questions:

1. Could the individuals be influenced to generate a list of criteria or competencies?
2. Could this list of criteria or competencies be combined, i.e., telescoped?
3. Could the Delphi technique induce the individuals and the subgroups to move toward consensus?
4. Could the Delphi technique identify major points of agreement between the subgroup and the total group (character of consensus)?

5. Could the Delphi technique identify major points of agreement between the subgroups (character of consensus)?

6. Could the Delphi technique identify how the subgroups moved toward consensus level?

7. Could the Delphi technique identify how the subgroups contributed to total consensus?

8. Could the Delphi technique identify how the individuals changed?

Limitations of the Study

The limitations were:

1. The study is limited to the testing of applicability of a process and not designed to test the validity of the criteria or competencies.

2. There is no particular weighting among the groups.

3. The process does not involve an interface among the groups.

4. The criteria or competencies are not to be field tested or operationalized.

5. The study is not trying to generalize to other populations.

Significance of the Study

Community leaders of inner-city neighborhoods are becoming more concerned about the schools within their community. This concern is being revealed consistently through their (the community's) activism. Simply, they are demanding a voice in the decision-making process ex ante. The school, with its close ties to the psychological, sociological, and political concerns of the community, may have to recognize a new role that it must play. This new role may be a recognition and
willingness to cope with the realignment of power. Whittier argued, "The realignment of power is a painful process without a guarantee of improvement. Yet changes must be made to better serve all citizens and particularly those who find the present system inadequate. It seems, however, that plans to utilize the strengths of the professionals and lay citizens together hold more promise for bringing about improvement and maintaining it than plans to allow either group to have exclusive decision-making power."\textsuperscript{34}

Helmer holds that "Once a rough overall pattern of the future educational needs of our society has been established one would have to turn to the question of devising appropriate educational innovations to meet the new needs. These innovations might be of many kinds. They might be in the nature of administrative modification...."\textsuperscript{35} Helmer continues, "Here again, the Delphi approach may prove expedient; it can be used, first to solicit ideas for suitable educational innovations and, second, to appraise the efficacy of any such proposals that do not lend themselves easily to direct experimental evaluation."\textsuperscript{36} If the Delphi technique can help to answer some of the above questions for school administrators and for community administrators, then as an innovation, the technique has been successful as another assist to the administrative process.


\textsuperscript{36}\textit{Ibid.}
Design of the Dissertation

Chapter I consists of the background of the problem, the statement of the problem, a brief review of the proposed approach to the problem, and the scope and limitations of the study. Chapter II contains a review and critique of pertinent literature, both theory and research. Subjects, instruments, and procedures used in the study are described in Chapter III. Analysis and interpretation of the data are presented in Chapter IV. Chapter V includes a summary of the findings, conclusions, implications and recommendations for further research.
SELECTED LITERATURE RELATED TO DECISION-MAKING, THE DELPHI TECHNIQUE, AND THE ROLE OF THE HIGH SCHOOL PRINCIPAL

The present study was concerned with the use of a consensus-building procedure, the Delphi technique. Specifically, the study was an analysis of the use of Delphi for the establishment of a set of criteria for the selection of a high school principal in a model neighborhood setting, by different groups of experts. In order to limit the scope of the study to manageable proportions, only literature closely related to the subject was reviewed. The literature presented in this study was confined to the areas: (1) The Decision-Making Process, (2) The Delphi Process, and (3) The Role of the High School Principal.

Bower asks:

When a group of people must decide on some one action... (such as the selection of a set of criteria for the subsequent selection of a model city's high school principal) how do the individual members come to a decision that affords the best resolution of the question at hand for the group and/or groups as a whole?  


The above three areas should provide a guideline for an answer to the question that Bower poses.
The Decision-Making Process

Griffith's treatment of decision-making states the logical approach to the formal task of decision-making as:

(1) Recognize, define, and limit the problem; (2) Analyze and evaluate the problem; (3) Establish criteria or standards by which a solution will be evaluated or judged as acceptable and adequate to the need; (4) Collect data; (5) Formulate and select the preferred solution or solutions; (6) Put into effect the preferred solution.

Griffith emphasizes heavily the quality called 'value system' and states that this value system is taken into account, consciously as well as sub-consciously, in all decisions made by an individual. He posits that the confrontation process will be considerably lessened if the parties to a decision process will remember that the 'value system' of the other decision-maker is significant in determining the nature and extent of the action to be taken on a problem. He speaks of decisions at different priority levels and/or the sequential nature of decisions. Further, he states that decisions can be multiple as well as sequential, i.e., many decisions can be made at many points. The individual cannot develop skill in decision-making but can develop the skills to enable him to make a decision or decisions about a particular thing at a given moment is another theory of Griffith's.


39 William L. Pharis, Lloyd E. Robison, John C. Walden, "Decision Making and Schools for the 70's," (NEA Center for Study of Instruction, 1970) p. 5. (Lists similar criteria for decision-making.)

Drucker defines decisions as falling into two general categories: (1) personnel and (2) basic posture. He states that the core of decision-making is to make the "real decisions": the decisions which determine direction and fundamental processes. "The decision as to whether or not to have a picnic inside or outside is not a 'real decision'," as stated by Drucker. However, this does not mean that "basic positive" decisions can be disregarded. "But the mask of a good executive, of a good school administrator, of a good manager of a business, or a good head of a government agency is that he, also, has time and attention and thought for the basics, for the decision on his posture, for thinking through his unique contribution."

Drucker continues to state that the job of the principal (one type of decision-maker) is one of dealing with overlapping publics and therefore, it is extremely difficult for him to administer decisions. Drucker feels that many decision-makers are in error by trying to start with the facts; he states that one must start with opinions and move to disagreement. Consent, he believes, is the key to moving toward congruent thinking. Drucker suggests that the decision-maker avoid decisions without alternatives and need not make decisions in haste, i.e., he advises the administrator to make few decisions and spend more time with thinking through each of them. Drucker also realizes the peculiar circumstances surrounding the school which have influence over a decision-maker.

---

42Ibid., p. 39.
The school has a special problem. It has more interlocking and overlapping publics than anybody else. Yet it has few publics to whom the school is central. If your publics, therefore, do not understand what this is all about, you can't get anything. They aren't going to hold still very long. You can't educate them. They have to see what it is all about without a great deal of discussion. Therefore, if you don't think through, what the right areas are, you can't operate.43

Lane, Corwin, and Monahan44 in their development of the concept known as the decision-making process discuss, among other things:

1) the formal process of decision-making, (2) the decision environment, and (3) decision-making as a bargaining process. The authors state that although decision-making may be defined as the reduction of alternatives, this definition over-simplifies a very complex process. They elaborate:

Effective decision-making is the product of considerably more than intuitive 'feelings' of sensitive administrators; it is based on knowledge, experience, and dependable information. Moreover, decision-making in educational organizations demands an understanding of the legal aspects of the organizations' structure, the problems involved in maintaining internal stability, and the relationships between school and society which affect the value-systems of school personnel.45

Lane, Corwin, and Monaham emphasize Griffith's six steps as a logical approach to the decision-making task which involves priority decisions, multiple decisions, and partial decisions, based upon the actors' value system and tempered by other environmental influences. Lane, et.al., cautions the reader that the decision environment is not

43 Ibid., p. 38.
to be confused with the logical process. They state:

...most decisions are probably as immediately determined by the exigencies of the external environment as they are by calculating logic; for the daily pressures of the environment impinge on leaders as realistically and often more effectively than logical relations between means and ends.\(^{46}\)

The decision environment as stated by Lane, Corwin, and Montana usually includes five types of commitments: "(1) internal traditions, (2) formal commitments, (3) pressures from the outside, (4) past decisions, and (5) existing relationships between personnel."\(^{47}\) The authors suggest that there may be more than one source of decision-making power. They emphasize the argument that decision-making may be a "bargaining process" that does not occur in a static environment.

Realizing the importance of the decision-maker in the conflict area of decision-making the authors state, "The ability to analyze potential conflict situations (in a dynamic bargaining process) is an especially important skill for which all administrators will find repeated use."\(^{48}\)

The decision-maker should:

1. Identify the nature of the differences of opinion
2. Investigate the underlying causes
3. Evaluate the stage of evolution of the conflict
   a. anticipation
   b. conscious but unexpressed differences
   c. open discussion--decisions challenged
   d. open dispute
   e. open conflict

\(^{46}\) Ibid.

\(^{47}\) Ibid.

\(^{48}\) Ibid., p. 130.
If decision-making is dynamic and a "bargaining process," then
decision-making could well be a process to pacify the diverse elements
that are party to the process. If these diverse elements have varied
goals with scaled priorities then how can these indeterminates be ascer-
tained? Lane, Corwin and Monahan conclude that the failure to stress
uniformly one set of goals or demands precludes the possibility of deci-
sions being consistent over a period of time. They state that consis-
tency of decisions is increased with the elimination of some of the goals.
Further, they state that organizations and people are reluctant to do
this. The authors heavily cite Cert and March in the above argument.
Lane, Corwin and Monahan in concluding this section state: "Decision-
making takes on a cyclical, rotary character, which is to be expected in
the complex, inconsistent world with which the modern school must cope."^50

Morphet, Johns, and Reller acknowledge that every organiza-
tion must make provisions for decision-making. They acknowledge further
that the "processes of decision-making are so vital to the understanding
of administration and organization that significant progress has been
made in their theoretical analysis." The authors review briefly some
of this research. Included in the review is the summation of the thesis

49 R. M. Cert and J. B. March, "A Behavioral Theory of Organi-
zational Objectives," in Modern Organization Theory, ed. by Mason Haire
51 Edgar L. Morphet, Roe L. Johns and Theodore L. Reller,
52 Ibid., p. 89.
of Simon who feels that organizational effectiveness would be enhanced by increasing the rationality of the decision-making process. Griffith's six-point decision-making process is reviewed. Miller reviews and prepares hypotheses on the role of decision-making in social systems. In conclusion, the authors do not recommend one specific process, but rather, give a general review of what the researcher finds to be traditional decision-making techniques.

Rapoport noted that models of decision-making can be grouped into two general classes: static decision-making and dynamic decision-making. Static decision-making occurs when a single decision is made, the subject knows the decision and no further discussion or application occurs. Dynamic decision-making is the converse of static decision-making. Learning is involved in dynamic decision-making because subsequent decisions depend in part on past experience in the task. Dynamic decision-making can be further broken down into two types: (1) those decisions that do not affect the environment in which the decision-maker is behaving, and (2) those decisions involving the future environment.

Cert and March, realizing that decisions do not take place within a static goal-fixed environment, acknowledge that inconsistent goals can exist simultaneously during the decision-making process. The authors note other complexities of decision-making when they observe

---


that there exists more than one seat of power, i.e., that other (people) besides executives in organizations have goals. Perhaps because of the many interests involved in the decision-making process, the authors state that decisions are made to pacify the variant groups. While Cert and March see organization members as persons with a 'disorganized file case full of demands,' they realize that consistency of decisions can be achieved only by eliminating some of the conflicting goals of competing organizations. Hence, the decision-making process becomes a bargaining process controlled by the parties who are engaging in that process at a particular moment of time.

Campbell, Corbally and Ramseyer suggest the following procedure as a rational decision-making process:

Whatever the decision is, the issues and problems involved must first be clarified. In other words, the problem must be defined. Secondly, the existing situation must be analyzed, often requiring the gathering and interpretation of data. At this point, consideration must be given to the possible alternatives, and the consequences of each alternative course of action weighed. Finally, a choice must be made, a course of action must be determined.55

The authors stress the need for involvement by many parts of the environment in the decision-making process. They realize that while ultimately one individual makes the final decision, in a real sense the "decision" is an organizational decision.56


56Ibid., p. 146.
Brent Rutherford states that while the most often used proposition of decision-making posits that individuals are rational, and that while rationality occurs when individuals make decisions which maximize their expected utility, studies suggest that stress situations, even of modest tension, cause some decision-makers to seek less than maximum utility. Examining the Elgin State Hospital use of "milieu therapy," the author studied individuals whose psychopathologies are known. He concluded by emphasizing another variable in the decision-making process, i.e., individual personalities: "If decision-makers tend to possess paranoid personality systems, with attendant belief rigidity and suspicion, their ability to adopt creative and innovative perspectives may be curtailed."

In a study of executive decision-making in six large companies, Christ Argyris discovered certain barriers which tend to hinder communications: (1) the actual behavior of executives is at variance with their expressed ideals, (2) dissonance creates barriers to effective interpersonal relations, (3) barriers are most destructive in important decision-making meetings, (4) barriers can be broken by feedback on behavior when certain other conditions exist.

---


58 Ibid.

William J. MacKinnon asserts that better decision-making techniques are required for group decision-making. Before the age of computers, it was difficult for decision-makers to account for the multiple variations and complexities of choice which actually existed in any decision-making situation. He states that the advent of computers has made it possible to handle large numbers of variables and to deal with complete systems rather than one or two major components. The computer provides an opportunity to design comprehensive approaches to group decision-making. The SPAN (Successive, Proportionate, Additive, Numeration) technique is one such design.

Briefly, the SPAN technique functions in the following manner: Each group is assigned an original quota of 100 points (i.e., votes) to either personally allocate among group alternatives (options) or assign some of these points to another group member who then acts as his representative. While points may flow freely from one member to another, they are permanently deposited when designated for options. As the process progresses, the points will show preferred options. Further refinement of this technique requires extensive use of empirical rather than hypothetical data (more field testing needed). Like the Delphi method, the SPAN technique was designed to improve the decision-making process.

Bower sought the answer to how individual members of a group come to a decision that is truly representative of and conducive to the

---

development of that group. If opinions differ among the members and subgroups, how is conflict avoided or at least identified to the degree that the individuals and groups are aided in making a choice? Is such conflict helpful or disruptive in the decision-making process? Bower reports an experiment on group decision-making that took into account such variables as (1) decision rule used by the group, (2) the information structure of the group, (3) the relationship among the individuals of the group, and (4) the group goals. He concludes that the individuals and/or the groups must compromise, subjugate the goals and bargain for the position they wish to hold.

Halpin places considerable emphasis upon the role of the leader as a decision-maker. By equating "leader" with "decision-maker" Halpin asserts that it is the leader's responsibility to perceive and identify certain problems. "The ordering of problems (as perceived by the leader) and the extent to which authority for their solution is delegated to sub-leaders or group members, constitute an important area of problem solving and decision-making for the administrator." The author states that the priority of problems to be submitted for the decision-making process varies with the demands of the situation. Halpin also feels that the decision to invoke "group decision" methods is, also, a decision. Will the group have decisive capacity, is a question Halpin poses. While group decision-making might be effective in some instances, it cannot

---

63 Ibid.
act as a complete substitution for a skillful executive. The article places strong emphasis upon the role of the leader as the crucial decision-making thrust of the group.

Harry T. Allan describes a premise that existing standard decision rules in an organization impose certain restraints upon that organization's decision-makers. The finding is verified, as he states, by research. He posits that the findings hold even when relevant environmental conditions have changed. Allan states that a study of behavioral theory of organizations may be sufficient to explain the behavior of groups of the firm. Allan further suggests that refinement of the Cert and March premise (existing standard decision rules impose constraints on organization decision-makers even when relevant conditions change) may be needed.

Campbell, Cunningham and McPhee devote a chapter in their book to the subject of community decision-making. Most of the chapter reviews historical studies dealing with patterns of community decision-making. The Lynd Study of Middletown (Muncie, Indiana) "revealed sharply the ways in which economic power was used in daily decisions made in many small American cities." Warner's study noted how the shift from private to absentee ownership resulted in a loss of social and/or normal control

---


66 Ibid., p. 378.
over local businesses. The authors note that the study of community
power has captured the attention of sociologists, political scientists,
and educational administrators. Hunger, using the nomination reputa-
tional method and Dahl using issues and issue areas, attempted to assess
the structure and process of community decision-making. The result of
the research of these two men and others like them was the conclusion
that "American communities either differ markedly with respect to the
role economic power plays in community decision-making, or the methods
community investigators employ are so unlike that the results cannot be
compared." 67 The authors emphasize the political nature of the community
decision-making process and state several times that "educational policy
making at all governmental levels is immersed in politics and by defini-
tion educational policy making is political action." 68 While the deci-
sion-making process of a community is discussed, the chapter heavily
emphasizes the role of political power in a community.

Trull 69 argues that there is a trend toward understanding the
mechanics involved in heuristic decisions. 70 In an attempt to discover
more information about successful decision-making processes an investi-
gation was made by Trull using case examples in designated areas. The

67 Ibid., p. 389.
68 Ibid., p. 404.
69 Samuel G. Trull, "Some Factors Involved in Determining Total
70 The term "heuristic decision" refers to a decision-making
situation where the lack of a measure or index effectiveness, coupled
with an excess of alternatives and an absence of reliable probabilities
leads to an open or non-computable decision process.
examination showed that a certain clustering of key variables appeared as an important feature of the decision-making process. The variables seemed to influence the success of the decision in a subtle manner. One cluster of variables was found to surround the quality of the decision. These were: compatibility with existing operating constraints, nearness to the optimum time for decision related to proximity to optimum amount of information, and the problem solver's influence on the decision.

The second major factor, implementations of the decision, was affected by the avoidance of conflict of interests, reward-risk factors, and the degree of understanding achieved. Total decision success was found to be achieved through the effective usage of the variables of decision quality enforced through skillful management of the variables of implementation, i.e., total decision success equals decision quality plus implementation. Within the cases used for the study there were several areas that were common to the decision-reaching process. By identifying what tends to be the critical stages and elements in decision-reaching process, the process itself becomes more amenable to a complete and systematic analysis. Decision-reaching, varying from traditional decision-making, is subjective by nature and includes a high degree of uncertainty. It involves a unique program for the decision process with little or no duplication and with interrelated variables of shifting weight functions. The result is obtained through successive interacting steps which, when completed, allow the ultimate determination. The term decision-reaching, rather than word coinage, should be useful in the delineation of a specific process, setting aside a specific area for future research.
Kirby in his dissertation, "An Application of Decision Theory to Education," concluded that "Decision theory would provide a suitable basis for the simulation of situations typically faced by administrators, counselors, and other educators."^71 Descriptions of the situations, sets for action and outcomes would be presented, and utilities and subjective probabilities would be stated by the participants. These would become decision components which could be used for comparison with those experienced in the area under discussion. Kirby believes that this model will stimulate discussion.

Loasby posits that modern management decision-making is a result of joint purposes not common purposes. The discretion of subordinating purposes in formulating objectives to be analyzed later through a conceptual framework would result in effective decision-making, as well as management control. The system would seek to influence the standards which individuals set for themselves as the control on the decision-making at a lower level. He states that in reality people, not organizations, make decisions. 72

Gibson states that educational administration still relies greatly on generalization of outstanding practitioners. He sees a trend toward more scientific decision-making for education but at the same time

---


warns the reader that the wisdom of the experienced should not be totally discarded. Gibson calls for a joint operation of knowledge and value systems in decision-making. He sees the decision as a process to be concerned primarily with predictions of the future. "The decision process involves (1) monitoring, (2) control (diagnosis, selection, transformation), and (3) action."

Ovard discusses the effectiveness of group decisions in contrast to decisions by the individual. In this discussion he lists four benefits derived by decision-making which uses the group process: (1) improves the morale of those involved; (2) creates greater acceptance by the individual and the group to whatever decisions are reached; (3) improves the quality of the decisions; and (4) places maximum responsibility to carry out a decision at the operational level. In conclusion, Ovard states that people will be more committed to those decisions to which they have participated in making.

Schrank writes, "Decision or choice behavior is usually regarded as encouraging something more than an ultimate choice response." The total decision-making process has been conceptualized as a combination of three cognitive sub-processes:

1. probability estimation stemming from choices
2. utility of value assessment of all possible outcomes
3. use of a decision rule based upon (1) and (2)

---


Schrank feels that in building or testing a model to describe the selection process, it may not be necessary to describe a process that is literally represented in the organism. In his discussion of the base for the conceptual thinking of decision rules Schrank states, "The stepping stone for almost all theorizing and research on decision rules, or decision criteria, is the monumental work of Von Neumann and Morganstern (1944:1946)." They used a normal rational man who was possessed with exceedingly accurate probability estimate powers for the decision-making task. To test the thesis game situations were used. They concluded, game is any decision situation. The authors described a game for a situation in which one or more players were faced with two or more mutually exclusive alternatives among which they must choose. Each alternative produced a reward for the player. The reward came through the player's choice and the knowledge of the choices of the other players. "The choices made and the resultant rewards for each of the players are the events which make up a trial play of the game." 

Schrank warns the researchers of the decision-making gaming process that undesired utility effects such as "boredom" may affect the outcome of an experiment; therefore, he concludes that it is the negative utility effects which must be controlled in studying decision behavior. "When two rational players are involved in a zero sum game...their strategies take the form of maximizing their minimum possible gains (or mini-
mizing their maximum possible losses). ...they should prefer the alter­
native whose maximum possible gain is largest...a minimax strategy...
human decision-makers adopt this strategy more frequently under competi-
tive conditions...."78

Schrank states that the four basic decision models are:

1. utility maximization
2. minimax
3. varying optimism
4. minimax regret

Utility maximization is the basic principle of Von Newmann and
Morganstern in which an expected value function is formulated from the
game matrix using the probabilities of the various responses by both
players and the payoff values in each cell of the matrix.

Minimax is when two rational players are involved in a zero-sum
game their strategies take the form of maximizing their minimum possible
gains or minimizing their maximum possible losses. They prefer the alter­
native whose minimum possible gain is the largest.

Varying optimism is the basic conceptualization of a continuum
of player attitude ranging from complete pessimism to complete optimism.
Assuming worst possible outcome the player uses minimax strategy; assum­
ing the best possible outcome the player uses the choice with the best
possible outcome.

Minimax regret is the strategy which chooses the alternative
with the smallest maximum regret. The regret position is arrived at by
subtracting the true utility values from the maximum possible values.
The three major categories of variables which affect decision-making are:

78
Ibid., p. 13.
1. pre-experimental
2. instructional and experimental set
3. game parameter

Schrank examines these variables and discusses how they will affect the outcome of an experimental situation.

The Decision-Making Process--Summary

This study was concerned with decision-making only from the aspect of a logical approach to the solution of problems. The mathematical game theory strategy has been emphasized in much of the decision-making literature. However, this approach was not used. Because the research is concerned with the selection of criteria, decision-making as a process is the main objective in selecting decision-making literature. A summation of the literature reviewed above concluded that decision-making involves a conscious effort on the part of a group and/or groups to select an alternative position from a list of two or more positions. The selection process may or may not involve an ordered process (i.e., following a predefined format); the selection process may be free from constraints; and finally the selection process may be absolute, but it most likely will be negotiated between individuals and/or groups.

Griffith's six-point logical process for the decision-making act is mentioned in the works of Laire, et al., Morphet, et al., Campbell, et al., and others. Schrank, Ruthersford, Kirby and Alsorp emphasize that the decision-process may be concerned with cognitive subprocesses, i.e., probability estimation and values assessment. Repoport posits that decision-making occurs in a process similar to Griffith's but the most important concern is that decision-making takes place in a dynamic context. Schrank and MacKinnon each developed a formalized process of
decision-making; Schrank's theory contains principles similar to the
Minimax theory, while MacKinnon developed the idea called SPAN. Ovard
limits decision-making to group participation. Halpin, Loasly and Gib-
son all view decision-making in much the same manner as Griffith, but
emphasize the leadership quality of the process.

Trull, Higgins, Hansen and Schrank strongly emphasize the
constraints placed upon those engaged in the decision-making process.
These constraints are defined as controlled and uncontrolled variables.
Bower, MacKinnon, Petit and Campbell, et.al., join Schrank to emphasize
the nature and extent of the variables that play such a heavy role in
the decision-making process.

Because the decision-making concept involves people as indi-
viduals as well as people in groups, many authors contend that the con-
straints are natural to the process of making decisions. With this idea
in mind, authors such as Delbecq, March and Cert, Hansen, Blake, Petit,
Verba, Schmuch and Blumberg, Ladenson, Corver, Halpin, Campbell, Trull
and Loasby, posit in one or more arguments that the decision-making pro-
cess becomes a series of negotiated decisions. Cert and March, Lai
et.al., argue that decision-making can only exist effectively if it is
a bargaining process. Hansen warns that decisions are rarely arrived at
in a single step. Blake tells the researcher that interaction is neces-
sary. Bower speaks to the conflict-of-interest viewpoint. Petit cau-
tions the decision-maker to recognize his competing groups. Campbell
et.al. argues that there is the politics of the encapsulating political
bodies in the educational decision process.

Perhaps the danger of segmenting decision-making into very
specific categories and thus placing an artificial constraint over the process comes through most clearly in the following quotation:

...Through the decades I recognized increasingly that statistical and experimental methods represent 'one' important approach to educational problems, and many answers must be sought through other techniques and sources of evidence. I came to realize clearly that the method must fit the problem, that the method should be selected in terms of its priority or respectability in a particular discipline, institution, or professional journal. I came to share with many others the conclusion that dichotomies in problem solving approaches frequently are artificial; the scientific v. the philosophical, the quantitative v. the qualitative, the mathematical v. the descriptive, or the statistical v. the case-clinical....

The Delphi technique is seen as one method of decision-making which incorporates the above thinking with special emphasis on the bargaining process.

The Delphi Technique of Decision-Making

In the previous section various approaches and philosophies to the decision-making process were discussed. One technique which was not discussed is the Delphi Process, a process which maximizes the advantages of decision-making as a bargaining process by eliminating confrontation.

Helmer, in his Social Technology, discusses three important processes: (1) the Delphi process of selecting experts, (2) the performance of experts, and (3) the utilizing of expert groups in the decision-making process. He states: "While model building is an extremely systematic expedient to promote the understanding and control of our environment, reliance on expert judgment, though often unsystematic, is more

than expedient. It is an absolute necessity.  

