JOURNAL OF MANAGEMENT SYSTEMS, Vol. 5, 1, 49–74

ARTICLE

An AHP-Delphi Group Decision Support System Applied to Conflict Resolution in Hiring Decisions

Madjid Tavana
Dennis T. Kennedy
Jack Rappaport
Y. Joseph Ugras
LaSalle University

■ ABSTRACT

This paper presents a group decision support system (GDSS) which integrates the analytic hierarchy process (AHP) into a Delphi framework. The AHP-Delphi GDSS is applicable to a wide range of complex, multi-criteria decisions which require judgements about qualitative characteristics from a group of evaluators. For example, AHP-Delphi can be used to evaluate the feasibility of alternative information system designs, to integrate qualitative criteria into management accounting systems and to incorporate intangible factors into hiring decisions. This paper demonstrates the AHP-Delphi GDSS by using it to resolve conflict in the hiring of accounting faculty. The potential for conflict exists because of the complexity and qualitative nature of the hiring decision. The results show that the participants initially ranked the candidates differently but eventually reached consensus after four AHP-Delphi rounds.

Group decision support systems (GDSS) are interactive computer-based systems that combine communication, computer, and decision technologies to support the formulation and solution of unstructured problems by a group (Jessup & Tansik, 1991). GDSS have been developed to improve both the process and the outcomes of group decision making. Most of the recent research on group decision making suggests that GDSS result in more even participation among the group members, increase satisfaction and consensus reaching, and produce higher quality decisions (Alavi, 1991; Jessup, Connolly & Galegher, 1990; Lewis & Keleman, 1990; Pinsonneault & Kraemer, 1990). This paper presents a GDSS which helps a group of decision makers evaluate complex judgemental problems by integrating the analytic hierarchy process (AHP) into a Delphi framework. AHP provides a decision maker with a systematic approach to evaluating multi-criteria, multi-alternative problems which require judgements involving qualitative characteristics. The integration of AHP into a Delphi framework enhances the power of AHP by using it in an iterative sequence of individual questioning and anonymous feedback to elicit judgements from a group of individuals who are knowledgeable about issues which are not subject to objective solution.

Referring to AHP, Gray (1984) observes that "...you have to actually try the method in some simple situations to understand its full power." While this study demonstrates AHP-Delphi by using it to resolve conflict in the hiring of accounting faculty, the process is applicable to many complex, multi-criteria problems which require judgements from a group of evaluators. For example, Wilkinson (1991, p. 1140) observes that evaluating the feasibility of alternative information system designs "...requires the evaluators to make a series of subjective judgements..." and concludes there is a need for "...a structured means of incorporating intangible but important factors in the evaluation process." Kaplan and Atkinson (1989, pp. 473-496, pp. 719-740) also recognize the need to integrate qualitative criteria into management accounting systems to support efforts to

Requests for reprints or correspondence concerning this article should be sent to: Madjid Tavana, Center for Technology and Management, LaSalle University, 1900 West Olney Ave., Philadelphia, PA 10141-9985.

increase quality and productivity and to help justify investment in new production technologies. While Charnes, Cooper, Deitrick, Moody and Shin (1990, p. 264) develop a probabilistic model to help CPA firms reduce their employment costs, the authors note that the results of the model are not necessarily the final answer. They recognize qualitative criteria, such as developing talent for future growth or providing incentives to generate new business, may need to be considered in the hiring decision at any particular point in time.

The hiring decision in many accounting departments has had to be restructured as accreditation standards and the evolution of accounting departments have required a reconsideration of the relationships between teaching, research and practice. This restructuring of the hiring decision is often a source of considerable conflict (Williams, Tiller, Herring, & Scheiner, 1988, pp. 131-140). The potential for conflict exists because most faculty hiring decisions are multi-criteria, multi-alternative, multi-evaluator problems. There are a number of candidates, and these candidates typically are evaluated by committee members who have different perceptions about the hiring criteria. In a recent study, Poe and Viator (1990, pp. 75-76) reported significant differences in the relative importance attached to teaching and research in the evaluation of accounting faculty by deans and department heads. In this context, the decision process can be improved by adopting a systematic approach that breaks the complex evaluation problem into smaller decision components (Hegedus & Rasmussen, 1986), checks the consistency of the judgements made by the participants in the decision and provides feedback to each decision participant about the judgements of other participants as a basis for consensus.