Helmer continues to argue that if a particular decision cannot be based on theory, experts will be consulted. This use of expertise is particularly helpful in the social services, where definitive theory often is lacking. "In the social services, we are able to call on a vast reservoir of expertise of many kinds, both among substantive specialists and among generalists."  

The researcher has used Olaf Helmer's well-developed procedure called Delphi in the decision-making process employed in this research. Helmer, in his "Analysis of the Future: The Delphi Method," mentions that the decade of the sixties was characterized by a concern for understanding the future. According to Helmer there is a growing recognition that it is necessary to do something about our ability to predict the future, and that we should form methodological devices for a more effective approach to forecasting the future. From the viewpoint of Helmer, the social sciences are on the point of evolution. Traditional methods, he believes, are proving inadequate to the task of dealing effectively with the growing complexity of forecasting. The degree of complexity increases the need for decision-creating devices in the private and public sector, using techniques that have not been used before. One of these new devices is the Delphi technique, a technique which attempts to make effective use of informed, intuitive judgment. Helmer continues,  


82 Ibid., p. 12.  

(The Delphi technique)...derives its importance from the realization of projections to the future, and also from the realization that policy decisions must rely upon and are largely based upon the personal expectations of individuals and groups, rather than predictions on well-established theory.  

From the above viewpoint, Helmer posits that the proper, theoretical foundation for planning for the future is through a device that relies on the intuitive expertise of various members of divergent groups.

Helmer argues for the use of experts in the Delphi technique. He gives three rules for the inclusion of the experts. The researcher should select experts wisely; he should create the proper conditions under which the experts can perform most ably; and finally, the researcher should attempt to have several experts on a particular issue available. According to Helmer there is advantage to a model like Delphi in that it can be highly effective in motivating participants to communicate with one another. Individuals can learn more of the subject matter by viewing it through the eyes of persons with backgrounds and skills different from their own.

Some proponents of the Futurist theory argue that by utilizing the Delphi technique, the overall goal of a conference is thus facilitated in combining opinions of the various members into convergent thinking on a single position. The traditional and simplest way of achieving consensus has been a round table discussion where experts arrive at an agreed position. According to Helmer, this way has great limitations. In particular, the outcome is apt to be a forced, contaminated, there-

---

84 Ibid., p. 4.  
85 Ibid., p. 4.
fore artificial, compromise among divergent groups. Helmer believes
that the Delphi technique in its simplest form eliminates a discussion
group around a table, and replaces it with a carefully designed program
of sequential, individual interrogations which flow from questionnaires
interspersed with information on opinions of the feedback of other
groups as well as individuals.

Olaf Helmer, states that the qualitative improvement of
societal studies depends upon our acceptance of operations research
technique. The Delphi method is such a technique. Helmer argues that
the Delphi process generates its importance from the realization that
projections into the future are largely based on personal expectations
of the individual rather than on predictions generated from well estab-
lished theory. Helmer, in "The Future of Science," concludes that the
programmed use of informed opinion may lack the elegance and the cohe-
siveness of the scientific theory, but effective use of devices for ex-
ploring the future are thereby aiding the planning and the decision-
making process.

In a paper entitled "Prospects of Technological Progress," prepared for the Japanese Economic Research Council, Helmer sorts out
three classes of forecasts: (1) very certain; (2) probable but not
certain; and (3) less probable but definitely possible. The end objec-
tive of forecasting is to control the future and inform decision-makers

86 Olaf Helmer, "Methodology of Societal Studies," P-3611 Rand
Corporation, (Santa Monica, California: June, 1967).

87 Ibid., "The Future of Science," P-3607 Rand Corporation,
(May, 1967).

88 Olaf Helmer, "Prospects of Technological Progress," P-3643
of the potential dangers of the future.

Three tasks lie ahead in organizing a programmed analysis of the future: (1) a survey of alternatives, (2) an analysis of preferences, and (3) a constrictive research policy. The following are operations research techniques which have proven themselves as means to analyze the future: (1) mathematical models, (2) simulation procedures, and (3) systematic approaches (which utilize intuitive judgment of experts), i.e., Delphi.

According to Helmer, the survey of possible futures with which any analysis of the future must begin, will continue to rely primarily on intuitive judgment of experts. The process of moving toward consensus among specialists will be improved with the development of the Delphi method. Helmer sees tomorrow as a massive world-wide network where experts will be able to interact with one another and obtain consensus among themselves through computer corrections. The forerunner to this vision for tomorrow, is the Delphi process.

In his article "Convergence of Expert Consensus Through Feedback," Olaf Helmer argues that studies toward the improved utilization of expertise are very important for operation research. He argues further, that the quality of research analysis depends upon the intuitive wisdom in its design. Is the weakness of this method that the influence of the intuitive judgment can be specious upon the outcome of the analysis? Helmer argues perhaps, yet feels that this weakness can be controlled but not eliminated. According to Helmer the use of expert judg-

---

ment in the form of advice will always be given to decision-makers, as
direct or indirect inputs. He says that, therefore, it may be the pro-
per concern of research to seek methods of improving the quality of
statements based on expert opinion.

The Delphi method, concerned partially with methods of inducing
experts to refine estimates through successive approximation, is a method
that may be used to improve the quality of intuitive judgment of experts.
One of the problems of Delphi, as Helmer suggests, is that once experts
have come up with their opinions, which one is to be used to combine
responses into a single quantity that may be considered their consensus?
The answer to this question is still undetermined. Helmer feels that
experience should teach us how to discriminate among respondents regard-
ing their competence in answering a particular question. In other words,
Helmer is saying that all intuitive judgment is not of the same quality.
He makes four recommendations for future experimentation in this field
of intuitive judgment usage: (1) vary the degree of expertise among the
respondents and examine the influence of this variation on convergence
and on the effectiveness of selecting an elite subgroup; (2) vary the
amount of information feedback in an effort to maximize proper areas
opposed to specious version; (3) vary the methods of obtaining competent
self ratings; (4) test the pure questionnaire technique which avoids
face-to-face confrontation against both free roundtable discussion and
pre-structured group meetings.

In their article entitled "On the Epistimology of Inexact
Sciences," Helmer and Rescher state that the goal of science is to

90 Olaf Helmer and Nicholas Rescher, "On the Epistimology of
the Sciences, Management Sciences, 6 (October, 1959), pp. 25-52.
explain and predict in an objective manner. The goal is a continuum that exists between the exact and the inexact sciences. The authors feel that science is more concerned with objectivity than exactness. Helmer and Rescher support the expert in prediction. They state that the expert has at his ready disposal, a large store of knowledge, his background, and a refined sensitivity to relevance through the intuitive application of this knowledge. They continue to argue that he is often able to produce reliable probabilities regarding hypotheses in his area of expertness. They discuss further, (1) the criteria for selection of predictive experts, (2) the dependence on predictive informants on subject matter, and (3) the predictive consensus techniques including the Delphi technique. In summation, the Delphi process is described as a technique which reduces (1) the influence of psychological factors (scurrilous persuasion), (2) unwillingness to abandon publicly expressed opinions, (3) the bandwagon effect of the majority.

Boehm,⁹¹ in his most timely article in Think, states that the Delphi process is one of the most imaginative of the futurism techniques. While the Delphi method is similar to the brainstorming techniques of the fifties, the big difference between the brainstorming technique and the Delphi method is that the twenty (20) to sixty (60) members of a typical Delphi panel never meet together, thus eliminating the possibility that the majority will be stampeded by a small vocal minority or vice versa. He explains how the Delphi members meet separately by mail and discuss a given topic or range of topics and express opinions about the

future and/or other developments via questionnaire. He notes how panelists have responded after several rounds and collective opinions usually or supposedly converge to consensus of the experts thinking independently. Boehm goes on to state that the Delphi technique was developed at Rand Corporation and has been used for dozens of specific forecasting techniques by large numbers of companies in various industries. This technique, used to explore the future of the building industry in the year 2000, has come up with some very satisfactory results.

Some futurists, Boehm states, have objections to the Delphi method. They feel that in the first stage the panel has so many ideas that similar ones have to be "buried." This "burying," or as Daniel Bell calls it, "bunching," makes many topics so vague as to be almost meaningless. However, another way to think of "bunching" is "telescoping." Bell, again, would probably state that telescoping is another weakness of the Delphi process. Statistician David Blackwell at Berkely is concerned whether panelists represent more than a few independent opinions. He argues that the panel should include a few intellectual mavericks. Boehm concludes with the argument that there are many variations and refinements of the Delphi technique and perhaps more are needed.

Brown and Helmer tried to improve the reliability of estimates obtained from consensus experts. They conducted an experiment

---

92Ibid., p. 21 (Bell and Blackwell are quoted in Boehm's article, "Futurism: Not Oracles, Planners. They're Working to Shape Tomorrow," Think (July-August, 1970), pp. 16-22.

which involved the Delphi technique and the computation of a consensus based on self-appraised competent ratings. The objective of the operations research as they stated, was not so much to find things out, as the pure scientist tries to do, but to help arrive at efficient, operating decisions. An important step in improvement of quality of statements based on expert opinion was consensus research. The authors concluded, once again, that improving the reliability of estimates obtained from a consensus of experts through the Delphi process was a viable research project.

Campbell and Hutchin, in their article, "Delphi Technique," speak of the Delphi technique as a method of integrating the opinions of experts without sacrificing or compromising individual's suggestions and ideas which is often the case when committees are assigned to the task of compiling long-range forecasts. According to Campbell and Hutchin, the Delphi technique consists of a panel of experts on the subject under study who independently develop the best answers to questions, make assumptions and identify material which would be helpful in refining answers. After the first answer is completed, each expert is given a composite list of the group responses and other experts' assumptions. The process is recycled to the members with the specific idea of having successive revisions at each step of the procedure until the forecast is compiled. According to these authors, Delphi technique information

can be evaluated strictly on its own merit without contamination.

Campbell and Hutchin state that the Delphi method has the advantage of involving many individuals without the disaster of the committee structure. Campbell and Hutchin state further: "When compared to committee forecasting methods, the Delphi technique has been found to result in substantially improved forecasts." The authors argue that the success of the Delphi technique may depend on two criteria: (1) the choice of the experts who serve on the panel and (2) the way in which the technique is implemented. The article continues with a discussion of participant selection and the nature of the interdisciplinary teams. The authors conclude that perhaps one of the most important factors in the make-up of the panel is the relationship these persons may have to the other persons with whom they have to associate.

Robert Campbell in his Ph.D. dissertation entitled "A Methodological Study of the Utilization of Experts in Business Forecasting" stated:

Delphi Process, originated by Olaf Helmer, is in the initial stage of development and has been therefore applied only to a few unique problems. The process itself replaced direct confrontation and discussion by a series of questionnaires that feed back relevant information collected from the participants. In the process, reasons for previous estimates are obtained from each participant, combined and redistributed in this accumulated form to each member. Critiques of these reasons then are solicited from each individual and redistributed and unabridged. At each stage, the participants are invited to reconsider and possibly to revise their previous estimates. Through such a process, participants are stimulated to consider information they might have inadvertently neglected and to reevalu-

---

95 Ibid., p. 38.
ate factors which they had originally dismissed as unimpor-
tant.  

This quotation forms the basis of Campbell's thinking about the Delphi
process and its capabilities. His entire dissertation is based upon
the reasoning found in the process. Campbell states that the result of
small group experimentation suggests that such direct confrontation be-
tween group members introduces status and personality differences between
the participants which may cause communicated information to be evaluated
for more than its relevance to the forecast. Campbell feels that a means
of diminishing effects of such social, psychological variables is to
eliminate direct confrontation.

Campbell states again that:

In general the findings of these experiments appear to support
the contention that the Delphi process may produce more accu-
rate forecasts than do currently accepted direct confrontation
methods. In general, Delphi process participants forecasted
more accurately as a group and as individuals than did members
of the direct confrontation group.  

Campbell found that the presence of persons often changed the content of
an individual's performance from personal orientation to group orienta-
tion. In his experimentation, Campbell found that "experimental evidence
suggests that in a problem which requires a variety of skills for ade-
quate solution, the group tends to be a more efficient mechanism than
the individual in such problem solving activities." Therefore, tech-
iques, such as the Delphi technique, tend to lead to more accurate

---

96 Robert M. Campbell, "A Methodological Study of the Utiliza-
tion of Experts in Business Forecasting," (Unpublished Ph.D. disserta-
tion, University of California, Los Angeles, California, 1966).

97 Ibid., p. xiv.

98 Ibid., p. 15.
prediction forecasts and development of the basic criteria of the problem at hand. He continues, "group informants" as opposed to "individual informants" appear to produce a higher level of interest in successful task completion. However, Campbell warns:

Any group activity that requires agreement among the participants exerts pressure toward conformity. Generally, individuals are more likely to conform if the problem solving task is ambiguous; if the opinion must be expressed publicly, if the majority holding the contrary view is large, and if the group is especially friendly or close-knit. Also, an individual has a greater possibility of conforming if his alternative is to go on record as a deviant in a group to which he aspires and whose influential methods disagree with him.

In his continued defense of the Delphi method as an excellent approach to problem solving, Campbell states: "It becomes apparent that the most influential participant in a problem-solving group need not necessarily be the most competent in fields relevant to the problem area." In his defense of the Delphi technique Campbell states, "A means of diminishing the effects of socio-psychological variance is to eliminate direct confrontation of the participants. However, in accomplishing this objective, it is desirable the group feature of information accumulation should be retained."

In conclusion, Campbell's study compared the forecasting accuracy of groups utilizing current confrontation methods and the Delphi process of indirect confrontation. Evidence exists to support the thesis that the Delphi process did, indeed, produce more accurate forecasts than

---

99 Ibid., pp. 17-18.
100 Ibid., p. 21.
101 Ibid., p. 22.
the currently accepted direct confrontation methods. Campbell warns, however, that supporting evidence is tempered by the limited scope of the experiment. He states that despite design limitations, the application of the Delphi process seems plausible.

Norman Dalkey,\textsuperscript{102} in his article "The Quality of Life," used a preliminary Delphi exercise to study factors related to the quality of life. The methodological problem he experienced is that he did not pursue the exercise on additional rounds because he did not have a procedure for dealing with overlapped problems, and he did not have a procedure for dealing with completeness problems. Dalkey concludes that overlapped completeness may be a weakness in the Delphi process.

Dalkey and Helmer,\textsuperscript{103} in their article "An Experimental Application of the Delphi Method to the Use of Experts," state that the object of Delphi is to obtain the most reliable consensus of opinion of a group of experts. The experiment was designed to apply expert opinions of the selection from the viewpoint of a Soviet strategic planner called "An Optimal U.S. Industrial Target System As to the Estimation of the Number of A Bombs Required to Reduce the Munitions Output By a Prescribed Amount." The technique employed involved a repeated individual questioning of experts and avoided direct physical confrontation of the expert. The questions were centered around a focal problem and were designed to


clarify the respondent's reasons and the factors he considered most relevant. Information, fed to experts between rounds, consisted of either available data previously requested or factors potentially relevant. Dalkey and Helmer concluded that the method employed in this experiment appeared to aid experts in their gradual formation of a considered experienced opinion. Dalkey and Helmer warned that discretion must be exercised by experimenters to avoid any efforts designed to make an expert change his mind. The authors continue, "If the purpose of the experiment is the estimation of a numerical quality...it may be expected that even if the views expressed initially are widely divergent, the individual estimates will show a tendency to converge as the experiment continues." The authors did not comment upon non-numerical quantity data.

Helmer and Dalkey criticize their work by stating that the Delphi procedure does not always cover all the variables needed in an experiment. For example, experts' responses were not totally independent since other working assignments or related subjects required interpersonal contact of group members. Some bias by the experimenters inevitably resulted from the selection of the information supplied by the experts. Both of these factors may have diluted the results of the experiment.

The authors, Dalkey and Helmer, are convinced that most of the shortcomings of Delphi type experiments can gradually be eliminated through further experimentation. They state: "...with further progress in the methodology of the efficient use of experts, it may be hoped that a care-

---

fully contrived consensus would often turn out to be an acceptable substitute for direct empirical evidence when the latter is unavailable.\textsuperscript{105}

Dalkey, in his article "Experiment and Group Prediction," has argued that predictions can be graded according to a simple linear scale that involves on the left side "sheer speculation," in the middle "opinion," and on the extreme right, "solid knowledge." He continues his argument stating that opinions about opinions widely differ; and yet, he states, solid knowledge is worthless for designing policy. He concludes that "wisdom" lies between the extremes of sheer speculation and solid knowledge. Therefore, intelligent, intuitive opinion is the basis quite often for a comprehensive, conceptual structure. According to Dalkey there are a number of approaches to opinion technology. However, he states that he is going to deal with the approach that a number of heads are better than one in arriving at a state of comprehensive conceptual structure. Dalkey questions whether the information from many can be listed and merged to form a more solid group opinion. He concludes that the answer to this question may be found in future research. Dalkey states, however, that Delphi has a chance to do this through anonymity and controlled feedback.

According to Dalkey, Delphi has been used in about thirty exercises at Rand and elsewhere. About one-third of the exercises investigated the information process and the remainder were applications to substantive questions. Most of the applications were in the area of

\textsuperscript{105} Ibid., p. 17.
forecasting. The following conclusions resulted from these experiments: (1) in almost all cases there was pronounced conversion of opinion, (2) the principle increased between one and two, and (3) thereafter the principle decreased regardless of rounds.

Research experiments continuing at the Rand Corporation compare the efficiency of Delphi to the "face-to-face" discussion procedure and indicate that first round, "off-the-cuff" estimates of the subject (Delphi type) are at least as accurate as the consensus reached by the face-to-face group after a half-hour discussion on the subject. Dalkey states further that research has not discovered criteria that allow for selection of superior subgroups; a self-rating scale has not offered a reliable way of singling out superior subgroups. According to Dalkey, aside from the iteration (repetition) structure, the use of probability estimates is the most powerful device we have found for improving accuracy and improving convergence of estimates. One of the most intriguing research questions is, what is the rule for individual changes of opinion in improvement of group responses? In some sessions, the "hold-outs," those who change their opinions little if at all, appear to be more accurate estimators; in other sessions improvement occurs by movement of the more volatile members toward the center. Dalkey, therefore, concludes that the Delphi process has evolved into a highly effective experimental structure with which to investigate group estimation processes.

Norman C. Dalkey, in his manuscript "Delphi," defines the Delphi process as a set of procedures for identifying, listing and refin-

---

ing the opinions of a group of experts. The process facilitates the initial drawing of a divergence of estimates and facilitates the latter drawing of a convergence of estimates from the decision-maker. The Delphi procedure has certain advantages over the traditional procedure: (1) it does not submerge the individual opinion to group opinion, (2) it does not become contaminated with noise, irrelevance, or redundancy, and (3) it does not transmit pressure or give a premium to compromise. In other words, this procedure is designed to reduce the contamination effects of confrontation group interaction. The Delphi procedure can be defined as having three distinctive characteristics: (1) anonymity, (2) controlled feedback, (3) statistical group response. According to Dalkey, "anonymity" is a method to reduce effective socially dominant individuals; "controlled feedback" is a method to reduce irrelevant noise and distraction; and 'statistical index' is a method allowing for a spread of opinion until the final round reduces pressure for group conformity. A typical Delphi exercise is initiated by a questionnaire which requests estimates of a set of numerical qualities or opinions on non-numerical qualities. The process results in a first round summarized by feedback plus a request to revise original opinion if needed and appropriate. The procedure continues for successive rounds. "This basic pattern has, of course, many possible variants, only a few of which have been tried," states Dalkey.107

Experts deviating from the median are asked to justify responses, counter-arguments, feedback, and additional reappraisals as collected.

---

107 Ibid., p. 4.
Dalkey states, "For material where confirmation is possible, typical outcomes are that opinions tend to converge during the experiment and more frequently than not, the median response moves in the direction of the true answer." He also states that in the case of material where confirmation is not possible, opinions here converged during the exercise. Dalkey cautions the researcher by stating: "...as yet, we cannot determine how much convergence is due to three different factors...: (1) social pressure, (2) 'rethinking' the problem, (3) transfer of information during feedback." The Delphi process is still in an experimental stage. Yet, evidence exists that systematic processing of expert opinion can produce very significant improvements, both in the accuracy and the reliability of estimates. The role of the Delphi technique within the body of forecasting techniques, extrapolation, stimulation, demand analysis, gaming, etc., has not, as yet, been established. Dalkey knows of no cases where Delphi procedures have been specifically employed to support specific policy decisions. According to Dalkey, the Delphi procedure is still one of the most efficient for uncovering the implicit model that lies behind opinions in the software areas. He believes there are several tautologies directly relevant to group estimation process: "(a) the total amount of information available to a group is at least as great as that available to any member, (b) the median response to a numerical estimate is at least as good as that of one-half of the respondents, (c) the amount of misinformation available to a group is at least the same as that avail-

108 _Ibid._
109 _Ibid._, p. 5.
able to any member, (d) the number of approaches (or informal models) for arriving at an estimate is at least as great for the group as for any member." Tautologies are not a theory of the group estimation process. Dalkey concludes that no way exists to determine if the question and feedback procedure is close to an optimal use of the information available to the group; or whether or not it includes a device for reducing the effect of error. "In short," Dalkey says, "there is a very large field waiting for the plough," i.e., to be uncovered.

In a short article entitled "Exploration of the Future," found in the Journal Realities, No. 245, June, 1966, Neiswender translated from French the following comments about Delphi:

Individual questionnaires were sent, resent and sent again to each expert enabling him to make his prediction increasingly precise in expression and in time, and on occasion asking to consider his response as a function of his own specialty.

The article continues that a consensus was finally established and that if a response was too far removed from the consensus, the individual concerned was asked to justify his position. His reasons were then communicated to the other respondents who, thus enlightened, had the opportunity of modifying or maintaining their own position. In conclusion, the article says that the approximation obtained from this Delphi process seemed the best possible in light of our present knowledge. The findings were similar to the other Delphi experiments.

---

110 Ibid., p. 9.

111 Ibid., p. 18.

Gordon and Helmer, in their "Report on a Long-Range Forecasting Study," outlined some points of objection to the method. They state that it is inherently insufficient in reliability. Its tendency to produce self-fulfilling or self-defeating prophecies which would make it both undesirable and unreliable are existent. There seems to be a sensitivity of a result to ambiguity of questions that agree of assessing and utilizing the degree of expertise as a questionable point. And also, the impossibility of taking the unexpected into account is a glaring weakness.

Brownlee Haydon, in his article "The Year 2000," discusses the general need for techniques for predicting the future. According to Haydon, the 1947 study by Helmer and Dalkey created the Delphi technique. Haydon gives a brief discussion of experiments by Helmer, Dalkey and Gordon. The experiments follow the usual Delphi procedure. Haydon concludes that the exchange of information was excellent; it appealed to logic and reason; and the whole experimental process seemed acceptable as a prediction technique.

Martino, in his article entitled "An Experiment With the Delphi Procedure for Long-Range Forecasting," states that the Delphi method is a method of producing forecasts of future events. It involves use of a panel of experts. The experts' responses to the first question-

naire are used to produce the next. The attitudes toward predictions made are presented so that the panelists have an opportunity to change their views in response to the arguments of the other experts. Identity of the participants is concealed during the course of the procedure. Martino agrees with the other advocates of the Delphi technique that this procedure tends to eliminate committee confrontations, and thereby reduces the influence of some psychological factors such as specious persuasion, the unwillingness to abandon publicly expressed opinion, and the bandwagon effect of majority opinion. According to Martino, this technique replaces direct debate by a carefully designed program of sequential, individual interrogations, which are best conducted by questionnaire. The questionnaires, also, are interspersed with information and opinion feedback derived by computed consensus of earlier parts of the program.

Martino states a quotation from Gordon and Helmer: "No claims are made, or can be made, for the reliability of predictions made by the Delphi procedure."\textsuperscript{116} Martino feels that because the opinions are expert opinions, such predictions could lessen the chance of surprise and provide a firmer base for long-range decision-making than would unarticulated judgments. According to Martino, there are a number of questions one has to answer before considering the use of the Delphi technique: (1) the amount of time and effort required to compare and tabulate questionnaires; (2) the mailing and receipt of questionnaires; (3) the will-

\textsuperscript{116}Ibid., p. 4.
ingness of experts to serve on a panel; (4) the effect of forecast of events that occurred during the course of the interrogation; (5) means for presenting questions; (6) the number of questions, the number of rounds; and (7) the degree to which opinions actually change during the course of the instrument. Martino continues to caution the researcher, stating that the use of ambiguous terms should be avoided. He argues that: (1) the procedure is not designed to trap the panelists, (2) there is no provision for cross-check of questions, and (3) effort is needed to encourage the participants to keep their replies constant. According to Martino, giving panelists only the median of previous responses may not be sufficient. If the dates of the forecast of an event or the dates of a decision about the criteria cover a wide range, both the median and the quartile should be given. The number of questions in the questionnaire was of concern to Martino; he thinks the number should be kept small, twenty-five (25) or less. In consolidating the reasons or in telescoping the questions, the administrator of the Delphi technique should take great precaution in trying to be fair to both sides. Martino feels that the experiment of Delphi procedure is administratively workable, and that without undue effort a sequence of questionnaires can be submitted to a small (25) panel. Martino feels this experiment confirmed results obtained by others— that the panelists do, in general, tend to have convergent thinking on some agreed estimate or position, that this convergence occurs rather rapidly (second or third round), and that no estimate of validity of the forecast from the panelists is possible.
Martino, 117 in his article "An Experiment With the Delphi Procedure for Long-Range Forecasting, Part II," states that the Delphi process is an excellent method for consolidating the opinions of a panel of experts who are charged with preparing a forecast of future developments in some area. The article refers specifically to an experiment introduced in his article, Part I. The goal of the experiment was to obtain interaction among experts without the usual feelings of committee action. For this experiment, the panel consisted of authorities on international affairs, and they were asked to forecast the international situation over the next thirty years. The findings of this report are substantially the same as the findings of the other Delphi reports. They used a process, the standard process, and they found convergence.