AHP is designed to help a decision maker systematically approach an unstructured problem by decomposing it into a hierarchy of criteria and alternatives. Then, the problem is resolved by evaluating the hierarchy through a series of comparisons between pairs of criteria and a series of comparisons between pairs of alternatives. Furthermore, AHP evaluates the consistency of the pairwise comparisons as they are made throughout the hierarchy.

Feedback among the participants in the decision is achieved by using a Delphi process in which individual judgements are summarized and reported anonymously to all the members of a group. The impersonal feedback encourages the participants in the hiring decision to rethink the issues and to reconsider their judgements without the undesirable aspects of group interaction (Bowden, 1989; Dalkey, Rourke, Lewis & Snyder, 1972; North & Pyke, 1969). In a group setting, there is potential for distorting or for submerging individual opinion. This aspect of group interaction has been labeled groupthink (Janis, 1972, 1982). A review of the development of the groupthink hypothesis is provided by Moorhead, Ference and Neck (1991) and by McCauley (1989). A fundamental conclusion emerging from the groupthink literature is that the interaction among the participants in decision making ought to be structured to encourage the participants to express their concerns, questions and new information (Taras, 1991; Moorhead, Ference & Neck, 1991; Sauser, 1988). With Delphi, groupthink is likely to be avoided because individual opinions are protected and are more likely to be evaluated on their merits. Delphi is more likely to produce a consensus about ideas rather than a compromise among individuals.

This AHP-Delphi process was used at a private, urban university to evaluate four candidates for a tenure-track position in the accounting department of its school of business administration. At the time this project was in progress, the business school was in the process of seeking accreditation by the American Assembly of Collegiate Schools of Business (AACSB). Concurrently, the accounting department was in transition from a university orientation in which there is strong emphasis on teaching to a departmental orientation in which there is significant emphasis on research (Williams et al., 1988, pp. 131-133). The business school has had to restructure its hiring decision to reflect these changes. The results show that those participating in the hiring decision initially ranked the candidates differently but eventually reached consensus after four AHP-Delphi rounds. The stability of the judgements was verified in a fifth round.

■ ANALYTIC HIERARCHY PROCESS

AHP was introduced by Saaty (1972, 1977) to assist a decision maker in evaluating complex judgemental problems. AHP assists a decision maker by structuring the problem as a hierarchy of criteria and alternatives. In addition, AHP assists a decision maker in using his judgements to prioritize the criteria and to make trade-offs among the alternatives in evaluating them on the criteria. Saaty (1987) notes that the special value of AHP is "...it can be used to incorporate judgements on intangible criteria and other elements alongside tangible ones which have known measurements."

Because of the intuitive nature of the process and its power in solving complex problems, AHP has been applied to many diverse decisions. Together, Saaty (1990b), Weiss and Rao (1987) and Zahedi (1986) provide a comprehensive survey of the application of AHP. Examples of its recent use include structuring public debate on nuclear power (Hamalainen, 1990), developing a rating system for the allocation of organ transplants (Cook, Staschak & Green, 1990), evaluating the impact of public projects (Azis, 1990), and developing fire safety evaluation programs (Shields, Silcock & Donegan, 1990). Its recent applications to business decisions have been just as diverse and include assessing the effects of organizational changes (Steenge, Bulten & Peters, 1990), synthesizing the factors in strategic management (Searcy, Karake & Forman, 1990), designing products (Wu, 1990), planning information systems (Muralidhar, Santhanam & Wilson, 1990), determining optimum portfolio mix (Khaksari, Ravindra & Grieves, 1989), allocating scarce resources (Brice & Wegner, 1989), and modeling audit judgements (Arrington, Hillison & Jensen, 1984; Bagranoff, 1989; Harper, 1988). While these varied applications appear to be unrelated, all of them involve judgements concerning qualitative criteria.

In this paper, the core methodology is the individual use of a computer-based decision support system. The participants in the hiring decision use an AHP program to decompose the hiring decision into a hierarchy of criteria and alternatives and to assign priorities to them. A flowchart of AHP is presented in Figure 1. The basic processes in AHP are (a) specifying a hierarchy of criteria and alternatives to represent the decision problem; (b) making pairwise comparisons between the elements of the hierarchy; (c) and checking the consistency of the pairwise comparisons.

SPECIFY THE HIERARCHY

As indicated in Figure 1, the first task for a decision participant is to enter a list of criteria and alternatives. In the hiring decision, the criteria are the hiring objectives and the alternatives are the candidates. A generic AHP hierarchy is represented in Figure 2.