Quade, 118 in his article "Cost Effectiveness: Some Trends in Analysis," is concerned with three methods of analysis of cost effectiveness. These are computers, mathematics, and the direct use of experts. Quade's concentration was in the area of the development of schemes for more systematic and direct use of experts. Quade states that reliance on experts' judgment is indispensable to all analyses. He posits that the virtue of cost effectiveness analysis is that it will provide a framework for the judgment and intuition of experts in diverse fields to combine and work efficiently. His paper continues to spell

117 Martino, Ibid., Part II, 67-0176.
out his framework of a model that will enable him to do this. Quade concludes in discussing his model, that one should use experts in a manner that preserves many of the advantages of the quantitative model. This thinking leads Quade to discuss the Delphi method. He states that in order to arrange a setting in which the pros and cons of an issue can be examined systematically and dispassionately, it is preferable to minimize the effects of such practice as imposed authority and specious oratory which too often appear in round-table discussions. Quade coins a term, "cybernetic arbitration" which he states the Delphi technique utilizes as an attempt to improve communication in arriving at a forecast by not subjecting the views of the individual participants to each other's criticism. The total article moves then into the deficiencies of the technique. Quade states that the technique is cumbersome; several weeks may elapse before questionnaires are returned or an interviewer can poll the panel; the amount of material to be processed may be considerable; because of the time lapse, participants may have difficulty reproducing their original reasoning; those running the process have difficulties collating and digesting a formidable amount of material. He feels that much remains to be learned about the use of experts and about the process, i.e., "cybernetic arbitration," i.e., Delphi, that allows consensus conversion without confrontation. He asks such questions as: How much convergence takes place by process rather than by increased understanding of issues? Would interviewers work better under certain circumstances than questionnaires? The Delphi process or something like it appears to be a most promising approach under today's social structure; would this necessarily be so if the social order took another direction?
In summary, such procedures have recognized the advantages of turning from an ad hoc approach based on intuition alone, to an approach based on analysis supported by intuition and experience of selected 'experts.' "For complex questions, intuition and judgment must continue to supplement systematic analysis. As the questions get broader, this must happen to an increasing extent," stated Quade.

To make such judgment and intuition most effective, a greater use of systematic techniques designed for the direct involvement of experts, in particular analysis technique situations like the Delphi process, or cybernetic arbitration and its extension, seems inevitable in the long run.

In his article, "Clarifying and Setting Objectives," Don Anderson states that the Delphi technique is built on the strength of informed, intuitive judgment. He describes a Delphi technique in the setting of an experiment carried out through the College of Education at Ohio State University. His definition of Delphi is similar to the definition given by Helmer, Dalkey, Martino, Pfeifer, and others who have engaged in experiments using the Delphi technique. Dr. Anderson states:

> While the Delphi procedure has been used extensively in predicting long-range developments in defense, automation, space research and other science-technological areas, we felt it could be used to advantage to encourage convergence of opinions,

---

119 Ibid., p. 18.
120 Ibid., p. 17 (a discussion of a variant use of experts)
or at least a majority opinion and a clearly defended minority opinion as a basis for formulating roles and setting priorities for the county school district involved.\textsuperscript{122}

Anderson continues by stating that one of the major problems of the Delphi process is identifying the expert groups. "It is tempting to include in this group all who are influential substantially or can make a significant and/or unique contribution to the resolution of the problem. Once the number of experts gets beyond twenty-five (25) or thirty (30) handling the data, especially the arguments advanced, it becomes exceedingly cumbersome."\textsuperscript{123} Anderson continues in his criticism of the Delphi method by stating: "While the modal response was used, this presented problems for two reasons: (1) there were a few instances when the distribution of responses was bi-modal, and (2) use of the mode made it impossible to use zero-sum logic after round two."\textsuperscript{124} According to Anderson, in subsequent uses, means were calculated before priorities.

"Memorandum to Members of Assessment Council, Dean's Staff, and Selected Professors" from Theodore Cyphert and Donald Anderson\textsuperscript{125} regarding the refining of the college mission statement, clarifying goals and objectives, and setting priorities on college program requests, results came about because the faculty senate of Ohio State University

\textsuperscript{122}Ibid.
\textsuperscript{123}Ibid.
\textsuperscript{124}Ibid.
\textsuperscript{125}Donald Anderson and Theodore Cyphert, "Memorandum to the College of Education Students and Faculty Regarding the Refining of the College Mission Statement, Clarifying College Goals and Objectives and Setting Priorities on College Program Requests," (Ohio State University, October 25, 1968).
decided to continue the study of the college admission goals and program. Some members studied alternative study processes and one alternative they decided they would like to test was the Delphi technique. The authors Cyphert and Anderson used a Pfeiffer variation of the Delphi technique, and they argued that Delphi can be used to advantage in encouraging convergence of opinion or at least a majority of opinion, and a clearly defended minority opinion as a basis for formulating a college mission statement or setting priorities on college program requests.

Cyphert and Gant,\(^{126}\) in their article "The Delphi Technique: A Tool for Collecting Opinions in Teacher Education," used the traditional definition of the Delphi technique as found in Helmer's "Analysis of the Future: The Delphi Method" to develop the procedure for their study. The authors developed a statement of need in which they expressed:

> It also appears that most schools of education and, for that matter, most universities, operate on the apparent assumption that persons inside the organization control its destiny...it is equally fallacious and dangerous to deny or ignore the powerful impact of forces and persons outside of the organization on its welfare and mission.\(^{127}\)

Cyphert and Gant continued to upbraid the institution: "...one of the reasons why schools of education have not received the support they desire...perhaps is the failure to realize the significance of the reactive power forces."\(^{128}\)


\(^{127}\)Ibid., p. 1.

\(^{128}\)Ibid., p. 1.
The reader should be acutely aware of several differences in the way this study applied the Delphi techniques from its use in the preceding studies. First, this technique has usually been used with groups of 50 or fewer respondents, rather than with the 400 involved in this survey. Second, most participants in prior studies have felt some greater degree of expertise in the field being surveyed than the participants in this survey. Third, and perhaps the most significant, the technique has generally been used to predict what will happen rather than to seek agreement concerning what should happen. Fourth, the consensus in this study was defined as the mode of the distribution of ratings on each goal, where other studies involved in this technique have defined consensus as the inter-quartile range. It is speculated that item three above, was instrumental in the response divergence which necessitated the choice of the weaker concept of mode as the agreement indicator.  

Cyphert and Gant found that the behavior of the participants could not always be predicted. Some interesting findings of the study were:

1. On Questionnaires I and II several persons declined to participate, using "professional reasons."

2. High interest was shown in the process by most of the respondents.

3. The number of goals on which agreement was found varied greatly.

4. The problem of accuracy and truth in the translation of original responses into generic statements (telescoping) were present.

5. The problems involved in the administration of the technique, it was cumbersome.

6. The provision of written comments by the respondents made tabulating difficult.

The authors explain the movement of the response between questionnaires and conclude that the use of questionnaires beyond step three was probably unnecessary.

129Ibid., p. 2.
Cyphert and Gant stated in their conclusion:

The data...are quite usable for assisting and formulating the future targets for the school of education. These data also have face validity. Yet they differ significantly from the emphasis postulated prior to the study. Given similar opportunities, the experiment would be repeated. ...the survey made the influential persons in the commonwealth aware of the school's existence and vested interest in its future accomplishments.\(^{130}\)

Olaf Helmer,\(^{131}\) in his paper "The Use of the Delphi Technique in Problems of Educational Innovations," used experts for predicting when a machine could comprehend standard IQ tests and score above 150. The experts' initial responses were diversified, but in subsequent rounds responses tended to converge. The measurements used were the median and the interquartile range. When convergence did not occur, the moving values tended to polarize around two distinct values. According to Helmer, the advantage of (1) weighted opinions, and (2) unambiguous judgment are very powerful reasons for the use of Delphi as a process, especially where the researcher is probing without objective measures and where the use of simulated decision-making is feasible. According to Helmer there exists a wide range of applications of the Delphi technique to educational planning, implementation, evaluation, and innovation. In conclusion, Helmer warns the neophyte by stating, "...not too much weight should be given to the substantive findings resulting from these pilot studies." He continues, "Methodologically the endeavor was found very promising...."\(^{132}\)

---

\(^{130}\)Ibid., p. 20.


\(^{132}\)Ibid., p. 22.
results of the study. The Delphi technique should be applied to similar problems in a more comprehensive manner in the near future.

Pfeiffer, in his book entitled *New Look at Education*, discusses the systems approach in the study of educational problems. Pfeiffer uses a three-step model for his analysis which includes: (1) a design for action, (2) the seeking of alternatives, and (3) an approach to evaluation. According to Pfeiffer, the most important concept of the entire systems idea is the concept of "model." This "model" must be a simplified but controlled version of a real-world situation, functioning like that of a laboratory experiment in the physical and biological sciences. Pfeiffer discusses the problems of presentation and attempted use of continuing innovation, array of new possibilities, and complexity of ideas as complicators to the decision-making process. Pfeiffer states that problems may be disposed of by: (1) referring to a systems objectives, and through this, (2) obtaining measures of effectiveness, (3) identifying constraints and controllable variables, and finally, (4) identifying controllable variables. According to Pfeiffer, the systems approach is one of man's newest attempts to meet the rapidly evolving needs of his world. In summation of his chapter on decision-making, Pfeiffer develops his systems analytic models and flow charts to support them. The author explores: (1) people and how judgments are made, (2) social change and the need to measure educational effectiveness, (3) some of the existing research, (4) new "systems" in the schools, and (5) what

---

he sees for the next decade. Pfeiffer discusses the "Systems Analyst and Decision Maker," stating: "...the nature of the relationship between the systems specialist and those responsible for major decisions is critical...and therefore must be close." Joint support of decision-making under a new concept may replace the conference.

Pfeiffer questions the success of the traditional conference as a means of achieving a meeting of the minds and moving thought into action. He states that we have reached a place in our socio-economic development where we must make the most of our intellectual resources. "Wisdom is more than a collective thing, more the possession of groups and less of individuals, however talented." Thus he argues for a group decision process. Pfeiffer is a strong proponent of the Delphi technique as a group decision process. He states: "There are a number of variations on the Delphi theme, but the general idea is to prepare successive rounds of questions designed to elicit progressively more carefully considered group opinion."

The Delphi Technique of Decision-Making Summary

The Delphi technique or process is a method of predicating the future through the use of informed, intuitive judgment. A panel of between twenty (20) and fifty (50) experts whose identity is unknown during the course of the procedure submit opinions concerning a given issue by answering a questionnaire. Through the use of a series of questionnaires, the divergent opinions of the various members of the panel are

---

135 Ibid., p. 149.
136 Ibid., p. 151.
137 Ibid., p. 151.
combined into convergent thinking on a specific issue. Criteria are established as a basis for the decision-making process, i.e., selection of an administrator, be he business executive, school superintendent or high school principal. Helmer, the originator of the Delphi process has defined it as an operations research technique, a carefully designed program of sequential, individual interrogations which flow from questionnaires interspersed with information on opinions of the feedback of other groups as well as individuals. His definition has been corroborated and refined by such other researchers as Boehm, Dalkey, Martino, Barkwell and Campbell. The technique was designed to replace the traditional round table discussion thus eliminating some of the weaknesses and disadvantages of that method.

The advantages of the Delphi process, according to the various researchers who have used the technique, are:

1. The Delphi-type conference eliminates the underlying emotional current which tends to make arriving at a single consensus on an issue forced and contaminated.

2. The programmed use of informed opinion enables the group to explore the future and aids in the planning and decision-making process.

3. Because the panel members never meet in person the possibility that consensus will be arrived at by a small vocal minority stampeding the majority is eliminated.

4. As compared to the committee forecasting method, the Delphi technique has the advantage of involving many individuals without the disaster of the committee structure and has been found to produce substantially improved forecasts.

5. It does not dominate the individual opinion to the group opinion.

6. It does not become contaminated with noise, irrelevance or redundancy.

7. It does not transmit pressure or give a premium to compromise.
Helmer, Boehm, Barkwell and Dalkey are aware of certain weaknesses inherent in the Delphi process which need further refinement. Some admitted disadvantages are:

1. The influence of intuitive judgment can be specious on the outcome.

2. Once the experts' various opinions are received, how can the researcher be certain they may be considered to form a consensus.

3. In the initial stage of the process there is danger similar ideas may be "bunched" together creating a false consensus, or the panelists may represent only a few independent opinions making convergence into single agreement difficult.

4. The reliability of the technique is questionable because of the inability to control certain variables.

5. According to Quade, whose analysis of the technique is critical, the technique is cumbersome, the amount of material may be considerable, and because of the time lapse it may be difficult for the participants to reproduce their original reasoning.

6. While Quade agrees that the Delphi technique seems to be a promising approach within today's social structure, he questions whether this would be true should the social order move in another direction.

Both Dalkey and Helmer believe that the shortcomings of the Delphi experiments can be eliminated with additional experimentation. Dalkey, also, cautions that it is still difficult to measure the degree of convergence affected by social pressure, 'rethinking' the problem and transfer of information during feedback.
The Role of the High School Principal

In the first section of Chapter II various approaches and philosophies to the decision-making process were discussed; in the previous section of Chapter II, the Delphi technique of decision-making was discussed; in this, the final section of Chapter II, the role of the high school principal will be discussed.

Warren H. Button, in his article "Doctrines of Administration: A Brief History," writes: "In most contemporary texts on school administration... there is a common theme... twenty years ago there was also a common theme, but it was a different one." Button continues to develop his thesis on changing themes. He argues:

There is a need on the part of men who speak for administration and those who teach administrators for a simple statement as to what administrators should be and do and why. Such statements, which can be called doctrines, have changed about every 20 years, since 1870 when the first semblance of a doctrine appeared.

According to Button, six doctrines have appeared in the history of the development of school administrators, i.e., the high school principal.

1st Doctrine - Teaching of teachers, 1870-1885. The idea of the superintendent as a supervisor of teachers and concerned with the quality of instruction, making a contribution none of the Board members could be expected to make.

2nd Doctrine - Administration as Applied Philosophy, 1885-1905. "The new doctrine described administration as applied philosophy. ...The doctrine asserted that truth, concerning all things and all matters, was eternal and to be discovered. As in all other fields, this was necessary in education. It therefore followed that the learned administrator, who could discover relevant truths, was the best authority on all matters concerning education.

and that the problem of administration was the application of philosophical knowledge to schools.

3rd Doctrine - Business Management, 1905-1930. This new doctrine defined the school administrator as a manager and compared school administration to the management of a business or factory where "the appropriate basis for decision-making was...a fiscal one."

4th Doctrine - Technical experts, 1935-1950. With the advent of the depression the business man fell into disrepute as did the doctrine of Business Management. During the 20's and 30's the idea that the purpose of the schools was to strengthen the democracy emerged, and the school was organized on a democratic rather than an autocratic base. "Democracy in the schools, which followed the business management era, left the administrator in a position of diminished power and esteem, although the technical services which he could provide were still required." (Indeed, many of the technical devices of administration in the 1960's are only refinements of those developed half a century ago.)

5th Doctrine - Administrative Scientist, 1955-. "The doctrine that has won almost complete acceptance in the last decade holds that much of administration can be conceptualized in the terms of the behavioral sciences, and that a science of administration generally is emergent." This is a comfortable doctrine for the administrator because it seems to "fit." It is acceptable to the Board and public, too, because of the high status enjoyed by behavioral scientists today.

6th Doctrine - It is wiser not to predict since the present doctrine is only one decade old and doctrines tend to last about two decades. Also, new doctrines do not emerge out of the old, but tend to be radically different.

Campbell, Cunningham and McPhee trace briefly the development of the role of the principal. They state:

Initially, the duties of the principal were essentially clerical in nature, such as the compilation of enrollment and attendance

---

139 Ibid., p. 218.
140 Ibid., p. 219.
141 Ibid., p. 221.
142 Ibid., p. 222.
figures. Later, however, the principal was relieved of teaching so that he might give full time to organization and management duties. The classification of pupils by grade levels was not the least of these duties. In recent decades, in terms of professional objectives if not entirely achieved in practice, the principal has tended to become an instructional officer in his school.  

143

The AASA Committee on the Selection of...The Right Principal for the Right School, 144 states:

The effective school principal can be a type of catalyst who can stimulate more dynamic educational programs in school attendance centers. It is difficult to overestimate the contributions of the principal to the improvement of education. The selection of the principal for this important administrative leadership position is clearly one of the most important decisions confronting a superintendent of schools.

According to the AASA Committee, the school superintendent, under the auspices of the school board, is responsible for school principals and therefore should have the power to make the selection. The AASA Committee states:

The term principal is a general one, and the challenges facing the person occupying this position in one situation may not be the same as in another. ...Maturity level of pupils, nature of the teaching staff, type of neighborhood, and complexity of programs may make a difference in the type of person required. ...A successful principal in a senior high school where the majority of youths are college bound, come from homes of high socio-economic status, and are not prone to drop out, may experience adjustment problems when transferred to another high school serving a disadvantaged area where nationality and racial backgrounds are unfamiliar or where students are dropout prone....

Forces within and without the school system modify the role of the principal. Teacher-principal relationships, professional


negotiation, federal involvement in curriculum changes, pressure to serve as an agency to ameliorate social injustices all affect the effectiveness of the principal in stress situations.\textsuperscript{145}

Two sets of variables are listed by the AASA Committee as requiring consideration for the selection of a high school principal. These variables are (1) situational and (2) personal. The consensus of opinion developed these as follows:

1. **Situational.** Criteria which can serve as a predicator of success in the general terms of an entire school system and in the specific terms of a given attendance center need to be determined.

   There are several factors which can be considered in attempts to define the administrative situation. The location of the school within the district; degree of homogeneity (or heterogeneity) of ethnic, religious, or social groups within the attendance area; aspiration level, socio-economic backgrounds and behavioral norms of students; and the profile of the teaching staff provide clues as to the nature of the administrative challenges likely to be found in a given situation.\textsuperscript{146}

2. **Personal.** "What to look for in the person applying for a principalship may be defined in terms of traits or in terms of performance. Measuring traits appears to be more popular than assessing potentiality for performing tasks associated with administration."\textsuperscript{147}

   Personal factors to be considered because of their apparent relevancy to successful performance and because of the ease by which they can be obtained are:

   a) Age - not younger than---or older than---

   b) Sex - the majority of senior high school principals are male,

\textsuperscript{145}\textit{Ibid.}, p. 22.
\textsuperscript{146}\textit{Ibid.}, pp. 26-27.
\textsuperscript{147}\textit{Ibid.}, p. 27.
although "All other things being equal, men principals are not superior to women principals by any measure of administrative effectiveness. ..." 148

c) Marital status - most principals are married but this is not necessarily a criterion for success
d) Intelligence - closely related to success
e) Educational preparation - forty-three (43) states require a Master's degree or its equivalent number of hours for the secondary principal
f) Teaching experience - the value and number of years is debateable; between two (2) and five (5) is deemed most desirable

In conclusion, the AASA Committee writes:

Selection procedures and devices are means to an end. One of the never-ending battles in the talent search is to make certain that time-honored techniques do not become empty rituals. A large body of opinion clearly indicates that the interview, the rating scale, and the letter of recommendation, when used indiscriminately, are of questionable validity and reliability. ...Person-position matching is being discussed more and gives signs of being an identifiable trend. It implies detailed information, not only about the individual, but about the position as well." 149

The committee continues with its incisive appraisal of existant conditions:

There is a wide gap between existing practices in the selection of principals and desirable professional standards. Most practices have grown with little direction or significant change in outlook. We have tarried too long in the improvement of selection processes, hoping that persistence in the ritual will somehow result in the appointment of quality individuals. This is not likely to happen." 150

Campbell, Corbally and Ramseyer state:

148 Ibid., p. 28.
149 Ibid., p. 46.
150 Ibid., p. 48.
The individual school is the center for all teaching and learning. Principal is the key person in the administrative organization. Hence the (high school) principal is the key person in the administrative organization. (parenthesis is mine)

The principal must perform administrative tasks similar to the superintendent, i.e., instructional leadership, community relationship, staff personnel, pupil personnel, facilities, finance, business, and management and organization. According to the authors, much improvement can be made in the administrator's role. The authors suggest five controlling factors be considered:

1. His beliefs and values about authority and responsibility: his role
2. His perception of himself as a person, as an administrator, as a resolver of conflict
3. His perception of others; interaction (formal-informal)
4. His work patterns
5. His concept of success

In conclusion, the high school principal has to function in four (4) distinct ways to fulfill his role. These are:

1. As an organizer: must weld resources so that all tasks are accomplished
2. As a communicator: must interpret decisions as an intermediary, both ways
3. As an instructional leader: be articulate and demonstrative

---

152 Ibid., p. 312.
4. As a line officer: authority based on competence derived from the state

Ban, in his article "Twenty-five Principles for Principals," states:

...A principal in actuality wears only one hat that consists of several sides or, if you will, several component parts. His duties, though manifold and varied, are all interdependent and geared to provide the best possible learning situation for young people. Which side of the hat the principal displays depends on the occasion and what is expected of him by the community, his superiors, his faculty and students.

It may be that the community desires that a principal be an eloquent spokesman as well as a dynamic interpreter of a school's educational program. Or his superiors, ranging from the superintendent to the school board, might prefer that he be an efficient manager, a spotless administrator directing his school with clocklike precision, without a ripple, without disruption. Yet, his staff and students expect a different sort of man. That side of the hat which both faculty and students desire to see most often is the one showing the principal as the chief instructional leader in the school. His overarching concern should be for the way and manner in which young people learn. He stands tallest when he discharges this responsibility.

If learning is the paramount aim of schools and the reason for which they are established, then it would logically follow that staff and students should constitute the principal's major area of attention since they are most immediately connected with the learning process. How the principal interacts with these two groups, or any other group, will in large part determine whether the school's educational program will be successful.

The twenty-five rules for the principal to fulfill his role are:

1. Get to know the teachers by their first name and address them as such

2. Write notes of commendation to those who perform a job well ...

---


155 Ibid.
3. Should circulate a bulletin or letter periodically... part of which deals with subject matter areas...
4. Should send appropriate cards on important occasions, i.e., Christmas, birthday, wedding...
5. Visit the faculty lounge occasionally to talk shop...
6. Be accessible to his staff, either having time each day he is available or maintaining an open door policy for them
7. Become an astute listener, soliciting advice and suggestions from his staff on pertinent matters...
8. Install a grievance box in his office...
9. Subject himself to a year-end teacher evaluation of the way he is operating the school...
10. Encourage teacher experimentation with the instructional program and participation in national, state or local contests
11. Frequently attend subject-matter oriented workshops...
12. With teacher permissions visit various types of classes for purposes of observation, not evaluation...
13. Hold weekly meetings with departments to discuss curriculum problems...
14. Designate a room to house new curriculum material...
15. Bring in occasionally subject-matter consultants or supervisors to speak at faculty meetings...
16. State frequently and clearly, instruction, not janitorial work comes first in his school...
17. Prudently utilize the school's intercommunications system
18. Have his own mail box in his office
19. Endeavor to publicize outstanding academic school projects involving faculty members and students...
20. Institute a curriculum committee of lay people chaired by a classroom teacher...
21. Establish a student body elected curriculum committee
22. Encourage teachers to invite him to special units or interesting lessons being conducted in their classrooms...
23. Locate a "What's Being Done In Our School" bulletin form in a central position in the school...
24. Periodically meet with new teachers to offer aid or advice if requested...
25. Assign an experienced master teacher to work closely with freshmen teachers

Morphet, Johns and Reiler define the role of the principal as leadership of the highest order, controlled in part by the man's perception of what he is supposed to do. They state:

The role of the principal is determined largely by the role assigned to the school center and his perception of that role. However, his role is also determined to some extent by the perceptions of his role held by the local community (the central
office, his peers, the university he attends) and the staff of his school. (parenthesis mine) The trend in progressive school systems is to assign primary responsibility for the educational program in a school center to the principal and his staff. The principal (the others mentioned above) and the staff are expected to develop and administer the educational program at the school center within the broad framework of policy established by the people through the legislature and their board of education. (parenthesis mine) This is a major responsibility, and it requires leadership of the highest order....

Jacobs, in his *Leadership Behavior of the Secondary School Principal*, states:

1. The principal clearly defines his role and lets his followers know what is to be expected.
2. The principal exhibits foresight and accurately predicts outcomes.
3. The principal speaks out and acts as a representative of his group.
4. The principal maintains a closely knit organization and resolves inter-member conflicts.
5. The principal uses persuasion and argument convincingly.
6. The principal regards the comfort, well being, status, and contribution of his followers.

What specific competencies are needed by principals? Hollis Moore, in his review of the CPEA Studies concludes that:

...there is no general agreement on the differentiation between the role of the principal as contrasted with the superintendent. The conclusions reached on this point have importance for training programs certification, and other decisions for the profession. Some universities have altered their professional courses in such a way as to recognize wide differences between these two major divisions of administrative jobs. Other colleges appear to be eliminating distinctions that now exist between preparation for the two jobs.... Woodard...reviewed the professional litera-

---


ture and identified 203 competencies as essential for superintendents, principals or supervisors, 171 as essential for the principal..... 158

The title of this subsection addresses itself to the question of the role of the principal. At this juncture in our discussion, we should be concerned with a working definition of the concept of "role." According to Getzels, Lipham and Campbell, 159 role is the most important analytic unit of an institution. The term has been defined in at least a dozen different ways, but they seem to fall into three distinct categories:

1. Role in relation to personality development
2. Role in relation to society as a whole, synonymous with patterns of observed behavior
3. Role in relation to specific groups or institutions in a social system.

Definition number three is most useful for the purposes of this paper, to analyze administrative behavior. Roles thought of in relation to specific institutions in a social system have a number of characteristics. The six listed below may be helpful in the understanding of the high school principal in a model neighborhood setting:

1. Roles represent positions, offices, or statuses within an institution.
2. Roles are defined in terms of role expectations. A role has certain normative rights and duties....
3. Role expectations are institutional 'givens'...are ordinarily formulated before the actors who will serve as the role incumbents are known.
4. Roles are more or less flexible...lying along a continuum from 'required' to 'prohibited'.
5. Roles are complimentary. Roles are interdependent in that each role derives its meaning from other related roles in the institution.

158 Taken from Morphet, Johns, and Reller, Ibid., pp. 339-340.
6. Roles vary in scope. The range of expectations involved in a given role relationship may be defined with reference to two types of interaction: functionally diffuse and functionally specific.\footnote{160}

"Most administrative relationships, at least as defined by the institutional givens to which we have already referred, are set up in functionally specific terms."\footnote{161}

In the search of the literature pertaining to the criteria for the role of the high school principal, the researcher found many referrals to "leadership." How is this defined for this paper?

According to Halpin, high \underline{initiation of structure} and high \underline{consideration} characterize effective leadership.

Initiating structure refers to the leader's behavior in delineating the relationship between himself and members of the workgroup, and in endeavoring to establish well-defined patterns of organization, channels of communication, and methods of procedure. Consideration refers to behavior indicative of friendship, mutual trust, respect, and warmth in the relationship between the leader and members of his staff.\footnote{162}

Halpin argues that an objective and reliable method of measuring these two dimensions of a leader's behavior is the LBDG-Real. "It should be possible to train leaders in the skills that compose these dimensions, but the methods for accomplishing this...have yet to be developed."\footnote{163}

Initiating \underline{structure} and \underline{consideration} are only two of many dimensions of leadership behavior to be studied and provide for this research only a guideline to the understanding of the term. It is not

\footnote{160}Ibid., pp. 61-63.
\footnote{161}Ibid., p. 63.
\footnote{163}Ibid., p. 127.
the intent of this paper to explore exhaustively the term "leadership."

Some of the literature lists concepts of the high school principal as seen by:

1. A School Board member 164
   The school is a projection of the principal's personality. All administrative actions should promote a good learning environment. The principal is responsible for maintaining order, supervising instruction, and working with teachers.

2. A District Superintendent 165
   The principal must be a person who is willing to serve where he is placed and who also must be knowledgeable about the problems unique to that area. This is especially true of inner-city (Model Cities).

3. A High School Principal 166
   "...I am convinced that a school is essentially a reflection of the principal who heads it."

4. A Citizen-Professor 167
   "Without community control...schools (principals) will continue to...be subject to the policy decisions of those not acquainted with their unique problems." (parenthesis mine)

5. A Professor 168
   According to Fischer, school executives need not be high powered business executives; they need to be men of vision with sensitivity and the ability to see what they are doing and why. He feels that the educational problems facing large cities (model cities) must be faced by citizens and administrators who are courageous and competent.

---

Evans develops the concept of principal; he states, "The principal's primary functions were to discipline and supervise...." As school systems grew...organizational distance between the principal and the superintendent increased...thus emerged the (concept) of the principal as the educational leader...and the final authority governing all matters...of (his) building." According to Evans the above developments led to the concepts today held in the professional literature which "are dysfunctional with regard to the organizational realities existing in urban school districts today."169

Evans continues his assessment of the role of the urban high school principal and posits that the role has been reduced to a mere shadow of its former power, and states,

1. The building administrator's primary function...has been reduced to serving as a communicator link between the central administration and the teachers...that of organizational maintenance. 170
2. ...the principal's former relations are restricted (size, budget, unions, community) (parenthesis mine) 171
3. The absolute freedom to assign teachers to class and duties, to call meetings, to discipline and discuss the recalcitrant teacher is no longer the principal's. 172
4. ...he is now accountable to the teachers through the contract. 173

170 Ibid., p. 135.
171 Ibid., p. 143.
172 Ibid., p. 135.
173 Ibid.
Wilhelm states, "The days of the principal as a solo performer are about over. The influence of the principalship will remain substantial, but increasingly it will be exercised in a group setting rather than by unilateral decision and action."  

Bailey states, "It will come as no surprise to any high school principal when we report that he is the proverbial man-in-the-middle. He is responsible for the daily success of a very volatile institution, while above and around him are a welter of pressures rarely in concert. Today's principal knows that the old-style authoritarian, sitting back in his office making judgments, issuing ukases, and disciplining both students and staff is obsolete. Where such persons are still in office, and we saw two or three, the results are simply disastrous.... The striking characteristic of the life-style of a good principal in recent years is the staggering amount of time that he must now spend personally relating to enormous numbers of people and constituencies. No longer will the written memo or the notice on the bulletin board suffice. One principal, obviously competent and obviously very tired, put it succinctly, "I have an endless number of face-to-face, one-to-one relationships. They never stop. And I want to be warm, sincere and sharp for every one of them. There are only 24 hours in any day, and I am really pooped.'" The one kind of administrator or teacher that city youngsters can spot quickly and clearly is the fake. The principal must genuinely possess and repeatedly show his respect for students and staff as people. And he must have that special ability to truly convince his clients, whether staff, student or community, that no school can do everything but that his administration wants to make the best of its limited personnel and financial resources. As with other public executives, his prime task is conflict management and he knows it.  

Hunt, writing in the NASSP Bulletin, argues that secondary schools of tomorrow will be quietly changed institutions. The role of

---


the principal in this new institution will be substantially different from that today. Hunt lists five projections:

1. The secondary school in fifty years will, on the average, be much larger—in pupil population, in staff, in physical space.
2. The standards of secondary education will have been raised again and again, and such standards will be set at several levels.
3. The curriculum will be infinitely richer, and innovation will be the way of life for principals.....
4. The principal will have an augmented staff to assist in the work of educating the children in the secondary schools of tomorrow.
5. The secondary school principal will increasingly feel pressure which will challenge his personal and professional integrity.176

According to Hunt we must use the past to help us shape the future; we must use the wisdom of utopian thinking to help us scan the future. He believes that the search for a utopian society through the schools has not ended but perhaps just begun. The high school principal is the key to society unlocking the doors of the future. Hunt states,

...More than anyone else he determines the new horizons and lifts the sights of his associates. More than anyone else, he can pull together the threads of the planning, thinking, and evaluating of his associates and make whole cloth of them. His is the obligation to open doors, release the imagination of his teammates, and recognize special aptitudes, differences and special qualities while building bonds of unity and areas of common purpose, his leadership is strengthened.177

David Austin writes about the principalship of tomorrow. He develops five cogent exploratory statements:

1. The principalship of tomorrow's secondary schools in America will inevitably be a dynamic assignment, highly


177 Ibid., pp. 19-20.
The Role of the High School Principal—Summary

The role of the high school principal according to Button, Campbell, Cunningham and McPhee, and others, has moved from a clerk to a controller to a catalyst. The role has emerged from the handling of details, to teacher supervision, to the management of convergent groups including curriculum and instructional development. The above authors state that the high school principal of today must be an administrative scientist with rather full knowledge in the behavioral areas. The concepts of the numerous authors concerning criteria for the selection of a principal of a model-cities high school were very similar, the differences being semantic rather than conceptual.

According to AASA, in measuring the potential of the person under consideration for principal, the criteria must be situational and

---

personal. The process must be one of person-position matching. According to Campbell, Corbally and Ramseyer, the selection criteria contain what the principal expedites; i.e., he organizes, he communicates, he leads in curriculum and instruction, he "line officiates." Ban argues that the criteria for selection must consider the many positions that a principal fulfills at various times with his heterogeneous public. The role needs a person who has the capacity for selected behavior to meet selected situations. Morphet et al., and Jacobs emphasize that selection criteria must recognize the candidate's perception of the role as well as his perception of those who compete for the control of the role. Jacobs quotes Moore and Woodward in teasing out the competencies (criteria) needed for the principalship. The lists, as most lists in the literature, are rather descriptive and common. According to Getzels, Lipham, and Campbell, "role" is the most important analytic unit of an institution. The principal's role combines the most important person with the most important unit. The criteria for selection must be concerned with the competencies of that person in the analytic unit. A specific definition of the analytic unit in terms of behaviors: a relation to specific groups or institutions in a social system. Therefore, the criteria for the selection of the model-cities high school principal must be concerned with how this person will relate to the specific groups and/or institutions with which he must deal. General management was that the criteria must involve leadership. According to Halpin, leadership in one definition includes: "initiating structure and 'consideration'." These terms are different expressions for the same concepts. The selected authors have implied or used terms as: behavioral scientist,
catalytic agent, person-position matching, cognition or role, perception of role, and selected behaviors. These are all perceptions of controls to describe the crucial ingredient for that criteria used to select the model-cities high school principal.

The literature reviewed briefly the thoughts of a selected group concerning their ideas of criteria inclusion for a model-cities high school principal. They included:

1. A school board member---the principal must control through knowledge and perception
2. A district superintendent---the principal must agree to placement and must then control through knowledge
3. A high school principal---the school reflects the qualities of the principal---emphasize the selection process
4. A community person---the situation controls the principal, the contained groups control the situation; ask the groups to define the principal
5. A professor---the principal must be sensitive, able and predictive.

According to Evans, Wilhelm, Bailey, Hunt and Austin, the changing nature of the principalship involves the changing nature of the urban high school (model-cities). Therefore, the criteria for selection must recognize this change. Evans argues that the high school principal (regardless of the location of his school) is a shadow of his former self (powerless). Wilhelm, Bailey, Hunt and Austin almost counter argue that the question is not so much the loss of power as one of the recognition of new definitions of power, i.e., from unilateral to bilateral to multi-lateral. The high school principal is now "the man-in-the-middle." The criteria for the selection of this person must test for his ability to play the "new role."
Summary

Decision-making process involves a conscientious effort on the part of an individual, a group and/or groups to select an alternative position from a list of two or more positions. The selection process may or may not involve an ordered process, the selection process may be free from constraints (probably not), and finally, the selection process may be absolute (probably not). The decision-making process will usually involve a negotiation between individuals and/or groups. The involved individuals will be controlled by constraints of probability estimation and value assessment. As the individual manages his constraints in the group context, conflict emerges. This conflict may be intrapersonal or interpersonal. Here, we are concerned with the interpersonal conflict and the reduction thereof. The Delphi process is proposed as the technique to use for the reduction of the interpersonal conflict.

The Delphi process is a method of predicting the future through informed intuitive judgment. A panel of persons whose identity within the group is unknown, submit opinions concerning a given issue by answering a questionnaire. After adjustment to show changes of opinion, the questionnaire is recycled to the persons involved. Through the use of a series of such questionnaires, the divergent opinions of the various members of the panel are combined and moved into convergent thinking on a specific issue. The panel is composed of experts on the considered issue who have agreed to participate because of an interest in the issue under study. The technique was designed to replace the traditional round-table discussion, thus eliminating some of the weak-
nesses and disadvantages of that method. Conflict management is often produced by the need for decision-making among divergent persons and/or groups, especially in a confrontation process. The issue under study to test the thesis was: "the development of criteria for the selection of a model-cities high school principal."

The role of the high school principal has developed along a continuum from clerk to controller to catalyst. This development has called for a different set of criteria for the selection of a principal. An attempt was made to use a realistic setting, such as the redevelop­ment of that criteria to give the experts a "feel" for the process. Their selections were checked against the literature to ascertain if their "feel" for the selection was real in terms of today's stated needs. The answer was yes, the "feel" of the experts was tangential and corroborating with the expressions of the literature. The validity of the experts' expressions was thus increased in the attempt to answer the question of, can a selected group of experts develop criteria for the selection of a model-cities high school principal.
CHAPTER III
THE TECHNIQUE

The purpose of the study was to investigate the use of a consensus-building procedure, the Delphi technique. This technique was used as a device for establishing a set of criteria for the selection of a high school principal in a model neighborhood setting, by different groups of experts. This chapter is designed to describe the process used to answer the questions presented in the purposes of the study.

Three questions were asked:

1. Can the Delphi technique generate criteria for the selection of a secondary school principal in a model neighborhood setting?

2. Can the Delphi technique promote consensus among the participants in the process for the establishment of criteria to select a secondary school principal in a model neighborhood setting?

3. If consensus is found, what is the character of it and what are the dynamics of the participating groups as they move toward consensus?

The development of the instrument followed the typical Delphi procedure as outlined by Helmer, Dalkey, Martino, Pfeiffer and others. An explicit breakdown of this procedure is found in the next chapter, Chapter IV. The explanation will proceed in a linear fashion, describing only the most important factors of the questionnaire and the questionnaire procedure that contributed to the development of the total instru-
ment that was used for the investigation of the research question, "Can the Delphi technique be used effectively for the development of criteria for the selection of a model-cities principal?"

**Selection of Categories**

In the selection of secondary principals in model-cities neighborhoods, it is generally accepted that many persons and groups are influential in making the decision. Each discernable group maintains its own perceptions of the criteria for such an appointee. It has been observed further that these key groups exist because they are influential in the decision itself and/or the acceptability of it. In the setting for the present study these key groups were identified as: Central Office Personnel, Operating Unit Personnel (the principals), Model Cities Personnel (the community), and Professors of Education Administration Personnel. These key groups represent, in part, the society which controls public education. Some experts feel that because the institution of public education is so highly dependent on the greater society, pressure for change within the organization has to be accepted by the greater society irrespective of how the change is based. Educators have to have the consent of the voters to implement change. It is the voters rather than the professionals who have control of the schools. The success of the process of educational decision-making depends upon the acceptance by the actors of the internal and external groups which control the process. Therefore, the selection of the expert group was designed to reflect this characteristic of the educational process in the area of decision-making.
Central Office Personnel. These persons are generalists whose decision area is away from the actual operation of the schools. They usually have minimal contact with teachers, with students, and with community people. The group includes individuals in the superintendency and assistant superintendency. The group will be identified by the symbol, COP.

Operating Unit Personnel. As principals, these persons are generalists also, but their decision area is close to or at the level of general operation of a given school. They have maximum contact with teachers, with students, and with community people. The group will be identified by the symbol, OUP.

Model-Cities Personnel. These persons can be defined as community people who have taken active part in the formulation of community concerns and who spearhead that concern through the leadership thrust that formal organization can provide. They include elected and appointed officers, policy makers, and influentials in their community. They are the voice of their community. The group will be identified by the symbol, MCP.

Professors of Educational Administration Personnel. These persons are the scholars who have given study to such areas of concern as secondary school principalship, the inner city, and the type of personnel who should be involved. They, also, have provided consultant assistance to school systems in these areas. The group will be designated by the symbol, PEP.

Qualifications of Experts

The determination of whom among the available persons was the
most expert in each category was done through assessing the persons' qualifications against a standard of acceptance. The standard included:

1. Training in formal education
2. Training in other disciplines
3. Experience in education
4. Experience in a model-cities type community
5. Involvement in education
6. Involvement in a model-cities type community
7. Interest in the problem

Selection of Experts

The expert groups were selected by definition from the model-cities area. They were:

1. COP
   One superintendent and three assistant superintendents of the selected school system.

2. OUP
   One secondary school principal, one junior high school principal, and two elementary school principals who administered schools in the model cities area under study.

3. MCP
   One president of the model cities organization, one newspaper editor, one merchant, and one professional consultant, all of whom worked with the model cities program regularly.

4. PEP
   One professor whose field of expertise was the secondary school principalship; one professor whose field of expertise was the community and model cities; one professor whose field of expertise included decision-making and also the Delphi technique; one professor whose field of expertise was the inner-city student and curriculum development.
The development of Questionnaire I began with the selection of the expert groups. As stated above, groups of superintendents, principals, community people, and professors of education administration were selected. From this group sixteen, four in each subsection, were asked to follow through on the Delphi process. First they were contacted by letter and informed of the process. Then a personal interview was requested. In the personal interview a detailed explanation was made of:

1. the definition of the research project about to be undertaken,
2. the type and design of the instrument that would be needed to follow through the research project, and
3. the extent of their commitment to the project if the research was to have any meaning.

It was necessary to be explicit, because the Delphi technique is hinged upon the recycling of questionnaires to the same people. If, during the process, some of the people decided to withdraw from the process, then the entire Delphi technique becomes in question. Therefore, it was necessary that these people not only agreed to participate, but agreed, also, to continue the participation throughout the extent of the project.

The experts agreed quite readily, and four (4) persons from each category were selected, a total of sixteen (16). A calendar was developed for contact and control in sending the instruments to the experts, for follow-through to the experts, for answering questions from the experts, and finally, for receiving information from the experts.

Questionnaire I

The process formally began with an opening letter. (Appendix A.)
Attached to the letter was Questionnaire I, an instrument designed to initiate the experts into the process of developing the primary statements. Each expert was asked to complete the primary statements in his own words, generated from his own mind, and return the questionnaire within a specified period of time. While the experts were considering the questionnaire constant contact was kept with them. Assistance was offered to facilitate the return of the instrument, without interfering to the extent that they would leave the study. A 100% return was received on Round I. Sixteen (16) questionnaires were sent (Appendix C); sixteen (16) were returned. The questionnaires were returned within a period of approximately four (4) days from the receivable date of the questionnaires by the experts. In terms of the mailing of the questionnaires, this meant that the total time for the questionnaire to cycle to the experts and back was approximately one week. While the experts had the questionnaires, they were able to phone the researcher for answers to any questions that might confront them concerning their participation in the process. At the end of the seven-day (7) cycle, a letter of acknowledgment (Appendix D) was sent to each of the sixteen (16) Delphi participants also, reminding them gently that Questionnaire II soon would follow. After the receipt of the questionnaires, tabulating them became of prime importance. The first step was to pull together the individual statements from the individual documents. These statements (137 total) were listed and coded for similarity in content and likeness in thought. From this secondary statement (Appendix F) was developed and the coding and the tabs that followed therefrom were used to move into the prime statement. The prime statement became Questionnaire II (Appendix G).
Questionnaire II was sent to the Delphi respondents on Round II.

**Questionnaire II**

Questionnaire II followed through the same procedural manner as Questionnaire I. It was sent to the respondents with an accompanying letter asking them to continue their participation and to fill out Questionnaire II and return it as rapidly as possible. Sixteen (16) questionnaires were returned (a 100% return). The questionnaires were returned in approximately the same time, one week, as Questionnaire I. One of the participants decided that the process was not to his understanding, and therefore dropped from the experiment.* The fifteen (15) remaining questionnaire forms were tabulated and from this tabulation Questionnaire III was created. On Questionnaire II there were comments on many of the item responses. The comments were pulled together and listed (Appendix H).

After the formation of Questionnaire II, all the participants (15 now) were sent a letter of acknowledgement thanking them for their participation and stating encouragement with the process to date. The tabulation of the data in Questionnaire II, as aforestated, formed Questionnaire III (Appendix J).

**Questionnaire III**

Questionnaire III was processed in exactly the same manner as Questionnaires I and II. To reiterate, a letter with the questionnaire was sent to fifteen (15) respondents. These respondents received the

*The professor's withdrawal from the process was stimulated by his misunderstanding of how the project was being facilitated. Herein lies a weakness of the Delphi process.
questionnaire and began to work. During the interim period, contact was maintained with the participants, but here a change began to occur. It was noted some of the respondents began to tire of the process and were tardy in working upon the questionnaire and returning it. It took approximately two (2) weeks for Questionnaire III to make the round trip to the experts and back. In the interim, telephone calls and personal visitations were used to encourage the respondents to complete the task. Of course, in their defense, they were busy people who had given quite a bit already to the development of this type of research.

With the receipt of Questionnaire III letters were written acknowledging their receipt. Then these questionnaires were tabulated. On Questionnaire III there were quite a few comments which also were tabulated (Appendix K). Questionnaire III, of course, formed the basis for Questionnaire IV (Appendix J).

**Questionnaire IV**

Questionnaire IV was identical to Questionnaires II and III in terms of the process used to contact the participants. However, each Delphi questionnaire became more involved than the previous one. The document was more complicated, and it took more time to fill out because the respondent not only was required to read carefully the item response once again, but also to read the modes, the central tendency of the group, and his previous voting. Then he had to ask himself if he wished to change his voting along the way. This made it cumbersome and quite involved for the respondent. In addition, by the time the respondent received Questionnaire IV he already had been contacted four rounds within a period of
approximately a month. At this point he may have begun to ask himself, and there was evidence of this in talking with the experts, what is all of this for, if this was not a bit too much to ask a person to do, especially in terms of the busy schedule these people maintained. However, Questionnaire IV finally was returned. The process of tabulating the results was continued. The comments (Appendix N) were extracted and tabulated. No more Delphi-type questionnaires were sent to the respondents. However, one final questionnaire, Questionnaire V, was sent to each of the respondents.

Questionnaire V

Questionnaire V was different than Questionnaires II, III, and IV. Questionnaire V was a termination questionnaire involving a one-page letter asking the respondents to make some open-end comments on what they thought of the acceptability, the practicality, and the reliability of Delphi as a process for the pulling of opinion and/or the prediction of futures. Eleven (11) out of a possible fifteen (15) of these were returned. It took about two weeks for their return, even though the questionnaire was quite simple. At this point it was evident the respondents were tired of the process; however, overall, it can be concluded that the participation was abundant and excellent. In the next chapter, the data found in the questionnaires will be analyzed. The following definitions will be used in the analysis.

Definitions

1. Opinion: a more or less clearly simulated idea or judgment held to be true.

2. Agreement: consensus as to the approach to be taken—a reconciling of differences.
3. Consensus: general opinion and/or general agreement.

4. Consensus point and/or consensus level: the median value or above; i.e., over fifty per cent of the responses. For four possible votes (responses) three or more votes will be necessary for an item response to reach consensus level; for fifteen possible votes (responses) eight or more votes will be required for an item response to reach consensus level.

5. Expert: reputation is the basis on which experts are selected for consultation. This process of selection, which in itself requires a certain amount of expertise, breaks down logically into two parts: (1) the determination of which categories of expertise are needed, and (2) the determination of who among the available persons is most expert in each such category.

6. IR (Item Response): the questionnaire items from which the questionnaire form was constructed; these number from one through twenty.

7. PC (Priority Channel): the priority orders—first, second, third or fourth established by the experts—on individual items. PC uses an ordinal scale.

8. EV (Expert Votes): the selected group which participated in the process.

9. QII (Questionnaire II): the second instrument sent to the experts, but the first formal instrument in the Delphi process.

10. QIII (Questionnaire III): the third instrument sent to the experts, but the second formal instrument in the Delphi process.

11. QIV (Questionnaire IV): the fourth instrument sent to the experts, but the third formal instrument in the Delphi process.

12. Round II: administration of Questionnaire II.

13. Round III: administration of Questionnaire III.

14. Round IV: administration of Questionnaire IV.

15. EVR (Expert Votes Received): the number of tallies for a given item response and/or priority channel.
16. TVP (Total Votes Possible): the sum of the number of participants voting on that item response. The total was fifteen for this Delphi.

17. PVR (Percentage of Votes Received): the actual votes divided by the possible votes.

18. PMR (Priority Modal Ranking): the identification of the expert preference designated as Priority I, II, III or IV. The PMR is based on an ordinal scale.

19. Prime Statement: the result of classifying, codifying, modifying, and telescoping the original responses of the experts on Questionnaire I into a new set of representative statements. The prime statements became the base item responses for the Delphi instrument as used in Rounds II, III, and IV.

20. CIR (Consensus Item Response): the item response of a given priority channel which reached consensus (more than 50%) in that channel for a stated questionnaire.

21. ACEVR (Average of Consensus Expert Votes Received): the EVR/TVP for a given PC.
CHAPTER IV
ANALYSIS OF THE DATA

The purpose of this chapter is to analyze the data in order to answer the questions presented in the purposes of the study.

Three questions were asked:

1. Can the Delphi technique generate criteria for the selection of a secondary school principal in a model neighborhood setting?

2. Can the Delphi technique promote consensus from the participants in the process for the establishment of criteria to select a secondary school principal in a model neighborhood setting?

3. If consensus is found, what is the character of it and what are the dynamics of the participating groups as they move toward consensus?

It is posited that the analysis will determine if such procedure can be used to process a problem of this nature.

Generation of Criteria

The initial question to be answered by the present research is that related to whether or not the Delphi technique has the capability of generating criteria for the selection of model cities neighborhood secondary school principals. This perhaps is the most crucial question, for upon this question the other two depend. The researcher set out to determine if a group of experts is indeed able to develop a set of statements which could serve as criteria.
The reason for this concern was that the entire Delphi process, as used in this study, depends upon the participants cooperatively building statements of primary concern to their value system, and then using these statements as a base for developing consensus.

The Selected Criteria

Fifteen persons participated as individuals in four discrete categories. Each expert responded to Questionnaire I (see Appendix B), by completing and returning the questionnaire. They listed from seven to fourteen items each for a total of one hundred thirty-seven items (see Appendix C). The concerns of these experts were classified by the researcher into four categories defined as Selected Criteria Identity (see Appendix P):

1. community relations competencies
2. student relations competencies
3. staff relations competencies
4. personal competencies (the quality of the man)

These experts generated a large number of criterion statements which they thought were crucial to the task of selecting a high school principal in a model neighborhood setting. Examples of these statements are listed below as original quotations. These items have been listed to assist the reader in perceiving what the experts thought was crucial to the task. These have been listed, also, to help the reader trace a thread of continuity from the original statements to the final twenty criterion statements used in the succeeding Delphi instruments.