Often, decision participants are not concerned with the same aspects of the organization, and they may differ in their understanding of the problem. Therefore, it is unlikely that they would identify the same set of criteria and alternatives. While the participants in the hiring decision are asked to enter their own criteria, they are required to evaluate all the candidates.

MAKE PAIRWISE COMPARISONS

Next, each decision participant is asked to make pairwise comparisons between elements of the hierarchy. For example, a decision participant evaluates the relative importance of criterion 1 compared with criterion 2 in achieving the overall goal of the school to become AACSB qualified while maintaining traditional departmental goals. Similarly, the decision participant is asked to evaluate the relative importance of candidate 1 compared with candidate 2 in achieving hiring criterion 1.

Figure 3 depicts what appears on the video display to assist a decision participant in making these pairwise comparisons. The preference for one candidate relative to another in achieving a particular hiring criterion can be indicated by moving the cursor closer to the candidate that the user prefers. If the user does not know what preference to assign to one candidate relative to another, he is instructed to keep the cursor at the midpoint to record a "don't know" response.

In Figure 3, the cursor is moved closer to candidate 2 than to candidate 1. In this illustration, the ratio of the distance from the left endpoint to the distance from the right endpoint is 60/40 or 1.5. In other words, candidate 2 is preferred 1.5 times as much as candidate 1; and reciprocally, candidate 1 is preferred 40/60 or .66 as much as candidate 2. These ratios are the elements of a reciprocal pairwise comparison matrix from which the relative preference or priority of the candidates is calculated with respect to a particular hiring criterion.

AHP uses pairwise comparisons such as these and matrix theory to derive priorities or weights for each element of a level with respect to each element of a higher level. The relative priority of a candidate with respect to the overall goal is derived from a linear composite of the hiring criteria weights and the candidate priorities with respect to each of the hiring criteria (Saaty, 1986, 1990b).