Examples of Original Criterion Statements

1. Community relations competencies
a. COP---(1) "have the ability to communicate with the community." (2) "use the many talents available in the community to assist with the problems of education." (3) "the principal should assume his role in the community and civic affairs."

b. OUP---(1) be willing to involve community organizations. (2) "have the ability to promote good public relations which in turn enhance the image of the school in the community." (3) "establish and maintain good rapport with the community, working in a 'team' approach, utilizing all resources available."

c. MCP---(1) "recognize that the school is a community institution, including residents, parents, students, teachers, and administrators." (2) "be able to communicate with people in the community positively." (3) "one who convinces me in interview that he sees his responsibilities as an administrator being involved directly with community in which school is located beyond the basic school related programs."

d. PEP---(1) "establish and nourish communication channels between school and community." (2) "extend himself to achieve community understanding of purposes and needs of the school." (3) "an active interest in the social problems (including political and economic) of the people of the community and an awareness of how administrators elsewhere are tackling such problems."

2. Student relations competencies

a. COP---(1) "be fully committed to the belief that each pupil has value as a human being and is capable of acquiring knowledge, refining skills, and developing wholesome attitudes to the fullest extent possible."
(2) "have the ability to communicate with the student body." (3) understand the needs of those students who bring less to the school than the average."

b. OUP—-(1) "be willing to involve pupils in all aspects of the school." (2) "possess a sensitivity to the needs, strengths, and weaknesses and backgrounds of the specific students in the school." (3) "must 'know' the people and pupils in the neighborhood.

c. MCP---(1) "believe that a learner must participate in decisions related to his own education." (2) "man with children of his own." (3) "have his school be the citadel of the community."

d. PEP---(1) "build and foster a climate conducive to the teaching-learning enterprise." (2) "have developed a compassion for young people and their problems which motivates him to go beyond the call of duty in their interests." (3) "enable the consideration of student-perceived problems as a factor in decision-making about matters of curriculum change, evaluative practices, teacher behavior, and school policy."

3. Staff relations competencies

a. COP---(1) "be aware of the fact that teachers are not experiencing satisfactions in rendering educational services for disadvantaged children." (2) "have the ability to communicate with his staff." (3) "build a good understanding of purposes of education with the faculty."

b. OUP---(1) "have the desire and ability to develop and encourage a program of inservice education for all staff members." (2) "see himself as a supportive element behind the teaching staff rather than as the school's most important asset." (3) "must be a master
of human relations in his dealings with his staff..."

**c. MCP---** (1) "deal with teachers on the basis of factual information rather than hide behind a bland professionalism." (2) "require that his teaching staff understand their community and its needs." (3) "strong administrative qualities in selection of teacher and supportive staff with kind of muscle required to make changes before inadequate teachers kill learning incentive of pupils."

**d. PEP---** (1) "facilitate the development of instructional differences in teaching staff." (2) "understand the personnel problems of professionals with whom he must work in accommodating to unusual demands for professional services." (3) "enable teachers to obtain constructive feedback from students, peers, and supervisors regarding the extent to which the teachers' classroom intentions are actually being actualized; i.e., the extent to which success as self-defined is being realized."

4. Personal competencies

**a. COP---** (1) "serve as a model in promoting good human relations." (2) "be a dedicated member of a system wide administrative team." (3) "the principal should possess the qualities of a diplomat."

**b. OUP---** (1) "have a thorough knowledge of human relations." (2) "have the basic ability to work with people." (3) "exhibit a dedication to that which is educationally sound, including the strength to 'speak up' if his opinion differs from that of community leaders or higher authority."

**c. MCP---** (1) "have mature judgment--meaning the ability to make a reasoned assessment of a situation of controversy in order not to over-act to a crisis."
The fifteen experts generated one hundred thirty-seven items. Appendix C lists those items. Forty-eight of these response items have been cited above, to illustrate not only the generation of items, but the interest areas of the experts. The researcher telescoped these initial items into twenty criterion statements. For an example of telescoping see Appendix E. The twenty criterion statements became the heart of the formal Delphi instrument used in Questionnaires, II, III, and IV (see Appendices G, J, M). The entire group of fifteen experts completed all three rounds.

The group generated the criteria and substantiated their commitment by fulfilling the several additional tasks of the process. It may be concluded that criteria can be generated by the Delphi process.

**Promotion of Consensus**

The purpose of this section is to discover if the groups of selected experts who responded to the series of Delphi questionnaires actually did move toward consensus; i.e., reach general agreement on the item responses. In order to answer the implied question, it is necessary to ascertain the nature and extent of consensus achieved in
total group reaction to the item responses in Questionnaire II (QII),
compare this pattern of responses to those recorded in Questionnaire
III (QIII) and then compare this pattern of responses to those
recorded in Questionnaire IV (QIV), the final statement. Such a
gross comparison should indicate whether the administration of the
Delphi instruments (Questionnaires II, III, and IV) did, indeed,
promote consensus within the group of fifteen experts.

To facilitate the investigation of consensus promotion, the
researcher referred to Tables 1 and 2. Table one was the general
table which showed the votes of the expert groups by item response
across questionnaires; Table two gathered the CIRs by PCs across
questionnaires; and Table two also gathered the CIRs by question-
naires across PCs. The researcher enumerated the IRs that reached
CIRs and QII, QIII, and QIV, and then totaled those CIRs. The con-
cern area of the CIRs on each questionnaire was identified. Follow-
ing the identification of the concern areas the researcher compared
the changes of the CIRs among the questionnaires. In Table 2 the
researcher compared the behavior of those item responses that reached
consensus by priority channels and thus identified those item responses
that not only reached consensus but also changed consensus levels.

Movement Toward Consensus

Inspection of Tables 1 and 2 revealed that QII included six
consensus item responses (CIRs), QIII included thirteen consensus item
responses (CIRs), and QIV included sixteen consensus item responses.
The total CIRs across all questionnaires was thirty-five. The thirty-
## TABLE 1

**COMPARISON OF CONSENSUS BY ITEM RESPONSES AMONG QUESTIONNAIRES II, III, & IV**

<table>
<thead>
<tr>
<th>Item Response</th>
<th>QII</th>
<th>Prior. Rank</th>
<th>QIII</th>
<th>Prior. Rank</th>
<th>QIV</th>
<th>Prior. Rank</th>
<th>CIR</th>
<th>TVP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>1.</td>
<td>11*</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td></td>
<td>13*</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td></td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td></td>
<td>10*</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>12*</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
<td>15*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td></td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>2</td>
<td>8*</td>
<td>1</td>
<td>4</td>
<td></td>
<td>2</td>
<td>10*</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>3</td>
<td>9*</td>
<td>2</td>
<td>1</td>
<td></td>
<td>2</td>
<td>11*</td>
<td>2</td>
</tr>
<tr>
<td>8.</td>
<td>8*</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td></td>
<td>10*</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td></td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10.</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td>3</td>
<td>10*</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td></td>
<td>10*</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>12.</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td></td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>13.</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td>11*</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>14.</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td></td>
<td>5</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>15.</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td></td>
<td>2</td>
<td>2</td>
<td>9*</td>
</tr>
<tr>
<td>16.</td>
<td>0</td>
<td>6</td>
<td>8*</td>
<td>1</td>
<td></td>
<td>0</td>
<td>6</td>
<td>9*</td>
</tr>
<tr>
<td>17.</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td></td>
<td>1</td>
<td>3</td>
<td>9*</td>
</tr>
<tr>
<td>18.</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td></td>
<td>6</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>19.</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td></td>
<td>5</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>20.</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td></td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

**TOTALS:**

<table>
<thead>
<tr>
<th></th>
<th>EVR</th>
<th>CIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVR</td>
<td>86</td>
<td>3</td>
</tr>
<tr>
<td>87</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>82</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Consensus equals 8 (more than 50%).
five CIRs were divided among the three questionnaires with the least number in QII and the greatest number in QIV. In QIII there was approximately 117% increase in CIRs over QII and in QIV there was approximately 23% increase in CIRs over QIII. The increase in the number and percentage of CIRs from questionnaire to questionnaire indicates a promotion of consensus.

Questionnaire IV, PC I, contained six CIRs. These were CIR numbers one, three, four, eight, eleven, and thirteen. No additions to the CIRs were found on this round under QIV. In PC II of this questionnaire, four CIRs were voted. These were consensus item response numbers six, seven, ten, and fourteen. The newest addition was CIR number fourteen which states: "Develop a teaching-learning climate in the community that has academic soundness and community relevance."

Table two shows that consensus promotion did, indeed, take place for the analysis indicates that: seventeen per cent of the selected CIRs were voted in QII, 37% of the selected CIRs were voted in QIII, and 46% of the selected CIRs were voted in QIV. Again, the data indicated movement toward an increasing number of consensus item responses each time the Delphi questionnaire was presented to the experts. Table two showed also that by PCs, the amount of consensus increased on each successive Delphi round. The exception was PC IV (the least important category). Again, Table two showed that PC I carried the heaviest vote for consensus on all questionnaire rounds (15); that PC II did not carry the second heaviest vote (9) on all questionnaire rounds, but Priority Channel III carried the second
highest vote (10), on all questionnaire rounds.

TABLE 2

NUMBER AND PERCENTAGE OF CONSENSUS ITEM RESPONSES
BY PRIORITY CHANNEL ACROSS QUESTIONNAIRES

<table>
<thead>
<tr>
<th></th>
<th>QII</th>
<th></th>
<th>QIII</th>
<th></th>
<th>QIV</th>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q%</td>
<td>CIR</td>
<td>PC%</td>
<td>Q%</td>
<td>CIR</td>
<td>PC%</td>
<td>Q%</td>
</tr>
<tr>
<td>I</td>
<td>50</td>
<td>3</td>
<td>20</td>
<td>46</td>
<td>6</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>II</td>
<td>33</td>
<td>2</td>
<td>22</td>
<td>23</td>
<td>3</td>
<td>33</td>
<td>25</td>
</tr>
<tr>
<td>III</td>
<td>17</td>
<td>1</td>
<td>10</td>
<td>23</td>
<td>3</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>IV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
<td>6</td>
<td>17</td>
<td>100</td>
<td>13</td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

The exception on round two was a tie of votes on PC II and PC III. On Round IV the vote on PC III exceeded the vote on PC II and equalled the vote on PC I. On PC IV no vote was cast on QII and on QIV. On QIII, PC IV did pull one vote.

The data gave evidence of some promotion of consensus across priority channels: PC I on QII carried three items, PC I on QIII carried six items; PC I on QIV carried six items. The same type of progression sustained for PC II and PC III. Priority Channel IV showed very little evidence of consensus promotion.

The movement of votes on a given item response toward convergence of thinking among the experts can be a measure of movement toward consensus. On Round II, this is precisely what happened. On Round III, the CIRs of Round II retained their vote and held consensus level. On Round II also, additional IRs reached consensus level. The new acquisition of votes at Round III by IRs which enabled them to become CIRs is indeed evidence of the promotion of consensus. The evidence of voting
on Round IV is even stronger than the evidence found on Rounds II and III. Additional IRs received sufficient votes to reach consensus level. There was evidence of voting toward certain IRs (convergence). This voting became heavy enough to move the IRs to CIRs. This movement, again, indicates the promotion of consensus. These findings indicate that consensus can be promoted, and further, that consensus was promoted.

The Character of Consensus Level  
And the Dynamics of the Participating Groups

How Did the Groups Move Toward Consensus?  
How Did the Groups Change?

The purpose of this sector of the analysis is to examine the consensus level to discover if that consensus level could characterize subgroups and total groups. We posited that the consensus level of any group, total or sub, could be identified; and also, that such identification could be helpful in analyzing the process of consensus building in the determination of criteria for the selection of a high school principal of a model cities community.

The examination of the data involved two tables for each of the four expert subgroups. The tables used were named COP, Tables 3 and 4; OUP, Tables 5 and 6; MCP, Tables 7 and 8; and PEP, Tables 9 and 10. The first table of the couplet was a summary table and the second was a primary analysis table. For each subgroup (COP, OUP, MCP, and PEP) all item responses (IRs) were analyzed to discover those which reached consensus, subgroup total; those which reached consensus, subgroup matching; those which reached consensus subgroup non-matching; those which changed consensus and the direction of those that changed. The analysis compared the pattern of each group to the total group. All analysis involved
## TABLE 3

### COP

**ITEM-RESPONSE BY EXPERT GROUP PRIORITY VOTES ACROSS QUESTIONNAIRES II, III, & IV**

<table>
<thead>
<tr>
<th>Item Response</th>
<th>COP Expert #1</th>
<th>COP Expert #2</th>
<th>COP Expert #3</th>
<th>COP Expert #4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td>II</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Questionnaires II, III, and IV (QII, QIII, and QIV). In the summary section the analysis used Tables 11, 12, 13, and 14 to facilitate the examination of how the behavior of the four sections compared among groups and to total group.

Presentation of the Data

The COP Group

The summary table for the group (Table 3) presents the results of IR voting by the individual expert across questionnaires. An inspection of the table identifies voting levels (priority choices) and voting patterns (changes). Summary Table 3 was used to produce Summary Table 4. Table 4 for the COP Subgroup will be repeated for the other subgroups (OUP, MCP, and PEP). These tables reflect the Item Responses by Expert Group priority votes across questionnaires that have been reduced to consensus item responses (CIRs) by priority modal rankings (PMRs) across questionnaires.

To arrive at the level of subgroup CIR, the researcher counted the individual expert votes at each item response level and determined if three or more experts voted the IR at a given priority level. On IR number one, for example, QII COP Expert #1 voted one, COP Expert #2 voted one, COP Expert #3 voted two, and COP Expert #4 voted two. By definition, then, IR number one did not reach consensus level (more than 50%, i.e., 3 or 4). Therefore, on Table 4 in the cell under QII at IR number one, there is no recording of COP consensus. On IR number three for QIII we count from Table 3 that COP Expert #1 voted one, COP Expert #2 voted one, COP Expert #3 voted one, and COP Expert #4 voted two. This IR received three of four votes at the subgroup level and reached consensus (by
definition) at the priority level of one. IR number six received sufficient expert votes at two to receive a CIR rating of two for the subgroup. This process was continued throughout this sector and Table 4 was built.

An inspection of Table 4 for the COP Group reveals that seven CIRs were found in QII, thirteen CIRs were found in QIII, and thirteen CIRs were found in QIV. The group showed a CIR increase of six, between QII and QIII for approximately 86% increase. No increase in CIRs between QIII and QIV for this COP Group was evident. Total CIRs for the COP Group was thirty-three.

The COP Subgroup consensus compared to the total consensus across the questionnaires showed variation among the questionnaires. In QII, there were four IRs carrying COP Subgroup consensus and total group consensus. In the same questionnaire, there were two IRs carrying total group consensus and not COP Subgroup consensus; yet, there were three IRs carrying COP Subgroup consensus without carrying any total group consensus. In QIII, eleven IRs carried COP Subgroup consensus and total group consensus simultaneously. There were two IRs in QIII which carried total group consensus and no COP Subgroup consensus; in the same questionnaire, QIII, there were two IRs which carried COP Subgroup consensus but no total group consensus. In QIV, eleven IRs carried COP Subgroup consensus and total group consensus. Five IRs in QIV carried total group consensus and no COP Subgroup consensus. In the same questionnaire, two IRs carried COP Subgroup consensus and no total group consensus.
<table>
<thead>
<tr>
<th>Item Response</th>
<th>Questionnaires</th>
<th>Total</th>
<th>CIR</th>
<th>NC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>*</td>
<td>I*</td>
<td>I*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I*</td>
<td>I*</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>IV*</td>
<td>IV</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>II*</td>
<td>II*</td>
<td>II*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>II*</td>
<td>II*</td>
<td>II*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>II*</td>
<td>II*</td>
<td>II*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>III</td>
<td>III*</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>I</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>III*</td>
<td>III*</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>III*</td>
<td>III*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>III</td>
<td>III*</td>
<td>III*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>III</td>
<td>III</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CIR  7 13 13 33 6 6+

*Denotes consensus item response (CIR) total group.
I, II, III, IV: Denotes consensus item response (CIR) subgroup, and also the priority modal ranking (PMR) of the IR by the subgroup.

It was important to ascertain how the COP Subgroup moved toward total group consensus. Changes in consensus patterns illustrated this.

In Table 4 Column NC indicates the number of changes made by the subgroups (COP, OUP, MCP, PEP). A change was defined as:

a. movement from no consensus to consensus
b. movement from one level of consensus to another level of consensus (change of priority ranking)
c. movement from consensus to no consensus
Column DC indicated the direction of change:

a. positive (+) toward the total group consensus.
b. negative (-) away from the total group consensus.

The COP Subgroup generated thirty-three consensus item responses (CIRs) of a possible sixty chances (twenty IRs times three questionnaires). Six of these IRs moved from no COP Subgroup consensus on Round II to consensus on Round III (IR numbers one, three, five, twelve, fifteen, and sixteen) and held on Round IV. No evidence was found of movement from one level of consensus to another or movement from consensus to no consensus. The six items that changed moved in a positive direction, i.e., toward the total group consensus.

The OUP Group

The summary table for this group is Table 5. It shows the same values for the OUP Group as Table 3 shows for the COP Group. This table was used to develop Table 6 from which the OUP Group analysis was developed.

An inspection of Table 6 for the OUP Group reveals that eight CIRs were found in QII, seven CIRs were found in QIII, and eight CIRs were found in QIV for a total of twenty-three CIRs. This group showed a decrease in CIRs from eight to seven, between QII and QIII, and then an increase from seven back to eight between QIII and QIV. The percentage change between QIII and QIV was approximately 14 per cent. Total CIRs for the OUP Group was twenty-three.
### TABLE 5

OUP

ITEM-RESPONSE BY EXPERT GROUP PRIORITY VOTES ACROSS QUESTIONNAIRES II, III, & IV

<table>
<thead>
<tr>
<th>Item Response</th>
<th>OUP Expert #1</th>
<th>OUP Expert #2</th>
<th>OUP Expert #3</th>
<th>OUP Expert #4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td>II</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
TABLE 6

OUP

CIR BY PMR ACROSS QUESTIONNAIRE II, III, AND IV

<table>
<thead>
<tr>
<th>Item Response</th>
<th>Questionnaires</th>
<th>Total CIR</th>
<th>NC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>II</td>
<td></td>
<td>*</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>*</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>*</td>
<td>II*</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>*</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>II</td>
<td>II*</td>
<td>II*</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>*</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>IV</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>I</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>*</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>*</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>III*</td>
<td>III*</td>
<td>III*</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>I</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>CIR</td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>23</td>
</tr>
</tbody>
</table>

*: Denotes consensus item response (CIR) total group.
I, II, III, IV: Denotes consensus item response (CIR) subgroup and also the priority modal ranking (PMR) of the IRs by the subgroup.

The OUP Subgroup consensus compared to the total group consensus across questionnaires showed variation among the questionnaires. In QII, there were three IRs carrying OUP Subgroup consensus and total group consensus; three IRs carrying total group consensus and no OUP Subgroup consensus; five IRs carrying OUP Subgroup consensus and no total group consensus. In QIII, there were five IRs carrying OUP Subgroup consensus and total group consensus; eight IRs carrying total group consensus and
no subgroup consensus; two IRs carrying OUP Subgroup consensus and no total group consensus. In QIV, there were seven IRs carrying OUP Subgroup consensus and total group consensus; nine IRs carrying total group consensus and no subgroup consensus; and one IR carrying OUP Subgroup consensus and no total group consensus.

It was important to ascertain how the OUP Subgroup moved toward total group consensus. Changes in the consensus patterns illustrated this. In Table 6, column NC indicates the number of changes made by the subgroups (COP, OUP, MCP, PEP). A change was defined as in section COP.

The OUP Subgroup generated twenty-three consensus item responses (CIRs) of a possible sixty chances (twenty IRs times three Delphi rounds). Six IR moves were recorded (numbers three, seven, eleven, twelve, and twenty (2 moves). One of these IRs moved from no OUP Subgroup consensus on Round II to subgroup consensus on Round III (IR number twenty). No IRs moved from one level of consensus to another level of consensus (change of priority ranking). Two IRs moved from consensus on Round II to no consensus on Round III. The IRs that lost consensus on Round III did not regain that consensus on Round IV. One IR (number twenty) gained consensus on Round III and lost consensus on Round IV. Two IRs gained consensus level subgroup on Round IV only (numbers seven and eleven). The six IRs that changed moved in both directions: three made positive moves and three made negative moves.

The MCP Group

The summary table for this group is Table 7. This table was identical in purpose and use as other summary tables in the COP and OUP groups.
TABLE 7

MCP

ITEM-RESPONSE BY EXPERT GROUP PRIORITY VOTES ACROSS QUESTIONNAIRES II, III, & IV

<table>
<thead>
<tr>
<th>Item Response</th>
<th>MCP Expert #1</th>
<th>MCP Expert #2</th>
<th>MCP Expert #3</th>
<th>MCP Expert #4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td>II</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
An inspection of Table 8 for the MCP Group reveals that three CIRs were found in QII, fourteen CIRs were found in QIII, and fifteen CIRs were found in QIV, a total of thirty-four CIRs. The group showed a CIR increase of eleven, between QII and QIII for approximately a 370% increase. One increase in CIRs between QIII and QIV for this MCP Group was recorded for a 7% increase. Total CIRs for the MCP Group was thirty-two.

**TABLE 8**

**MCP**

CIR BY PMR ACROSS QUESTIONNAIRES II, III, AND IV

<table>
<thead>
<tr>
<th>Item Response</th>
<th>Questionnaires</th>
<th>Total CIR</th>
<th>NC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>I*</td>
<td>III*</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>I</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>*</td>
<td>I*</td>
<td>I*</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>*</td>
<td>II*</td>
<td>II*</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>*</td>
<td>II*</td>
<td>II*</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>*</td>
<td>I*</td>
<td>I*</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>I*</td>
<td>III*</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>II*</td>
<td>II*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>I*</td>
<td>I*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>I*</td>
<td>I*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>I*</td>
<td>I*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>III</td>
<td>*</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>III*</td>
<td>III*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>*</td>
<td>II*</td>
<td>*</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>III*</td>
<td>III*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>III</td>
<td>III*</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

CIR 3 14 15 32 16 13+ 3-

*: Denotes consensus item response (CIR) total group.
I, II, III, IV: Denotes consensus item response (CIR) subgroup and also the priority modal ranking (PMR) of the IRs by subgroup.
The MCP Subgroup consensus compared to the total group consensus across questionnaires showed considerable variation among the questionnaires. In QII there was one IR carrying MCP Subgroup consensus and total group consensus; five IRs carrying total group consensus and no MCP Subgroup consensus; two IRs carrying MCP Subgroup consensus and no total group consensus. In QIII, there were twelve IRs carrying MCP Subgroup consensus and total group consensus; one IR carrying total group consensus and not carrying MCP Subgroup consensus; and one IR carrying MCP Subgroup consensus and no total group consensus. In QIV, there were fifteen IRs carrying MCP Subgroup consensus and total group consensus; two IRs carrying total and no sub; and no IRs carrying sub and no total.

The determination of how the MCP Subgroup moved toward total group consensus followed the same pattern as found above.

The MCP Subgroup generated thirty-two consensus item responses (CIRs) of a possible sixty chances. Sixteen IR moves were recorded (numbers one, three, five, eighteen, and nineteen did not move, and number sixteen recorded two moves). Fourteen IRs moved from no MCP subgroup consensus on Round II to subgroup consensus on Round III. These were IR numbers two, four, six, seven, eight, nine, ten, eleven, twelve, thirteen, fifteen, sixteen, seventeen, and twenty. No IRs moved from consensus at one level to consensus at another level, i.e., change of priority ranking. One IR moved from consensus on Round II to no consensus on Round III or Round IV (number fourteen). One IR moved from no consensus on Round II to consensus on Round III and then back to no consensus on Round IV (number sixteen).

Of the sixteen IRs which moved in both directions, thirteen moved positively and three moved negatively.
TABLE 9

PEP

ITEM-RESPONSE BY EXPERT GROUP PRIORITY VOTES ACROSS QUESTIONNAIRES II, III, & IV

<table>
<thead>
<tr>
<th>Item Response</th>
<th>PEP Expert #1</th>
<th>PEP Expert #2</th>
<th>PEP Expert #3</th>
<th>PEP Expert #4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td>II</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

125
The PEP Group

The summary table for this group is Table 9. The composition and analysis of the table will flow in the same pattern as outlined above (see COP Group). This expert group was composed of three rather than four members as observed earlier.

An inspection of Table 10 for the PEP Group reveals that fifteen CIRs were found in QII, eighteen CIRs were found in QIII, nineteen CIRs were found in QIV; a total of fifty-two CIRs. The group showed a CIR increase of three, between QII and QIII for a 20% increase. Only one increase in CIRs between QIII and QIV for this PEP Group was evident; the percentage increase was approximately six. The total CIRs for the PEP Group was nineteen.

The PEP Subgroup consensus compared to the total group consensus across questionnaires showed variation among the questionnaires. In QII there were five IRs carrying PEP Subgroup consensus and total group consensus; one IR carried total group and no PEP Subgroup consensus; and ten IRs carried PEP Subgroup consensus and no total group consensus. In QIII, there were ten IRs carrying PEP Subgroup consensus and total group consensus; two IRs carrying total group consensus and no PEP Subgroup consensus; and eight IRs carrying PEP Subgroup consensus but not carrying total group consensus. In QIV there were fifteen IRs carrying PEP Subgroup consensus and total group consensus; one IR carrying total group consensus and no PEP Subgroup consensus; and four IRs carrying PEP Subgroup consensus and no total group consensus.
### TABLE 10

PEP

CIR BY PMR ACROSS QUESTIONNAIRES II, III, AND IV

<table>
<thead>
<tr>
<th>Item Response</th>
<th>Questionnaires</th>
<th>Total CIR</th>
<th>NC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
<td>CIR</td>
</tr>
<tr>
<td>1</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>III</td>
<td>II*</td>
<td>III*</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>III</td>
<td>II*</td>
<td>IV*</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>IV</td>
<td>IV*</td>
<td>IV</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>I*</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>II*</td>
<td>II*</td>
<td>II*</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>III*</td>
<td>III*</td>
<td>II*</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>III</td>
<td>II</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I</td>
<td>I*</td>
<td>I*</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>II</td>
<td>III</td>
<td>III*</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>III</td>
<td>II*</td>
<td>II*</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>II</td>
<td>II</td>
<td>II*</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>*</td>
<td>III*</td>
<td>III*</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>IV</td>
<td>III*</td>
<td>III*</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>III</td>
<td>III</td>
<td>III*</td>
<td>3</td>
</tr>
<tr>
<td><strong>CIR</strong></td>
<td><strong>15</strong></td>
<td><strong>18</strong></td>
<td><strong>19</strong></td>
<td><strong>52</strong></td>
</tr>
</tbody>
</table>

*: Denotes consensus item response (CIR) total group.