FIGURE 1

AHP Flowchart

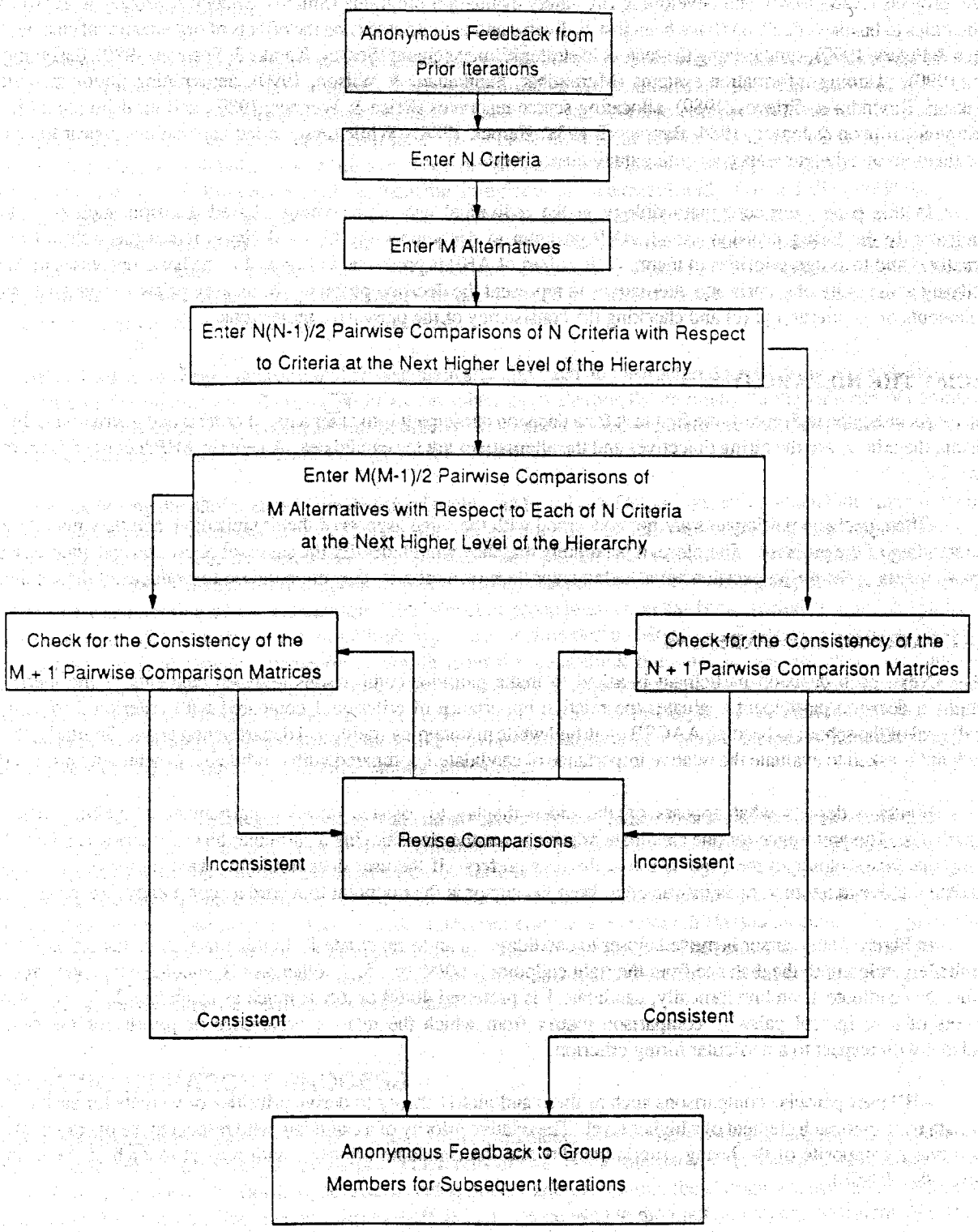


FIGURE 2

The Generic AHP Hierarchy with N Criteria, M Alternatives, and K Levels

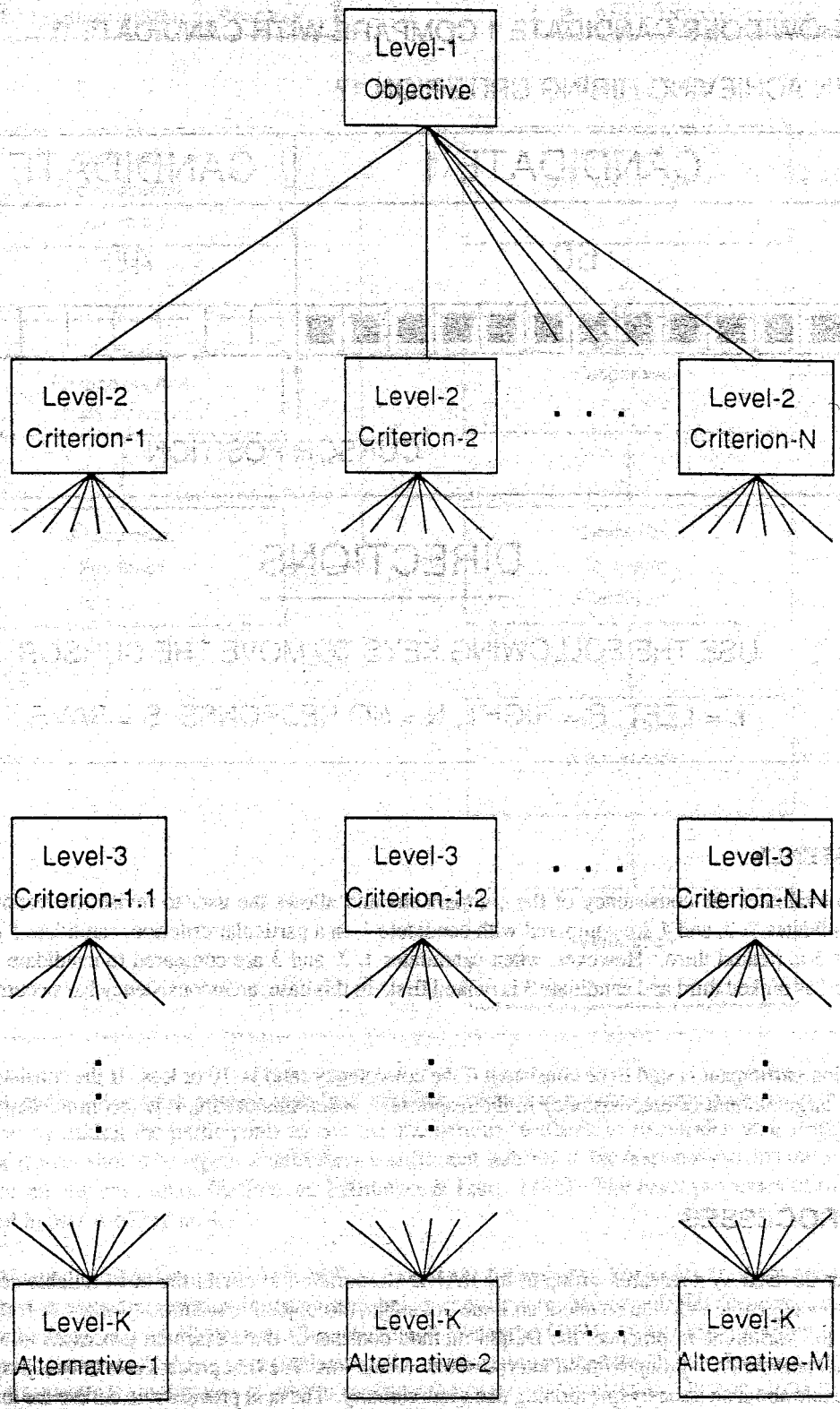
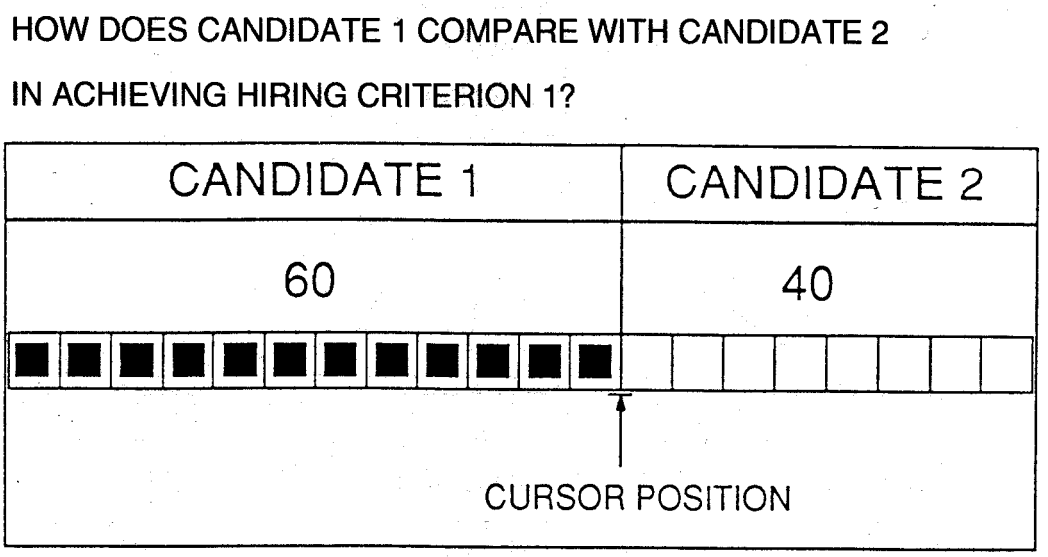


FIGURE 3

Video Display to Assist the Decision Maker with Pairwise Comparisons



CHECK CONSISTENCY

AHP also evaluates the consistency of the comparisons and allows the user to revise his responses. Suppose, for example, when candidates 2, 3, and 4 are compared with candidate 1 on a particular criterion, candidate 1 receives the highest rank and candidate 3 is ranked third. However, when candidates 1, 2, and 3 are compared to candidate 4 on this particular criterion, candidate 1 is ranked third and candidate 3 is ranked first. In this case, an inconsistency has occurred in the ranking of the candidates.