II, III, IV: Denotes consensus item response (CIR) subgroup and also priority modal ranking (PMR) of the IRs by the subgroup.

The movement of this group was determined as above (see OUP Subgroup). The PEP Subgroup generated fifty-two consensus item responses of a possible sixty chances. Eight IR moves were recorded (numbers two, three, eight, nine twice, twelve, thirteen, and fifteen). Three IRs moved from no PEP Subgroup consensus on Round II to subgroup consensus on Round III. These were IR numbers two, nine, and sixteen. Item Response number fifteen did not reach consensus level until Round IV. Item Response numbers three and thirteen reached consensus level on Round II.
and shifted positive on Round III. Item Response number three shifted negative on the next round. For the PEP Subgroup, only IR number ten failed to reach consensus across rounds.

The eight IRs that changed moved in both directions: seven moved positive and one moved negative.

Comparison of Subgroup to Total Group

Table 11 shows the total CIRs for subgroup against total group by questionnaires. Subgroup CIRs may not equal total group CIRs because of variance in definitional consensus (a majority in the subgroups, 8 of 15 in the total group). This table shows the amount of agreement within the group by questionnaire and how that agreement relates to the total of the four expert groups combined. Again, the sum of the parts does not have to equal the sum of the whole; in this case, however, the two are equal.

TABLE 11
A COMPARISON OF THE NUMBER OF CONSENSUS ITEM RESPONSES AMONG SUBGROUPS AND THE TOTAL GROUP ON QUESTIONNAIRES II, III, IV

<table>
<thead>
<tr>
<th></th>
<th>QII</th>
<th>QIII</th>
<th>QIV</th>
<th>Across</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sub- Total</td>
<td>Sub- Total</td>
<td>Sub- Total</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Group</td>
<td>Group</td>
<td>Group</td>
<td>Group</td>
<td>Sub- Total</td>
</tr>
<tr>
<td>COP</td>
<td>7</td>
<td>13</td>
<td>13</td>
<td>33</td>
</tr>
<tr>
<td>OUP</td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>MCP</td>
<td>3</td>
<td>14</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>PEP</td>
<td>15</td>
<td>18</td>
<td>19</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>52</td>
<td>55</td>
<td>140</td>
</tr>
</tbody>
</table>

The PEP Subgroup* had the highest generation of CIRs for each questionnaire, the OUP Subgroup the lowest. On QII the PEP Subgroup

*PEP required 2 of 3 votes for consensus, whereas other expert groups required 3 of 4 votes for consensus.
generated the most CIRs and the MCP Subgroup generated the fewest. On QIII this position shifted for the MCP Subgroup, for they generated the second highest total of CIRs. On QIV, the MCP Subgroup holds second place in the generation of CIRs to the PEP Subgroup. The PEP Subgroup was stable at the highest level; the OUP Subgroup was stable at the lowest level. The COP Subgroup and the MCP Subgroup showed dramatic changes at the third Round and tended to level off at the fourth Round. All subgroups changed by one or none at the fourth Round. All groups increased or matched consensus on each successive round (except OUP on Round II).

Table 12 shows the matching CIRs subgroup to total group, all questionnaires. Across questionnaires the PEP Subgroup leads the field with the OUP Subgroup running fourth or last. The difference between the two groups is more than 2 to 1. The MCP Subgroup is closer to the PEP Subgroup than it is to the OUP Subgroup in the number of matching CIRs. The MCP Subgroup on Round II was very low, 1 of 6, but on Round IV this group moved to 15 of 16. The pattern of movement for the PEP and COP Subgroups was about the same. The OUP Subgroup showed the least amount of movement across the three questionnaires, i.e., they tended to be the most stable group. All groups increased or matched consensus on each successive round.

Another way to analyze the CIRs between subgroup and the total group is to compare those which do not match. Table 13 shows the non-matching CIRs subgroup by total group. The PEP Subgroup had the highest total number of subgroup CIRs non-matching and the MCP Subgroup had the lowest amount of CIRs non-matching.
### TABLE 12
MATCHING CONSENSUS ITEM RESPONSES SUBGROUP TO TOTAL GROUP QII, QIII, AND QIV

<table>
<thead>
<tr>
<th></th>
<th>QII Sub-Group</th>
<th>QII Total Group</th>
<th>QIII Sub-Group</th>
<th>QIII Total Group</th>
<th>QIV Sub-Group</th>
<th>QIV Total Group</th>
<th>Across Questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>13</td>
<td>11</td>
<td>16</td>
<td>26 35 74</td>
</tr>
<tr>
<td>OUP</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>13</td>
<td>7</td>
<td>16</td>
<td>15 35 43</td>
</tr>
<tr>
<td>MCP</td>
<td>1</td>
<td>6</td>
<td>13</td>
<td>13</td>
<td>15</td>
<td>16</td>
<td>29 35 83</td>
</tr>
<tr>
<td>PEP</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>13</td>
<td>15</td>
<td>16</td>
<td>31 35 90</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>24</td>
<td>40</td>
<td>52</td>
<td>48</td>
<td>64</td>
<td>101 140 72</td>
</tr>
</tbody>
</table>

### TABLE 13
NON-MATCHING CONSENSUS ITEM RESPONSES SUBGROUP TO TOTAL GROUP QII, QIII, AND QIV

<table>
<thead>
<tr>
<th></th>
<th>QII Sub-Group</th>
<th>QII Total Group</th>
<th>QIII Sub-Group</th>
<th>QIII Total Group</th>
<th>QIV Sub-Group</th>
<th>QIV Total Group</th>
<th>Across Questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>OUP</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>MCP</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>PEP</td>
<td>10</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>7</td>
<td>17</td>
<td>39</td>
</tr>
</tbody>
</table>
Table 13 should reflect a decrease from round to round in the non-matching CIRs of the individual groups. The PEP Subgroup on Round II has the greatest number of non-matching CIRs and the OUP Subgroup has the least. The pattern holds generally across questionnaires to Round IV where we find the MCP Subgroup with no subgroup differences. The differences of all groups fall across questionnaires. The findings of this table are consistent with the findings of Tables 11 and 12.

It is important to not only determine the degree of change among the expert groups in the priority ranking, but also the nature or direction of change. One can ask whether changes moved toward consensus or away from consensus. Table 14 summarizes this.

### TABLE 14

**TOTAL CHANGES BY SUBGROUPS**

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>No.</th>
<th>+</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>OUP</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MCP</td>
<td>16</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>PEP</td>
<td>8</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>36</td>
<td>29</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 14 shows all groups changed; all groups changed toward the positive; three groups changed negatively as well as positively, and this change was not consistent among the groups. The MCP Subgroup changed the most and the COP and OUP Subgroups changed the least. The COP Subgroup was the most firm in its original direction of its conviction and the OUP and MCP groups were least firm in their original direction of convictions. The MCP Subgroup was the least stable in its overall convictions, i.e., sixteen total changes by that one group as compared
to thirty-six changes for the total group (approximately 44%).

How Did the Groups Contribute to Total Consensus?

The purpose of this sector of the analysis was to examine the contribution level of each subgroup to the total group contribution. The total group reached various consensus levels across questionnaires. The research, we felt, would show that the subgroups would contribute in a definable way to the total consensus across questionnaires through priority channels. This section is an attempt to discover the relationship, if any, between the total group consensus and the subgroup consensus and also, how did that subgroup consensus contribute, if any, to the total group consensus?

The examination of the data involves six tables (Tables 15, 16, 17, 18, 19, and 20). The first four of these tables is designed to analyze the subgroups' contribution to total consensus of the total group, through the analysis of the Priority Channel voting of that subgroup by each questionnaire. For example, in Table 15, the analysis moves from left to right PC I of QII through PC IV of QIV. Again, the researcher attempted to discover the amount and percent of contribution of that particular subgroup. Table 19 compares across subgroups by Priority Channels (I, II, III and IV), and Table 20 compares across subgroups by Questionnaires (II, III, and IV).

The COP Group

The COP Group contributed to the total consensus level across the questionnaires in its own particular manner. For example, under PC I, the COP Group contributed approximately 30% on QII, approximately 28% on QIII, and approximately 26% on QIV. The overall contribution percentage
### TABLE 15

**COP**

**CONSENSUS ITEM RESPONSES BY PRIORITY CHANNELS**

Subgroup Compared to Total Group

<table>
<thead>
<tr>
<th>Priority Channel I</th>
<th>Priority Channel II</th>
<th>Priority Channel III</th>
<th>Priority Channel IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q II</td>
<td>Q III</td>
<td>Q IV</td>
<td></td>
</tr>
<tr>
<td>Q II</td>
<td>Q III</td>
<td>Q IV</td>
<td></td>
</tr>
<tr>
<td>CIR</td>
<td>SG/TG-%</td>
<td>SG/TG-%</td>
<td>SG/TG-%</td>
</tr>
<tr>
<td>1</td>
<td>2/11-18</td>
<td>3/13-23</td>
<td>3/13-23</td>
</tr>
<tr>
<td>2</td>
<td>3/10-30</td>
<td>3/10-30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4/12-33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3/8-38</td>
<td>3/10-30</td>
<td>3/9-33</td>
</tr>
<tr>
<td>7</td>
<td>4/8-50</td>
<td>4/10-40</td>
<td>4/11-36</td>
</tr>
<tr>
<td>10</td>
<td>2/10-20</td>
<td>2/12-17</td>
<td>1/10-10</td>
</tr>
<tr>
<td>12</td>
<td>3/11-27</td>
<td>3/11-27</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>2/9-22</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>3/9-33</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>3/9-33</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td>3/9-33</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>2/28-25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10/31-32</td>
<td>19/69-28</td>
<td>19/72-26</td>
</tr>
</tbody>
</table>

### Footnotes

- **Q**: Question
- **CIR**: Consensus Item Response
- **SG/TG-%**: Subgroup Compared to Total Group

---

Page 133
for the COP Group for PC I was approximately 29%. However, under PC II, the COP Group contributed to the total consensus approximately 41% on QII, approximately 26% on QIII, and 25% on QIV. The overall contribution percentage for the COP Group for PC II was approximately 31%. Again, under PC III the COP Group contributed to the total consensus 25% on QII, 33% on QIII and approximately 29% on QIV. The overall contribution percentage for the COP Group for PC III was 29%. Finally, under PC IV only one IR reached CIR. Therefore, the part equals the whole for an approximate 38% contribution. The overall percentage contribution across all four priority channels was approximately 32%. The COP Group was one-fourth or 25% of the total group, and yet their contribution was approximately 32%. The contribution of the COP Group toward those IRs which reached consensus level was more than its proportion to the total group.

The OUP Group

The OUP Group contributed to the total consensus level across questionnaires in its own particular manner. Under PC I, the OUP Group contributed approximately 23% on QII, 23% on QIII, and 25% on QIV. The overall contribution percentage for the OUP Group for PC I was approximately 24 per cent. Under PC II, the OUP Group contributed to the total consensus level approximately 24% on QII, 26% on QIII, 25% on QIV. The overall contribution percentage for the OUP Group for PC II was 25 per cent. Under PC III the OUP Group contributed 38% on QII, 22% on QIII, and 21% on QIV. The overall contribution percentage for the OUP Group under PC II was 27 per cent. Under PC IV the OUP Group had no contribution. The overall contribution by the OUP Group to total group consensus level across four priority channels was 24, 25, 27, and 0. For the first
<table>
<thead>
<tr>
<th>Priority Channel I</th>
<th>Priority Channel II</th>
<th>Priority Channel III</th>
<th>Priority Channel IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q II</td>
<td>Q III</td>
<td>Q IV</td>
<td>Q II</td>
</tr>
<tr>
<td>Q III</td>
<td>Q IV</td>
<td>Q II</td>
<td>Q III</td>
</tr>
<tr>
<td>Q IV</td>
<td>Q II</td>
<td>Q III</td>
<td>Q IV</td>
</tr>
<tr>
<td>Q III</td>
<td>Q IV</td>
<td>Q II</td>
<td>Q III</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2/10-20</td>
<td>2/10-20</td>
<td></td>
<td></td>
<td>1/8-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3/12-25</td>
<td>4/15-27</td>
<td>4/15-27</td>
<td></td>
<td></td>
<td>0/8-0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>2/10-20</td>
<td>4/12-33</td>
<td></td>
<td>4/10-40</td>
<td>4/10-40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
three priority channels the contribution percentage was approximately equivalent to the participation percentage. In other words, 25 per cent. If Channel Four was considered, the percentage drops to 19 per cent.

At this point the data is tending to show that the voting activity was mainly in PC I, PC II, and PC III. Therefore, a fairly adequate appraisal of the behavior for a group may be more reliable by looking at PCs I, II, and III. This percentage, again, is approximately 25% which would be quite normal for a group consisting of 25% to deliver 25% of the effort.

The MCP Group

The MCP Group contributed to consensus of the total group in the following way: Under PC I, the MCP Group contributed approximately 23% of the total of QII, approximately 32% on QIII, and approximately 31% of the total on QIV. The overall contribution percentage for the MCP Group for PC I was approximately 29 per cent. Under PC II, the MCP Group contributed approximately 18% on QII, approximately 36% on QIII, and approximately 32% on QIV. The overall contribution percentage for the MCP Group for PC II was approximately 29 per cent. Under PC III, the contribution percentage for QII was 25, for QIII was approximately 26, QIV was approximately 26. The overall contribution percentage for the MCP Group under PC III was approximately 26. There was only one Consensus Item Response under PC IV. This was an approximate 25% contribution which, of course, made the total contribution 25% or, over the three questionnaires, only 8 per cent. However, this percentage figured in this way would be quite misleading if it was not taken into consideration that most of the voting by the subgroups as well as this subgroup was done
TABLE 17

MCP

CONSENSUS ITEM RESPONSES BY PRIORITY CHANNELS

Subgroup Compared to Total Group

<table>
<thead>
<tr>
<th>Priority Channel I</th>
<th>Priority Channel II</th>
<th>Priority Channel III</th>
<th>Priority Channel IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q</td>
<td>Q</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>III</td>
<td>IV</td>
</tr>
<tr>
<td>CIR</td>
<td>SG/TG-%</td>
<td>SG/TG-%</td>
<td>SG/TG-%</td>
</tr>
<tr>
<td>2</td>
<td>4/10-40</td>
<td>4/10-40</td>
<td>4/10-40</td>
</tr>
<tr>
<td>3</td>
<td>2/12-17</td>
<td>4/15-27</td>
<td>4/15-27</td>
</tr>
<tr>
<td>4</td>
<td>2/8-25</td>
<td>3/10-30</td>
<td>4/11-36</td>
</tr>
<tr>
<td>5</td>
<td>3/10-30</td>
<td>3/12-25</td>
<td>4/10-40</td>
</tr>
<tr>
<td>6</td>
<td>4/10-40</td>
<td>4/10-40</td>
<td>4/9-44</td>
</tr>
<tr>
<td>7</td>
<td>1/9-11</td>
<td>3/11-27</td>
<td>3/12-25</td>
</tr>
<tr>
<td>8</td>
<td>2/8-25</td>
<td>3/12-25</td>
<td>4/11-36</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>3/10-30</td>
</tr>
<tr>
<td>10</td>
<td>2/8-25</td>
<td></td>
<td>3/12-25</td>
</tr>
<tr>
<td>11</td>
<td>4/11-36</td>
<td>4/11-36</td>
<td>4/10-40</td>
</tr>
<tr>
<td>12</td>
<td>2/9-22</td>
<td></td>
<td>4/10-40</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>1/8-12</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>2/8-25</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>3/9-33</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>3/10-30</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td>2/8-25</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td>1/9-11</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td>3/9-33</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>3/12-25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7/31-23</td>
<td>22/69-32</td>
<td>23/72-31</td>
</tr>
</tbody>
</table>

SG/TG-% values are represented as fractions.
under PCs I, II, and III. If we take those three priority channels we find that the voting was approximately 29% from I, 29% from II, and 26% from III, making an overall average contribution of approximately 28% for the three channels and approximately 23% for the four channels. The MCP Group contributed in one sense, a little less than the percentage representation. The general average band of contribution would lead to the conclusion that this group contributed to consensus in proportion with its participation.

The PEP Group

The PEP Group (consisting of three members) contributed to the total consensus across questionnaires in about the same proportion as we found the other groups did. For example, under PC I, the PEP Group contributed approximately 19% to the PC I Group. They contributed approximately 16% to the PC II Group, approximately 18% to the PC III Group. In PC IV, as with all the groups, there was not enough activity to get a good measure. The overall percentage for PCs I, II, and III for the PEP Group was about 18% contribution; if we take into account Channel IV, it approximates 22 per cent. The PEP figures are deflated because of the fact that one of the PEP experts dropped out of the Delphi Questionnaire Grouping. If compensation were made, these figures would increase approximately 24, 22, and 24, which again, would be representative of the contribution for their group to the total consensus.

In conclusion, the PEP Group reached and contributed to consensus in about the same proportion as the other groups did.
TABLE 18
PEP
CONSENSUS ITEM RESPONSES BY PRIORITY CHANNELS
Subgroup Compared to Total Group

<table>
<thead>
<tr>
<th>Priority Channel I</th>
<th>Priority Channel II</th>
<th>Priority Channel III</th>
<th>Priority Channel IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>Q</td>
<td>Q</td>
<td>Q</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>IV</td>
<td>II</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1/10-10</td>
<td>1/10-10</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>1/8-12</td>
<td>1/10-10</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>2/9-22</td>
<td>2/11-18</td>
</tr>
<tr>
<td>8</td>
<td>1/8-12</td>
<td>1/10-10</td>
<td>1/11-19</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>3/10-30</td>
<td>3/12-26</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1/11-9</td>
<td>1/11-9</td>
<td>3/9-33</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
Summary, Interpretations, and Conclusions

Under PC I it was found that the COP Group made the largest contribution at QII. The other three groups had equal contributions. Under PC II the largest contribution was from the MCP Group and the smallest contribution was from the PEP Group. Under PC I on QIV the MCP Group made the largest contribution, and the PEP Group again made the smallest contribution. The largest contribution under PC I was made by the MCP Group and the smallest contribution was made by the PEP Group.

Under Priority Channel II, QII, the largest contribution was made by the COP Group. The smallest contribution was made by the MCP, and the PEP Group. Under PE II, QIII, the largest contribution was made by the MCP Group; the COP and the OUP Groups were tied, and the PEP Group made by far the smallest contribution. Under Priority Channel II, QIV, the largest contribution was made by the MCP Group, the smallest contribution was made by the PEP Group.

Under Priority Channel II, QII, the largest contribution was made by the OUP Group. The smallest contribution was made by the PEP Group. There is only a difference of one between the contributions at PC III level. The differentiation here begins to tail off because of the lightness of the voting found at the PC III level. Under PC III, QIII, the largest contribution was made by the COP Group and the smallest contribution was made by the PEP Group. Under PC III, QIV, the largest contribution was made by the COP Group and the smallest contribution was made by the PEP Group. Under PC III, QIV, the largest contribution was made by the COP Group and the smallest contribution was made by the OUP Group. Under PC III across questionnaires, the largest
contribution was made by the COP Group; the smallest contribution was made by the OUP Group. Under PC III across questionnaires, the largest contribution was made by the COP Group; the smallest contribution was made by the PEP Group.

Under PC IV, there was only one questionnaire which carried any contribution to total consensus level, and that was QIII. At that questionnaire the COP and the PEP Groups tied for top contribution. The OUP Group did not contribute on this questionnaire under PC IV.

In summation, across all priority channels for all questionnaires, an inspection of Table 19 will reveal that the community group, MCP, made the largest contribution toward consensus. They voted 104 times of the three hundred and fifty-seven votes for 29 per cent. Close behind this group was the COP Group, the superintendents of the group, who voted 103 times of three hundred fifty-seven for 29 per cent. The professors came out the lowest--57 of three hundred fifty-seven for 19 per cent. It may be well to remember here, too, that the professors, if we look at absolute numbers alone, were a group of three instead of a group of four.

Table 20 depicts the data in quite another way. These are the same figures as found in Table 19, but they are turned around to give us a valuable look at how the groups voted across questionnaires rather than across priority channels. The COP Group, for example, on QII, made a 19 vote contribution to consensus level which was by far the top group. The PEP Group, however, gave only 11 which was the lowest contribution to consensus on QII. On QIII, we find that the Model Cities Group, or the community people, gave the highest contribution--42 votes. The lowest contribution here came again from the PEP Group, the professors from
<table>
<thead>
<tr>
<th>Priority Channel I</th>
<th>Priority Channel II</th>
<th>Priority Channel III</th>
<th>Priority Channel IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q II SG/TG-%</td>
<td>Q III SG/TG-%</td>
<td>Q IV SG/TG-%</td>
<td>Q III SG/TG-%</td>
</tr>
<tr>
<td>COP 10/31-30</td>
<td>COP 19/69-28</td>
<td>COP 19/72-26</td>
<td>COP 7/17-41</td>
</tr>
<tr>
<td>OUP 10/31-30</td>
<td>OUP 19/69-28</td>
<td>OUP 19/72-26</td>
<td>OUP 7/17-41</td>
</tr>
<tr>
<td>MCP 7/31-23</td>
<td>MCP 16/69-23</td>
<td>MCP 18/72-25</td>
<td>MCP 4/17-24</td>
</tr>
<tr>
<td>PEI 7/31-23</td>
<td>PEI 12/69-17</td>
<td>PEI 12/72-17</td>
<td>PEI 3/17-18</td>
</tr>
<tr>
<td>TOTALS 31 99</td>
<td>69 100</td>
<td>72 99</td>
<td>31 101</td>
</tr>
</tbody>
</table>

TABLE 19
ALL GROUPS
SUBGROUP CONSSENSUS CONTRIBUTION BY PRIORITY CHANNELS
the University. On QIV, the final round of the Delphi, an inspection of the table shows that the MCP Group, the community people, gave a 50 vote total and the professors, on the other hand, cast only 32 votes. The second highest group, it would be well to know, was the COP Group coming up with 45 votes of the 166 votes. In total, the Model Cities Group, the community people, cast 104 votes and was followed closely by the superintendents--103 votes. The least influential group was that of the professors with only 67 votes. The Model Cities people, as well as the superintendents, contributed to consensus level about 30% of the time across the board. Group activity remained rather consistent across questionnaires. There was no pattern of one group being extremely active on one questionnaire and not on the other. Group activity also remained fairly consistent across questionnaires. Group activity also remained fairly consistent across priority channels. There were no examples of high activity in one channel with nothing in another channel on another questionnaire. In summation, there was some apparent difference among the groups but how significant these differences remain to be tested in another thesis.

<table>
<thead>
<tr>
<th></th>
<th>QII SG/TG-%</th>
<th>QIII SG/TG-%</th>
<th>QIV SG/TG-%</th>
<th>Total SG/TG-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP</td>
<td>19 56 34</td>
<td>39 135 30</td>
<td>45 166 27</td>
<td>103 357 30</td>
</tr>
<tr>
<td>OUP</td>
<td>14 56 25</td>
<td>30 135 22</td>
<td>39 166 24</td>
<td>83 357 23</td>
</tr>
<tr>
<td>MCP</td>
<td>12 56 21</td>
<td>42 135 31</td>
<td>50 166 30</td>
<td>104 357 29</td>
</tr>
<tr>
<td>PEP</td>
<td>11 56 20</td>
<td>24 135 18</td>
<td>32 166 20</td>
<td>67 357 19</td>
</tr>
<tr>
<td>TOTAL</td>
<td>56 100</td>
<td>135 101</td>
<td>166 101</td>
<td>357 101</td>
</tr>
</tbody>
</table>
How Did the Individuals Change?

The purpose of this sector of the analysis of the data was to investigate if the priority modal rankings (PMR) of the individuals changed among questionnaires. If changes were found, then a further purpose of this sector was to describe those changes, for it may be purported that individual changes do not occur among Delphi questionnaires.

This sector was investigated through the analysis of Tables 21, 22, and 23. Tables 21 and 22 were designed to assist the researcher in the observation of the change in Priority Modal Rankings of the individuals. It is important to ascertain how the individuals moved toward individual consensus. We posit that changes in the individual patterns will illustrate this. A change was defined as:

a. movement from an established PMR on a given questionnaire to a higher PMR on a subsequent questionnaire

b. movement from an established PMR on a given questionnaire to a lower PMR on a subsequent questionnaire

A change may be one of three possible types:

a. +: A change toward the PMR on the questionnaire being evaluated

b. -: A change away from the PMR on the questionnaire being evaluated

c. N: A change across the PMR on the questionnaire being evaluated, e.g., ranking change from Priority I to Priority III when consensus was II

The analysis was developed in three parts. Part one identified the character of change found on Table 21; part two was Table 22, and part three, Table 23. The investigative procedure first explored change found in Round I (between Questionnaires II and III) for the most active
(in terms of change) individual and the least active individual); the most active positive individual and the least active positive individual; the most active negative individual and the least active negative individual; the most active neutral individual and the least active neutral individual.

Part two analyzed Table 22 as above and Part three combined the totals of the two tables to facilitate identification of total change by amount and type.

On Change Round I (Questionnaires II to III) the most active individuals were MCP 3 and MCP 4 having thirteen changes apiece. This is shown by the total line at the bottom of Table 21. The least active expert was OUP 2 who had no changes. The most active positive moves was MCP 4 for eleven. The least active positive moves was OUP 2 for no changes. The most active negative was MCP 3 for four, and the least active again was OUP 2 for none. MCP 2 had two neutral changes for the individual on Change Round I, having the most changes of that type.

Sixty-nine changes were recorded on Change Round I of which fifty-six were positive, ten were negative, and three were neutral. The first and second highest change contributors were found in the MCP Subgroup. The third highest change contributor was found in the PEP Subgroup and the lowest change contributor was found in the OUP Subgroup. In the COP Subgroup COP 1 changed only once, and in the OUP Subgroup OUP 3 changed only once.

On Change Round II (Questionnaires III to IV) the most active individual was OUP 4 for six changes. The second most active individual was MCP 1 for five changes. The least active individuals were COP 1,
TABLE 21
THE CHANGE OF THE EXPERT VOTES QUESTIONNAIRES II TO III

<table>
<thead>
<tr>
<th>TR</th>
<th>COP</th>
<th>OUP</th>
<th>MCP</th>
<th>PEP</th>
<th>PMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>I</td>
</tr>
<tr>
<td>2</td>
<td>33</td>
<td>44</td>
<td>44</td>
<td>21</td>
<td>III</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>22</td>
<td>22</td>
<td>11</td>
<td>I</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>11</td>
<td>21</td>
<td>21</td>
<td>I</td>
</tr>
<tr>
<td>5</td>
<td>44</td>
<td>21</td>
<td>44</td>
<td>34</td>
<td>IV</td>
</tr>
<tr>
<td>6</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>44</td>
<td>II</td>
</tr>
<tr>
<td>7</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>22</td>
<td>II</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>I</td>
</tr>
<tr>
<td>9</td>
<td>33</td>
<td>11</td>
<td>44</td>
<td>11</td>
<td>III</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>22</td>
<td>11</td>
<td>22</td>
<td>I</td>
</tr>
<tr>
<td>11</td>
<td>32</td>
<td>31</td>
<td>11</td>
<td>22</td>
<td>I</td>
</tr>
<tr>
<td>12</td>
<td>43</td>
<td>33</td>
<td>22</td>
<td>1</td>
<td>III</td>
</tr>
<tr>
<td>13</td>
<td>11</td>
<td>22</td>
<td>11</td>
<td>11</td>
<td>III</td>
</tr>
<tr>
<td>14</td>
<td>22</td>
<td>42</td>
<td>11</td>
<td>44</td>
<td>III</td>
</tr>
<tr>
<td>15</td>
<td>23</td>
<td>43</td>
<td>33</td>
<td>44</td>
<td>III</td>
</tr>
<tr>
<td>16</td>
<td>23</td>
<td>33</td>
<td>33</td>
<td>22</td>
<td>III</td>
</tr>
<tr>
<td>17</td>
<td>33</td>
<td>22</td>
<td>33</td>
<td>33</td>
<td>III</td>
</tr>
<tr>
<td>18</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>III</td>
</tr>
<tr>
<td>19</td>
<td>33</td>
<td>43</td>
<td>11</td>
<td>11</td>
<td>III</td>
</tr>
<tr>
<td>20</td>
<td>22</td>
<td>33</td>
<td>33</td>
<td>44</td>
<td>III</td>
</tr>
<tr>
<td>+</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>11</td>
<td>56+</td>
</tr>
<tr>
<td>-</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>10-</td>
</tr>
<tr>
<td>N</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3N</td>
</tr>
<tr>
<td>T</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>12</td>
<td>69T</td>
</tr>
</tbody>
</table>

+ = A change toward the Priority Modal Value of Q
- = A change away from the Priority Modal Value of Q
N = A change across the Priority Modal Value of Q
| IR | 1   | 2   | 3   | 4   | C | 1   | 2   | 3   | 4   | C | 1   | 2   | 3   | 4   | C | 1   | 2   | 3   | 4   | C | 1   |
|----|-----|-----|-----|-----|---|-----|-----|-----|-----|---|-----|-----|-----|-----|---|-----|-----|-----|---|-----|
| 2  | 33  | 12  | 44  | 33  | 1 | 33  | 44  | 44  | 12  | 1 | 23  | 11  | 43  | 33  | 2 | 33  | 22  | 33  |   | III|
| 3  | 11  | 11  | 11  | 22  |   | 11  | 22  | 22  | 11  |   | 11  | 11  | 11  | 11  |   | 22  | 22  | 11  |   | I  |
| 5  | 44  | 12  | 44  | 44  | 1 | 33  | 33  | 22  | 22  |   | 23  | 44  | 11  | 44  | 1 | 44  | 44  | 44  |   | IV |
| 6  | 22  | 22  | 22  | 44  |   | 43  | 22  | 33  | 21  | 2 | 22  | 22  | 22  | 22  |   | 22  | 11  | 11  |   | II |
| 7  | 22  | 22  | 22  | 22  |   | 32  | 11  | 22  | 22  | 1 | 11  | 22  | 22  | 22  |   | 22  | 33  | 22  |   | II |
| 9  | 33  | 22  | 11  | 44  |   | 44  | 33  | 11  | 11  |   | 23  | 33  | 23  | 11  | 2 | 22  | 32  | 33  | 1 | III |
| 10 | 11  | 22  | 11  | 33  |   | 22  | 22  | 22  | 22  |   | 22  | 22  | 22  | 22  |   | 11  | 44  | 22  |   | II |
| 11 | 22  | 11  | 22  | 11  | 1 | 11  | 11  | 21  | 21  | 2 | 11  | 11  | 11  | 22  |   | 11  | 11  | 11  |   | I  |
| 12 | 33  | 33  | 33  | 22  |   | 21  | 44  | 43  | 33  | 2 | 33  | 11  | 11  | 11  |   | 33  | 32  | 22  | 33  | I  |
| 13 | 11  | 11  | 22  | 11  | 1 | 11  | 11  | 33  | 11  |   | 11  | 11  | 11  | 11  |   | 22  | 22  | 11  |   | I  |
| 14 | 22  | 22  | 11  | 44  |   | 22  | 11  | 11  | 42  | 1 | 32  | 22  | 11  | 23  | 2 | 12  | 22  | 22  | 1 | II |
| 15 | 33  | 33  | 33  | 44  |   | 22  | 33  | 44  | 33  |   | 33  | 33  | 11  | 33  |   | 23  | 11  | 33  | 1 | III |
| 16 | 33  | 33  | 33  | 22  |   | 22  | 33  | 33  | 33  |   | 33  | 22  | 21  | 22  | 1 | 33  | 21  | 33  | 1 | III |
| 17 | 33  | 22  | 33  | 33  |   | 22  | 22  | 43  | 33  | 1 | 33  | 33  | 11  | 33  |   | 33  | 33  | 43  | 1 | IV |
| 18 | 33  | 33  | 33  | 33  |   | 11  | 11  | 11  | 11  |   | 33  | 31  | 11  | 22  | 1 | 22  | 11  | 22  |   | III |
| 19 | 33  | 33  | 11  | 11  |   | 11  | 33  | 43  | 31  | 2 | 43  | 33  | 11  | 12  | 2 | 22  | 22  | 33  |   | III |
| 20 | 22  | 33  | 33  | 44  |   | 11  | 11  | 22  | 13  | 1 | 33  | 33  | 11  | 33  |   | 33  | 22  | 33  |   | III |

+ = A change toward the Priority Modal Value of Q<sub>II</sub>
- = A change away from the Priority Modal Value of Q<sub>II</sub>
N = A change across the Priority Modal Value of Q<sub>II</sub>
COP 3, COP 4, and OUP 2. The most active individual in terms of positive moves was MCP 1 for five moves. The least active expert in terms of positive moves was the same person as the least active expert in terms of negative moves. The most active individual in terms of negative moves was OUP 4 with two moves. Nine of the fifteen persons registered no negative moves on this change round. No neutral moves or changes were registered on Change Round II.

Thirty-four total changes were registered on Change Round II (between QIII and QIV), of which twenty-six were positive, eight were negative, and none were neutral.

The highest change individual was found in the OUP Group and the second highest change individual was found in the MCP Group. No individual registered neutral changes on this round. Four individuals registered no change on Change Round II.

On Table 23, ninety-nine changes are shown of which eighty are positive, sixteen are negative, and three are neutral. The MCP individuals recorded the most changes with forty-six; the COP individuals recorded the least changes, fourteen. The group of individuals with the most changes had also the most positive changes, the most negative changes, and the most neutral changes.
TABLE 23
THE MOVEMENT OF THE EXPERT VOTES
TOTALS OF MOVEMENT BY GROUPS
ALL QUESTIONNAIRES

<table>
<thead>
<tr>
<th>D</th>
<th>COP</th>
<th>OUP</th>
<th>MCP</th>
<th>PEP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>13 - 16</td>
<td>14 - 18</td>
<td>35 - 44</td>
<td>18 - 22</td>
<td>80</td>
</tr>
<tr>
<td>-</td>
<td>1 - 6</td>
<td>4 - 25</td>
<td>9 - 56</td>
<td>2 - 12</td>
<td>16</td>
</tr>
<tr>
<td>N</td>
<td>0 - 0</td>
<td>1 - 33</td>
<td>2 - 67</td>
<td>0 - 0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>14 - 14</td>
<td>19 - 19</td>
<td>46 - 46</td>
<td>20 - 20</td>
<td>99</td>
</tr>
</tbody>
</table>

Summary and Conclusions

The individuals changed ninety-nine times over two change rounds. The changes on Change Round I were considerably greater than the changes on Change Round II. This held true for all types of changes. For overall change activity, MCP 3 was the leader with seventeen changes across two change rounds; the second was MCP 4 for fifteen changes across two change rounds. The least active individual was OUP 2 for no changes across both change rounds. COP 4 was very close to OUP 2 for this person had only one change in two rounds. The average number of changes per group was 3.5 for COP, 5.7 for OUP, 11.2 for MCP, and 6.7 for PEP. The community person as an individual and as a group was the most active. The superintendent group was the least active for group average, but the principals' group contained the least active individual.

All individuals except one changed; most of the changes were positive (toward PMR); very few changes were neutral. The individuals contributed to consensus and from their changes they behaved more as individuals than as groups.
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary and Findings

The decision-making process involves a conscientious effort to select an alternative position. The selection process may (1) involve an ordered process, (2) be free from constraints, and (3) be absolute. When the decision-making process involves negotiations, the involved individuals will be controlled by constraints. Constraining usually causes conflict which may be interpersonal. The research examined the Delphi process as a technique to promote convergent thinking, i.e., consensus.

The Delphi process is a method of predicting through informed intuitive judgment by experts. A panel of experts whose identity within the group is unknown submits opinions concerning a given issue. After summarization the questionnaire is recycled to the participating experts. The divergent opinions of the various experts provide additional inputs to reassess their opinions and make a new judgment on the issue. After several cycles, agreement or consensus may be expected to emerge.

The objective of the research was to determine the applicability of the Delphi process in promoting consensus among a group of experts for developing criteria for the selection of a secondary school principal in a model city neighborhood. Specifically, the research was
concerned with three general questions:

1. Can the Delphi technique generate criteria for the selection of a secondary school principal in a model neighborhood setting?

2. Can the Delphi technique promote consensus from the participants in the process for the establishment of criteria to select a secondary school principal in a model neighborhood setting?

3. If consensus is found, what is the character of it and what are the dynamics of the participating groups as they move toward consensus?

It was found that the sixteen experts generated one hundred thirty-seven criterion statements (Appendix C). These statements were analyzed for common ideas and reduced to forty-three statements (Appendix E). The forty-three statements were cross analyzed by subgroups and by the total group.

Elements of similarity among these forty-three statements were identified and counted. The prime statements became the item responses for Rounds II, III, and IV—the formal Delphi instruments (Appendices G, J, M). The quality of the statements may be evaluated by inspection of examples of original criterion statements.

The Delphi process indeed generated criteria in amount and kind which facilitated the creation of a Delphi instrument and which could be used to select a principal in a model neighborhood setting.

Can the Delphi technique promote consensus? The recasting of votes by experts in similar patterns (convergence of thinking among the experts) can be defined as a measure of movement toward consensus. When the incidence of consensus was compared among Rounds II, III, and
IV, it was apparent that consensus increased progressively from round to round. Therefore, it can be concluded that consensus can be promoted, and, in fact, was promoted. It was found that all four subgroups moved toward consensus but in different patterns. Subgroups made unique contributions to total group consensus. The amount of change experienced by each of the four expert groups varied. The community people changed the most; the superintendents and principals changed the least. All individuals except one changed; most of the changes were neutral (across consensus) and very few changes were negative (away from consensus). The individuals contributed to consensus and from their changes, behaved more as individuals than as groups.

Conclusions

The initial question to be answered was whether or not the Delphi technique had the capability of generating criteria for the selection of model cities neighborhood secondary school principals. Key groups were defined, selected, and tested by the Delphi process. These groups generated a large number of criterion statements thought to be crucial in the selection of a high school principal in a model neighborhood setting. The statements collected from the experts were telescoped into twenty prime criterion statements, and used for the basic Delphi instrument. Through this generation of statements by the respondents it can be concluded that Delphi can generate criteria.

The secondary question posed was whether Delphi technique could move the group of selected experts toward consensus, i.e., to reach agreement through convergent thinking and behavior. The Delphi Questionnaires II, III, and IV were analyzed for clues to the recorded behavior of the
experts through their voting priorities for the selected item responses. The investigation revealed evidence of changes in the recorded voting priorities among the experts. These changes tended to develop a pattern, one of convergent movement. The evidence of this movement was generally toward the priority modal ranking (PMR) of the selected prime item responses contained in the Delphi document. This evidence was noted in Questionnaire II, observed with greater emphasis in Questionnaire III, and noted again with lesser emphasis in Questionnaire IV. The continued movement of the item responses into consensus leads to the conclusion that the Delphi instrument can cause convergent thinking and thereby move the experts toward consens.

The tertiary question was what was the character of that consensus to which the Delphi technique moved the selected groups. This question was investigated by observation of how subgroups changed; evaluation of how the groups contributed to consensus; and evaluation of how the individuals changed.

The subgroups generated sub-consensus item responses (CIRs) from Questionnaire II through Questionnaire IV. These subgroup CIRs grew in number with each successive Delphi round. The subgroup generated matching CIRs, i.e., those CIRs of the subgroup which were the same as those of the total group. The matching CIRs grew in number across questionnaires, i.e., at each round more subgroup CIRs became congruent with total group CIRs. The non-matching CIRs tended to decrease across questionnaires. The more matching, the less non-matching; thus, the data showed internal consistency. All subgroups changed. The community people changed the most; the superintendents and principals
changed the least. Most of the changes were positive; very few changes were neutral. The evidence leads to the conclusion that each individual and each subgroup tended to exhibit a unique pattern of movement toward consensus.

Specific conclusions include:

1. The individuals were influenced to generate a list of criteria or competencies; among the sixteen participating experts a total of one hundred thirty-seven (137) criterion statements were generated.

2. This list of criteria or competencies was combined, i.e., telescoped into twenty (20) prime statements which formed the basis for the Delphi instrument.

3. The Delphi technique induced the individuals to move toward consensus. On Round II there were six (6) items of consensus increasing to thirteen (13) on Round III and sixteen (16) on Round IV.

4. The Delphi technique induced the subgroups to move toward consensus. The COP (superintendent) subgroup increased consensus item responses mainly at Round III as evidenced by seven (7) on Round II, thirteen (13) on Round III, and three (3) on Round IV. The consensus of the OUP (principal) subgroup fluctuated from eight (8) on Rounds II and III to seven (7) on Round IV. The MCP (community) subgroup consensus increased as substantiated by three (3) on Round II, fourteen (14) on Round III, and fifteen (15) on Round IV. The PEP (professors) subgroup went from fifteen (15) consensus items on Round II to nineteen (19) on Round III and eighteen (18) on Round IV.

5. The Delphi technique identified major points of agreement between the subgroups and the total group (character of
consensus). Matching CIRs (consensus item responses) were used as evidence of points of agreement. Therefore, out of a possible thirty-five (35) CIRs the following are the total CIRs for each subgroup: COP, 26; OUP, 15; MCP, 29; PEP, 31.

6. The Delphi technique identified how the subgroups moved toward consensus level. Referring to Table 23, it is demonstrated that the COP subgroup moved thirteen (13) out of a possible eighty (80) moves, which was sixteen per cent of the total movement. The OUP subgroup moved fourteen (14) out of a possible eighty (80) moves, or eighteen per cent of the total movement. The MCP subgroup moved thirty-five (35) out of a possible eighty (80) moves, forty-four per cent of the total movement, and the PEP subgroup moved eighteen (18) out of a possible eighty (80) moves or twenty-two per cent of the total movement.

7. The Delphi technique induced different levels of subgroup consensus as measured by CIRs. The following are the CIR totals for each subgroup: COP, 33; OUP, 23; MCP, 32; PEP, 52. (The PEP subgroup is affected by only two of three equaling consensus.)

8. The Delphi technique identified how the groups changed from Rounds II to III (Table 21) and from Rounds III to IV (Table 22). The COP subgroup made twelve (12) changes out of a possible sixty-nine (69) between Round II and III and just two (2) changes out of a possible thirty-four (34) between Rounds III and IV. The OUP subgroup made ten (10) changes out of a possible sixty-nine (69) between Rounds II and III and thirteen (13) changes out of a possible thirty-four (34) between Rounds III and IV. The MCP subgroup made thirty-four (34) changes out of a possible sixty-nine (69) between Rounds II and III and
twelve (12) changes out of a possible thirty-four (34) between Rounds III and IV. It is evident that the superintendents were the most conservative group, tending to make few changes from round to round while the community members were the most liberal group, tending to make many changes from round to round.

9. The Delphi technique identified how the individuals changed from Rounds II to III (Table 21) and from Rounds III to IV (Table 22). In the COP subgroup from Rounds II to III expert number two was most active, changing five (5) times, while expert number four was least active, changing one (1) time. In the same subgroup Rounds III to IV expert number two was the only person of the group to change. In OUP subgroup, from Rounds II to III, expert number one was the most active, making five (5) changes, while expert number two was least active with no changes. For the same subgroup, Rounds III to IV, expert number four was most active with six (6) changes, and expert number two was again least active with no changes. In the MCP subgroup, Rounds II to III, experts number three and four were tied for the most activity with thirteen (13) changes apiece, and experts number one and two were also tied for least changes with four (4) apiece. Thus a bimodal response was noted. For the same subgroup, Rounds III to IV, expert number one was most active with five (5) changes, while expert number two was least active with two (2) changes. In the PEP subgroup, Rounds II to III, expert number one was the most active, making seven (7) changes while expert number two was least active, making two (2) changes. For this group on Rounds III to IV, expert number one and two are tied for most activity with three (3) changes and expert number three had only one (1) change, making him the least active.
Recommendations

It is recommended that research be conducted to:

1. acknowledge Delphi as a process in a variety of other decision areas which require consensus.
2. determine a more uniform method of producing initial Delphi statements.
3. include deviant as well as modal statements in producing the initial Delphi statements.
4. determine the validity and reliability of the bunching technique to determine the initial Delphi statements.
5. determine reasons for individuals to change their rating of items between questionnaires.
6. determine the extent of and reasons for the degree of movement toward consensus between Questionnaires II and III and compared to that occurring between Questionnaires III and IV.
7. determine the reason for variations in levels of consensus among the several groups of experts.
8. determine whether Delphi-based decisions are useful in "real-life" situations.
9. include teachers and students as experts in the selection of the criteria if the research is concerned with educational decision-making.
BIBLIOGRAPHY

BOOKS


PAMPHLETS


REPORTS


Columbus Public Schools, Columbus Public Schools Staff Directory, 1968-69. Columbus, Ohio: 1968.


JOURNALS


**NEWSPAPER**


**UNPUBLISHED MATERIALS**


Memorandum from Ted Cyphert and Con Anderson to Members of Assessment Council, Dean's Staff and Selected Professors regarding Refining the College Mission Statement, Clarifying College Goals and Objectives, and Setting Priorities on College Program Requests.

Memorandum from the Ohio State University Consultant Team to Professional Staff Members of the Montgomery County School Offices and Selected Experts regarding Clarifying and Setting Priorities on Montgomery County School District Goals and Objectives.

Memorandum to the College of Education Students and Faculty Members from Conald P. Anderson, Assistant Dean-Research, regarding the Refining of the College Mission Statement, Clarifying College Goals and Objectives and Setting Priorities on College Program Requests (OSU), October 25, 1968.

ABSTRACT


MANUAL

Ohio State University, Ohio State University Faculty and Staff Directory, 1968-69. Columbus, Ohio: 1968.
Dear

I am in the process of completion of my work for the Ph.D. degree. For the dissertation I have elected to test the Delphi Technique, an interesting administrative concept to see if it has any usefulness in helping leaders of various groups identify what they consider as important criteria or competencies for the selection and employment of a high school principal in a model neighborhood.

The Delphi Technique was developed by Olaf Helmer and his colleagues at the Rand Corporation in the early 1950's to obtain group opinions about urgent defense problems. About five years ago, an unclassified description of the technique was published and the procedure is being employed presently in a number of settings including education.

The technique, which is built on the strength of informed intuitive judgment, is intended to get expert opinion without bringing the experts together in a face-to-face confrontation. Contact is generally made with the experts through successive questionnaires and feedback with each round of questions being designed to produce more carefully considered group opinions. Pfeiffer presents the following variation of the procedure.*

1) The first questionnaire may call for a list of opinions involving experienced judgment, say a list of predictions or recommended activities.

2) On the second round each expert receives a copy of the list, and is asked to rate or evaluate each item by some such criterion as importance, probability of success, and so on.

3) The third questionnaire includes the list and the ratings, indicates the consensus if any, and in effect asks the experts either to revise their opinions or else to specify their reasons for remaining outside the consensus.

4) The fourth questionnaire includes list, ratings, the consensus and minority opinions. It provides a final chance for the revision of opinions.

While the procedure has been used extensively in predicting long-range developments in defense, automation, space research, and other scientific-technological areas, I feel it can be used to advantage in encouraging convergence of opinion or at least a majority opinion and a clearly defended minority opinion as a basis for formulation of criteria for highly visible administrative positions.

As a first step, I am asking you to assist me in generating the initial criterion statements. On the form enclosed, please provide from five to ten statements, sign, and return the form to:

Mr. Jean F. Emmons
Center for Educational Administration
29 West Woodruff Avenue
Columbus, Ohio 43210

Please, no later than Wednesday, (date given).

Sincerely,

Jean F. Emmons
I am interested in testing an instrument designed to help administrators make decisions. In order to do this, I have selected a setting: the high school principal in the Model Neighborhood in Columbus. Will you assist me by trying to put in behavioral terms those cognitive and affective competencies you would look for in the selection and employment of a high school principal in a model-neighborhood setting.

Please list as many statements as you think of to complete the sentence below.

I think a high school principal in a model-neighborhood community should:

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
Please: List only what you think, the number of statements is not important, i.e., you may think only of three or four instead of ten.

Note: It is essential that you identify yourself in every phase of the Delphi project, in order that you may receive information for rounds two, three, and four.

Please: Return this form no later than Wednesday, (date given) to:

Mr. Jean F. Emmons  
Center for Educational Administration  
29 West Woodruff Avenue  
The Ohio State University  
Columbus, Ohio 43210

Phone: (Number given)
APPENDIX C

Received from Participants

(Originating Statements)

DELPHI QUESTIONNAIRE I

QUESTION:

I am interested in testing an instrument designed to help administrators make decisions. In order to do this, I have selected a setting: the high school principal in the Model Neighborhood in Columbus. Will you assist me by trying to put in behavioral terms those cognitive and affective competencies you would look for in the selection and employment of a high school principal in a model-neighborhood setting.

Please list as many statements as you think of to complete the sentence below:

I think a high school principal in a model-neighborhood community should:

1. Be aware of the factors which cause socially disadvantaged children to underachieve within the academic programs of the public schools.

2. Be fully committed to the belief that each pupil has a value as a human being and is capable of acquiring knowledge, refining skills, and developing wholesome attitudes to the fullest extent possible.

3. Have a comprehensive understanding of Negro history and culture.

4. Demonstrate a capacity to organize and maintain an atmosphere conducive to teaching and learning.

5. Be aware of the fact that parents of socially disadvantaged children are not providing appropriate support in reinforcement for the learning of the child or the teaching of the school.

6. Be aware of the fact that teachers are not experiencing satisfactions in rendering educational services for disadvantaged children.

7. Have insight. Be aware of processes involved in planned educational change.

8. Be sensitive to the importance of establishing and maintaining two-way communications with pupils, teachers, parents, and community groups, organizations, and agencies.
9. Serve as a model in promoting good human relations.

10. Promote leadership qualities in pupils, the teachers, and parents.

11. Be receptive to the opinions and ideas of others.

12. Demonstrate a capacity to take criticism, whether he feels it is justified or not.

13. Be familiar with available resources available within the school system and beyond it within the community.

14. Demonstrate a capacity to grow personally and professionally.

Please: List only what you think; the number of statements is not important; i.e., you may think only of three or four instead of ten.

Note: It is essential that you identify yourself in every phase of the Delphi project in order that you may receive information for rounds two, three, and four.

Please: Return this form no later than Wednesday, (date given) to:

    Name and Address of
    Researcher Given
QUESTION:

I am interested in testing an instrument designed to help administrators make decisions. In order to do this, I have selected a setting: the high school principal in the Model Neighborhood in Columbus. Will you assist me by trying to put in behavioral terms those cognitive and affective competencies you would look for in the selection and employment of a high school principal in a model-neighborhood setting.

Please list as many statements as you think of to complete the sentence below:

I think a high school principal in a model-neighborhood community should:

1. possess an educational preparation for work in a model cities area.
2. have a sensitivity to the social and cultural patterns of the school community.
3. have had a successful teaching experience in an inner-city school.
4. have the ability to communicate with his staff.
5. have the ability to communicate with the student body.
6. have the ability to communicate with the community.
7. be actively involved in the work and program of social agencies within the school community.
8. maintain an open mind and flexibility toward changes recommended by the parents of the school community.
9. dedicate all of his efforts to developing and maintaining the best educational program for the youth of his school.
10. be a dedicated member of the system-wide administrative team.

The usual comments from the researcher were included on each copy of the questionnaire at the bottom of the sheet.
QUESTION:

I am interested in testing an instrument designed to help administrators make decisions. In order to do this, I have selected etc....

Please list as many statements as you think of ......

I think a high school principal ...

1. Have the basic ability to work with people; the student body; the community and the staff (including the para-professionals).

2. Have the ability to promote good public relations which in turn enhance the image of the school in the community.

3. Have good rapport with the broader community including leaders of business and industry who in turn can be a great asset to the school and its program.

4. Have rapport with groups representing various segments of society in the broader community. This would include contacts with organization often critical of the school and its functions.

5. Have a good knowledge of new curriculum innovations, and to stay current in this area.

6. Have a basic knowledge in behavioral psychology. This background may be more significant than the typical requirements for educational method courses.

7. Be cognizant of the various fields of employment or schooling available to the graduates of his institution. Stay current in this knowledge and insist the counseling of students is appropriate and up-to-date.

8. Have the desire and ability to develop and encourage a program of in-service education for all staff members.

9 - 10 not listed.

The usual comments from the researcher were included on each copy of the questionnaire at the bottom of the sheet.
APPENDIX C (Continued)

QUESTION:

I am interested in testing an instrument designed to help etc....

Please list as many statements as you think of ......

I think a high school principal ...

1. Be able to communicate with the people in the community positively.
2. Believe that learners must participate in decisions related to his own education.
3. Believe that his students can learn as well as students in schools anywhere.
4. Make the curriculum relevant to the needs of the students and the community.
5. Maintain high standards of education.
6. Involve community people in the important decisions about the school.
7. Have a sound personal educational philosophy.
8. Understand and respect the cultural patterns of his school community.
9. Require that his teaching staff understand their community and its needs.
10. Include programs which are designed to help students overcome the forces which retard their chances for progress.

The usual comments from the researcher were included on each copy of the questionnaire at the bottom of the sheet.
QUESTION:

I am interested in testing an instrument designed to help etc.....

Please list as many statements as you think of ..... 

1. Work to "elevate" the ethnic group he serves with or against central administration. 
2. Decisiveness and impulsive yet ability. 
3. Be a part of the community "government." 
4. Give leadership in other areas than education. 
5. Have his school be the citadel of the community. 
6. Have excellence as the major theme throughout the building. 
7. Develop positive political power. 
8. Not ever "lie" to his people. 
9. Seek criticism as displaying defensivism. 
10. Continue his formal education. 

The usual comments from the researchers were included on each copy of the questionnaire at the bottom of each sheet.
QUESTION:

I am interested in testing an instrument designed to help, etc....

Please list as many statements as you think of.....

I think a high school principal in a model-neighborhood community...

1. Hold a firm conviction in the importance of equal educational opportunities for all youth.

2. Understand the needs of those students who bring less to school than the average.

3. Firmly believe that there should be only two doors out of a high school— one to college and the other directly to a job.

4. Know and practice the fine art of communication with all groups in the community.

5. Develop the most appropriate vehicle for communication with parents.

6. Plan a form of student government that makes it possible for the greatest amount of student participation in the affairs of the school.

7. Build a good understanding of purposes of education with the faculty.

8. Use the many talents available in the community to assist with the problems of education.

9. Be a very active member of the administrative team for the entire school system.

10. Not listed.

The usual comments from the researcher were included on each copy of the questionnaire at the bottom of the sheet.
Dear ....

Your questionnaire has been received and is now being processed. I sincerely appreciate your willingness to take time from your busy schedule and participate in the study. You will receive round two of the Delphi sometime next week. This round will take only three to five minutes to complete. The second questionnaire will ask you to rank-order the responses of your group from what you think is most important to what you think is least important.

Thanks, again, for your cooperation.

Sincerely,

Jean F. Emmons
APPENDIX E

SECONDARY STATEMENTS

THE DEVELOPMENT OF THE PRIME STATEMENTS

<table>
<thead>
<tr>
<th>The principal should:</th>
<th>COP</th>
<th>OUP</th>
<th>MCP</th>
<th>PEP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respect the student as an individual human being.</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>2. Understand the needs of his students.</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>3. Involve students in every phase of school life.</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>4. Establish two-way communication with students.</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>22</td>
</tr>
<tr>
<td>5. Develop a learning climate that has academic soundness.</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>6. Develop a learning climate that has relevance for the students.</td>
<td>11</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>7. Solicit the respect of his students for the needs of the school.</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>8. Respect the teacher as an individual human being.</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>9. Understand the needs of his teachers.</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>10. Involve teachers in every phase of school life.</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>11. Establish two-way communication with teachers.</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>12. Develop a teaching climate that has academic soundness.</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>13. Develop a teaching climate that has relevance.</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>14. Solicit the respect of his teachers for the needs of the students.</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>15. Solicit the respect of his teachers for the needs of the school's community.</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>16. Respect the community as a viable societal entity.</td>
<td>10</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>17. Understand the needs of his school community.</td>
<td>9</td>
<td>5</td>
<td>8</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>18. Involve the school community in every phase of school life.</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>23</td>
</tr>
</tbody>
</table>
19. Establish two-way communication with the community.  
20. Develop a teaching-learning climate in the community that has academic soundness.  
21. Develop a teaching-learning climate in the community that has relevance.  
22. Solicit the respect of his school community for the needs of the school’s teachers.  
23. Solicit the respect of his school community for the needs of the school’s students.  
24. Have an academic preparation for a model-neighborhood community.  
25. Have school experience in a model-neighborhood area.  
26. Be a symbol for the students.  
27. Be a symbol for the community.  
28. Exhibit strength to support his convictions.  
29. Exhibit emotional stability.  
30. Have an interest in other things beside educational administration.  
31. Be a good manager.  
32. Be an instructional leader.  
33. Help his school become a community center.  
34. Continue formal education.  
35. City-wide team.  
36. Understand problems.  
37. Assume active role in community.  
38. Practice good human relations to establish community rapport.  
39. Have knowledge of behavioral psychology.

<table>
<thead>
<tr>
<th></th>
<th>ODP</th>
<th>ODP</th>
<th>MCP</th>
<th>PEP</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>13</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>20</td>
<td>13</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>22</td>
<td>13</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>23</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>24</td>
<td>13</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>28</td>
</tr>
<tr>
<td>25</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>26</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>27</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>28</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>29</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>30</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>31</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>32</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>33</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>34</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>COP</td>
<td>OUP</td>
<td>MCP</td>
<td>PEP</td>
<td>TOTAL</td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>40. Have knowledge of counseling.</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>41. Have knowledge of employment.</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>42. Develop in-service education for staff.</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>43. Ability: Handle crises: flexible.</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>241</strong></td>
<td><strong>94</strong></td>
<td><strong>119</strong></td>
<td><strong>115</strong></td>
<td><strong>569</strong></td>
</tr>
</tbody>
</table>
APPENDIX F

THE OHIO STATE UNIVERSITY
CENTER FOR EDUCATIONAL ADMINISTRATION

MEMORANDUM

TO: Participants in The Delphi Research Project    Date:

FROM: Jean Emmons, The Ohio State University

RE: Delphi Technique for identifying competencies of a high school principal in a model city neighborhood.

The results of the first round in the Delphi project provided the researcher with an excellent listing of recommended competencies. The sixteen "expert" participants generated a total of one hundred thirty-seven (137) responses. The researcher analyzed, interpreted, and tallied these and developed a list of the twenty most frequently mentioned competencies. To complete the Delphi Questionnaire II you are asked to assign priorities to the items in the questionnaire.

Detailed directions are included on the attached instrument. It is imperative that you sign the Delphi Questionnaire II so your responses may be returned to you with the group responses.

Please return the enclosed questionnaire to Mr. Jean Emmons, The Ohio State University, 29 West Woodruff Avenue, Columbus, Ohio 43210 no later than ______________. As soon as the data are collated and organized, you will receive a report of this analysis and your copy of the Delphi Questionnaire III together with instructions for completing the next phase in the project.

JE/plb

Enclosures
APPENDIX G

FINAL FORM

THE PRIME STATEMENT

Delphi Questionnaire II Name ______________________

Instructions

After each of the statements, indicate the priority you would attach to the competencies using the following key.

1. Top priority
2. Second priority
3. Third priority
4. Fourth priority

In order to discriminate among the items, distribute priority rankings in such a manner that there will be no more than six 1's, 2's, 3's, and 4's.

A high school principal in a model neighborhood should:

1. Understand the needs of the student and respect him as an individual. __________________
2. Involve students in every phase of the school program and operation. __________________
3. Establish two-way communication with students. __________________
4. Develop a learning climate that is academically sound and relevant to the needs of the students. __________________
5. Solicit the respect of the students for the institutional structure of the school. __________________
6. Understand the needs of the staff and respect them as individuals. __________________
7. Involve staff in most phases of the school program and operation. __________________
8. Establish two-way communication with his staff. __________________
9. Develop a teaching climate that is academically sound and relevant to the needs of the teacher. __________________
10. Solicit the respect of his teachers for the needs of the students. __________________
11. Respect and understand the needs of his school community.

12. Involve the school community in most phases of the school program and operation.

13. Establish two-way communication with his school community.

14. Develop a teaching-learning climate in the community that has academic soundness and community relevance.

15. Assume an active role in the community to help the community relate to school as an existing institution.

16. Have an academic preparation and experience suitable for leadership in a model-neighborhood community.

17. Serve as a model for students and community.

18. Exhibit strength and emotional stability to support his convictions.

19. Demonstrate agility and flexibility in handling crisis situations.

20. Practice good human relations to establish rapport in the community.

21. *

22. *

23. *

24. *

* As a result of your deliberations, you may want to add to the list of competencies.

Thank you.

Jean F. Emmons
APPENDIX H

COMMENTS FOUND ON DELPHI QUESTIONNAIRE #2
RE: ADDITIONS TO SUMMATION STATEMENTS BY
INDIVIDUAL RESPONDENTS

1. "Be sincere about his role and the contribution he can make."

2. "Although you have asked for a 1, 2, 3, and 4 ranking, I feel most of these items are of equal importance. Thus, most of these, if not all, would be 1's in my opinion. But for the sake of Delphi, I have rated them 1, 2, 3, and 4."

3. "Should not lie."

"Prepare students for entering into college."

"Too many and duplication 'involves and establish' and 'develop' and 'understand' are non-implementation terms."

4. "I didn't understand 'institutional structure' in #5. The word 'every' in #2 turned me off. I felt many of the behaviors listed were subsumed by those I gave top priority to."
Dear Mr. ......

Enclosed please find Delphi Questionnaire III. You will find that a few minutes is all you need to complete it.

Do not mail. I will pick it up at our conference during the week of ..........

Again, thanks for your continued cooperation.

Sincerely,

Jean F. Emmons
Accompanying each of the statements are the modal responses (Column b), your previous response (Column c), your **new** response (Column d) in light of knowing the modal responses. If you change your original response which is indicated by Column c, please state the reason(s) if any, for the change in Column e.

For your new response (Column d), please use the following key:

1. Top priority  
2. Second priority  
3. Third priority  
4. Fourth priority

A high school principal in a model neighborhood should:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Modal Response</th>
<th>Your Previous Response</th>
<th>Your New Response</th>
<th>Reason for variance between (b) and (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understand the needs of the student and respect him as an individual.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Involve students in every phase of the school program and operation.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Establish two-way communication with students.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Develop a learning climate that is academically sound and relevant to the needs of the students.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Solicit the respect of the students for the institutional structure of the school.</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>Modal Response</td>
<td>Your Previous Response</td>
<td>Your New Response</td>
<td>Reason for variance between (b) and (d)</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>(a) 6. Understand the needs of the staff and respect them as individuals.</td>
<td></td>
<td></td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>7. Involve staff in most phases of the school program and operation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Establish two-way communication with his staff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Develop a teaching climate that is academically sound and relevant to the needs of the teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Solicit the respect of his teachers for the needs of the students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Respect and understand the needs of his school community.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Involve the school community in most phases of the school program and operation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Establish two-way communication with his school community.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Develop a teaching-learning climate in the community that has academic soundness and community relevance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Assume an active role in the community to help the community relate to school as an existing institution.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>Modal Response</td>
<td>Your Previous Response</td>
<td>Your New Response</td>
<td>Reason for variance between (b) and (d)</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>16. Have an academic preparation and experience suitable for leadership in a model-neighborhood community.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Serve as a model for students and community.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Exhibit strength and emotional stability to support his convictions.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Demonstrate agility and flexibility in handling crisis situations.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Practice good human relations to establish rapport in the community.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX K

RECEIVED FROM PARTICIPANTS
COMMENTS FOUND ON DELPHI QUESTIONNAIRE #3 RE REASONS
FOR CHANGE OF PREVIOUS RANKING ON SUMMATION STATEMENTS

1. "Youth today are serious about making the world a better place in which to live. They want and need to become an important part of the educational program."
   "Vagueness."

2. "More and more it has been demonstrated across the nation that students must be involved in all phases. Where they are not, chaos has followed."
   "Change a couple because you helped me understand the item. My perception of item meaning changed after our conversation."
   "Involvement is the principal vehicle through which communication can be achieved."

3. "If students have the opportunity to express themselves, if they can be heard, they will develop an attitude of cooperation and be an important part of the total program."
   "Without this, none of the other programs would be possible."
   "I agree with the modal response. My previous response was based on the forced choice structure of your instrument."
   "Seems to me that items 2 and 3 are closely related, that their priority ranking must be similar."

4. "This is the only reason for existence of a school. It has to have top priority."
   "Error."

5. "I think this ranking should have #1 priority."
   "If other aspects are carried out, this will automatically fall in line."
   "Assuming that the principal respects and involves students, and serves as a model, soliciting respect for institutional structure of the school."
   "Peer leadership."

6. "To enable staff to undertake work with minimal personal problems and concerns."
   "Understood."
   "Vagueness."
   "The goals of the enterprise are achieved through the understanding and cooperation of the staff. Without knowing the staff's needs and responding to them, the principal is dead."
"The principal is very dependent on the staff. It can make or break him (more often break) if he doesn't understand their needs and respect them individually."

7. "This input essential to achieve program development needs of student, community."
"More specific."
"There are some aspects of school operation in which the total staff is little interested. Don't presume on their time for those."

8. "Direct experience from a crisis situation."
"Administration would hang-up where communications down is not matched in kind by ability of staff to input."
"Desirable, but again only around those matters significant to the staff and administration."

9. "The purpose of the school is to educate youth--without a high priority to teaching climate--education will suffer."
"This is a necessary result of item 4. Item 4 is to be achieved, this must go hand-in-hand with it."
"Unhappy students, community stymie efforts of teacher, negate their best potential to teach, lead."
"Specify."
"Didn't understand my first response."
"OK, I'd go the other way if students were substituted for teachers."

10. "I simply feel this is basis for all effective instruction in the classroom and nothing is more important to me than this."
"Although this is important, it is not a top priority because this can only come with experience no matter what priority we give it."
"Togetherness is important."
"Vague."
"This may be a semantic problem. I don't think a principal can 'solicit' respect. He must structure relationship between faculty and students so that teachers are appropriately confronted with student needs."
"Change is related to no change on 6."

11. "The teacher's immediate audience is the pupil. The community is a little further removed and therefore of less importance relatively speaking."
"I am certain the answers should be #1--I fail to recall my previous decision."
"I do not remember my reason for this relatively low rating."
"Unless the principal understands and respects the needs, he cannot establish two-way communication or practice good public relations."
"Each community has its special needs and to successfully serve, one must know his."

12. "We had some meaningful experience in this area after I filled out the form." (Throw brick or carry.)"

"It seems to me that a school is rejecting the concept of the 'school community' if citizens, students and teachers are not involved in most phases of the program and operation."

"Everyone gives a little more of his best self to an action when he believes he has a personal piece of it."

"Directness."

"This continues to be a high priority item in my judgment."

"Agree since everything can't have a one (1) priority this one gives."

13. "On greater reflection, two-way communication is basic to good community-school relationships." (He changed because of new understanding of the word relationship.)

"Error." (He did not mean this one from the beginning.)

"May follow stepped up interaction of the principal with his constituencies. A strong need indeed."

"This skill seems to be of utmost importance to me. The school is a social institution; the school's immediate community is where this perception is grounded and implemented."

14. "I am willing to give this facet a higher position."

"Because of community participation."

"Community needs to understand needs for school approach to academic program and how same relates to their role in it."

"Wasn't really influenced by the modal behavior. My responses on this attempt were probably similar to what they would have been on attempt 1, if you hadn't constrained me with six 1's, 2's, 3's, 4's."

15. "These statements develop a variance because of the limitation of priority choices."

"Priorities."

"Continues to be of paramount importance; school principal must be visible in community affairs."

16. "I believe that educators who work in a model neighborhood community and have not had suitable background and preparation tend to feel insecure themselves and thus create a learning climate which is not healthy."

17. "I see this statement as demanding more attention by the principal."

"I guess the idea of serving as a model is less important and more impossible than I thought formerly."
18. "Leadership needs."
"The principal must exhibit strength which implies emotional stability."
"The principal in the inner-city school is under too much pressure and tension to depreciate this item."

19. "These statements develop a variance because of the limitation on priority choices."
"This is important but principals must possess more than a 'crisis' mentality."

20. "Human relations are basic to all communications and understanding. Therefore, this factor just has to be more important than most of the other 19."
"Found this year that the important thing is merely selling a good feeling."
"Practicing good human relations is a platform for reaching a sound and relevant climate as in 14, and perhaps precluding or minimizing crises situations as in 19, and serves as an 'enabler' for many of the other attributes."
"Seems self-evident to me."

21. "Be sincere about his role and the contribution he can make."
"Should not lie." ("Should be on everyone.")
"Prepare student mass for entering into college."
Dear ..... 

I was going to cut off at three, but that cannot be done--- I must have #4. 

Please --- just once again. 

Enclosed you will find two items: 

(1) a summary of reasons given by you and other cooperating respondents for variance of response. 
(2) Delphi Questionnaire form #IV. 

May I ask you to ---: 

(1) Read the summary of reasons. 
(2) Read Delphi Questionnaire IV. 
(3) State in Column (f) your final response and reasons, if any, for variation from the 2nd Modal Response in Column (c). 

THANKS! 

Jean F. Emmons 

P.S. I have included a self-addressed stamped envelope.
Accompanying each of the summation statements are the modal responses which are indicated in columns (b) and (c), and your previous responses which are indicated in columns (d) and (e). With the knowledge of the 2nd modal response and the list of other respondents' reasons for change you may want to change your 2nd response and indicate this change as your final response.

Column (f) is blank so that you may use it to indicate your final response and column (g) is blank so that you may use it to indicate your final reasons, if any, for the change.

For your new response (column f) please use the following key:
1. Top priority
2. Second priority
3. Third priority
4. Fourth priority

A high school principal in a model neighborhood should:

<table>
<thead>
<tr>
<th>Original Summation Statements</th>
<th>1st Resp.</th>
<th>2nd Resp.</th>
<th>Modal Resp.</th>
<th>1st Modal Resp.</th>
<th>2nd Modal Resp.</th>
<th>Final 1st Resp.</th>
<th>Final 2nd Resp.</th>
<th>Reasons for variance between (c) and (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understand the needs of the student and respect him as an individual.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Involve students in every phase of the school program and operation.</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Establish two-way communication with students.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Develop a learning climate that is academically sound and relevant to the needs of the students.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Summation Statements</td>
<td>Modal</td>
<td>Modal</td>
<td>1st</td>
<td>2nd</td>
<td>Your</td>
<td>Your</td>
<td>Your</td>
<td>Your</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Resp.</td>
<td>Resp.</td>
<td>Resp.</td>
<td>Resp.</td>
<td>Resp.</td>
<td>Resp.</td>
<td>(b)</td>
<td>(c)</td>
</tr>
<tr>
<td>5. Solicit the respect of the students for the institutional structure of the school.</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Understand the needs of the staff and respect them as individuals.</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Involve staff in most phases of the school program and operation.</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Establish two-way communication with his staff.</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Develop a teaching climate that is academically sound and relevant to the needs of the teacher.</td>
<td>3</td>
<td>2-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Solicit the respect of his teachers for the needs of the students.</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Respect and understand the needs of his school community.</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Involve the school community in most phases of the school program and operation.</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Establish two-way communication with his school community.</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Summation Statements</td>
<td>1st Resp.</td>
<td>2nd Resp.</td>
<td>Your 1st Resp.</td>
<td>Your 2nd Resp.</td>
<td>Your Final Resp.</td>
<td>Reasons for variance between (c) and (f)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>-------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) 14. Develop a teaching-learning climate in the community that has academic soundness and community relevance.</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Assume an active role in the community to help the community relate to school as an existing institution.</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Have an academic preparation and experience suitable for leadership in a model-neighborhood community.</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Serve as a model for students and community.</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Exhibit strength and emotional stability to support his convictions.</td>
<td>3</td>
<td>1-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Demonstrate ability and flexibility in handling crisis situations.</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Practice good human relations to establish rapport in the community.</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Additional comments, if any.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Additional comments, if any.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX N

RECEIVED FROM PARTICIPANTS
COMMENTS FOUND ON DELPHI QUESTIONNAIRE #4

1. "This must always be a high priority in a good educational program because this is the purpose of education."

2. "I might agree to reduce priority to 2 but not to 3 as in column C. I still look upon this involvement as essential on a top priority level.

   "I believe in involving students in many phases of the school program but perhaps not in every phase."

   "Every is the key word which causes me to feel this is of less importance."

   "It is impossible to involve students in every phase of the school program and operation but as much as possible they should be involved."

   "Not every phase."

   "Maybe #2--Students won't riot then."

3. "Communications is the key to understanding and becomes a matter of top priority in working with students."

   "I'll stick with second priority despite the items apparent importance under the belief that if priority one items are affected, this will follow naturally."

   "Subsumed by other statements."

4. "Obvious that this is the top purpose of education--'meet the needs of the students.'"

   "This is the 'name of the game.' It must be of top priority."

5. "Still regard priority as in the upper quartile."

   "In the two-way communication demanded, this, too, can be an environmental factor of pride for the student."

   "I am not sure this may still be #1."

   "I don't believe one solicits respect; it is earned."

6. "While this is certainly important, it is of less importance than many other items."

   "The rapport between staff and administrator must be A-1. This is a top priority. Thus the change from 2 to 1."

   "I cannot accept the proposition that students are to receive higher priority than staff as to their needs and respect due them."
7. "None."

8. "I feel the principal's abilities here are related to the staff's--and staff aggression today places the administrator in a position of responding rather than initiating."
   "Has to be #1."
   "Very similar to six, I suspect; thus it deserves a higher priority here, too."

9. "I don't know why the variance exists."
   "It cannot be academically sound if the teacher does not fully believe in purposes of the educational program."
   "Top priority here is necessary in relationship to top priority in item #4."
   "This is the 'name of the game.' It must be of top priority."
   "Teacher not that important."
   "Must avoid losing the notion of academic soundness."

10. "I can think of no reasons."
    "Needs of students must always be top of the list."
    "Again one doesn't actually solicit respect--it is earned. (Maybe a bad term 'solicit')."

11. "I can think of no reasons."
    "Needs of the community are important but fall just behind needs of students."
    "More of this needed in model cities."

12. "None."

13. "Very important but a good program in school will do more to report to the community than any other form of communication."

14. "People must believe in the schools if we are to have their support."
    "The all-inclusive nature of the statement demands top priority placement."
    "Self-help in the Inner City."

15. "Community participation by the principal does not necessarily ins-
    ure the achievement of the items goals."
    "This is the only way a principal can really understand his community. He has to be out there, really 'of' the community."

16. "Relevance."
    "Here I underline the importance of suitable."
17. "Still stand by earlier convictions and reactions."

18. "This is true and almost redundant statement. All teachers must have this to succeed."
   "A must for an able leader."
   "Reconsidered on the basis that many of your items infer institutional changes but only a principal exhibiting #18 will be able to have a chance of success."
   "Exceedingly critical."
   "It seems to me there is more and more evidence that where administration and student-staff groups are 'getting together' in potential-crisis schools, the general social climate, or 'school spirit' is an important factor. Item 18 suggests the principal's example as a leader in order that this esprit de corps may be achieved."

19. "Crisis situations arise today more rapidly and more often. Success depends on agility to handle crisis as it arises."
   "A must for a good administrator."

20. "I can think of no reason for the variance."
   "Proficiency in this area would surely warrant second priority as the principal's effectiveness would be measured by his ability to relate."

21. "I'm not influenced by others' change in response since I attempted to answer the questionnaire sincerely the first time."
   "While responding to 'f' I felt pressured to make my answers agree with 2nd modal response!"
   "Principal and staff should never lie."
   "All items are important and the press to establish priority rankings causes some discomfort. Particular situations may call for variations in how one would or should achieve rankings if he were in those places.

22. "School should be accountable to the elevation of its student body educationally."
Now that you have had the opportunity to become rather well acquainted with the Delphi Questionnaire on which you have worked, I would appreciate your general reactions to it as an aide in guiding groups toward consensus.

Your opinions, briefly noted in the spaces below, will add an important factor in the summarization of my project.

1. How do you feel about its acceptability?

2. How do you feel about its practicality?

3. How do you feel about its reliability?

Just return this sheet in the enclosed envelope, and thanks again for your help.

Sincerely,

Jean F. Emmons
APPENDIX P

THE SELECTED CRITERIA IDENTIFIED

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Student</th>
<th>Staff</th>
<th>Community</th>
<th>Personal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL 8 5 8 2 23

This table depicts how the twenty (20) prime statements reduced to final classification by the experts.