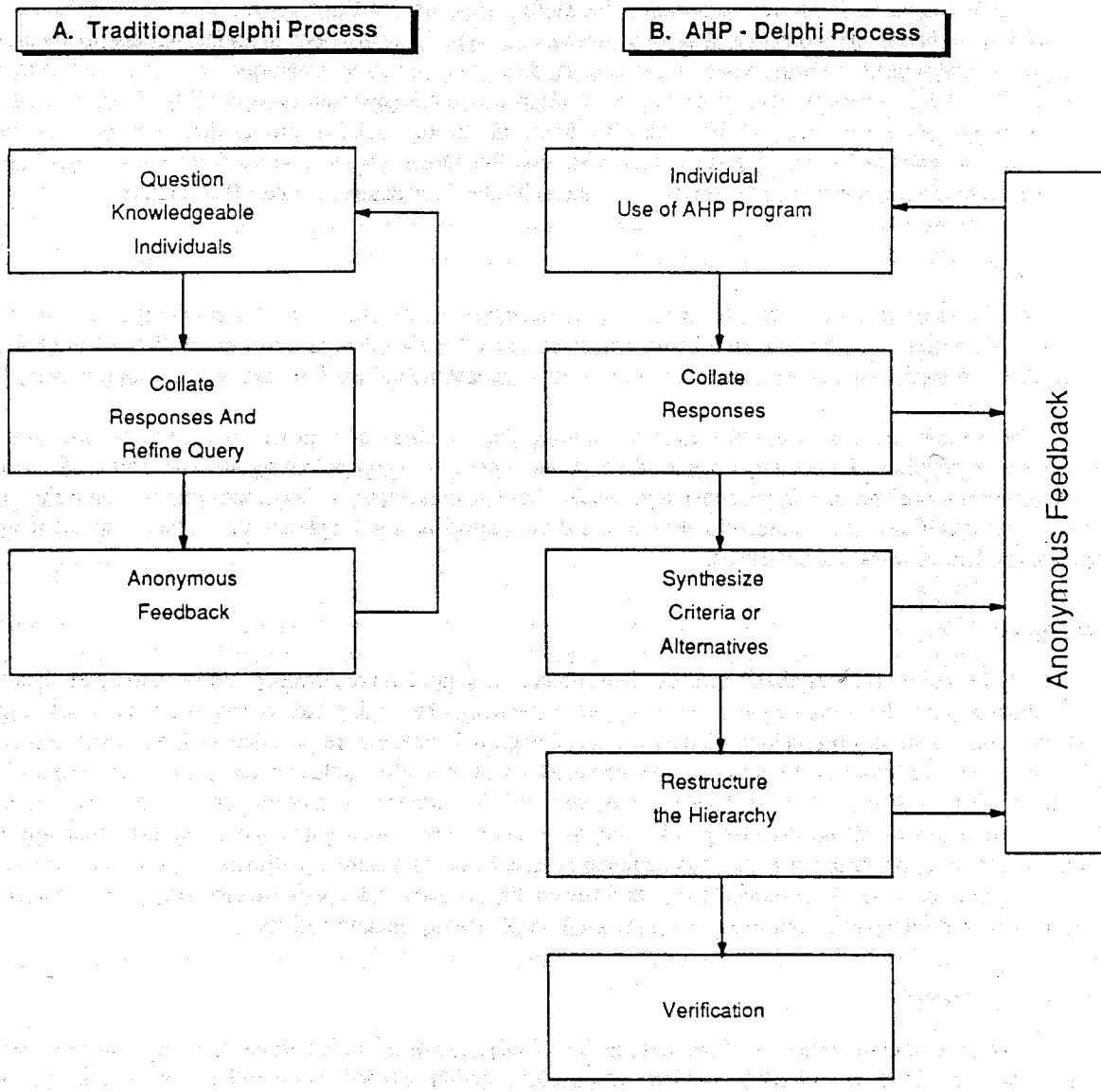
The decision participant is said to be consistent if the consistency ratio is .10 or less. If the consistency ratio is greater than .10, there is a large amount of inconsistency in the responses. When this occurs, it is recommended that the participant revise his responses.

■ DELPHI PROCESSES

Delphi was devised by a research group at the RAND Corporation to obtain the most reliable consensus of opinion from a group of knowledgeable individuals about an issue not subject to objective solution (Dalkey & Helmer, 1963). While there have been many variations in practice, the Delphi method consists of three essential processes to achieve information exchange among the members of a group without interpersonal interaction. The first process is to collect judgements from those who are knowledgeable about an issue by questioning them individually. The next process is to collate the informed judgements

FIGURE 4

Comparison of the Traditional Delphi with the AHP-Delphi



and to refine the questions. The third process is to feed back the collated information anonymously to the participants. The sequence is repeated by asking the participants to use the anonymous feedback to reconsider their responses to the refined questions. These processes should be repeated until there is sufficient stability in the responses so that there is no expectation of further change from subsequent rounds (Erffmeyer, Erffmeyer & Lane, 1986). The basic processes of the traditional Delphi method are depicted in part A of Figure 4.

The Delphi technique has been used frequently in long range forecasting. For example, it has been used by Bijl (1992) to assess future interventions and policies in the mental health industry, by Morley (1992) to predict the impact of market globilization on technology, and by Niederman, Brancheau and Wetherbe (1991) to identify emerging trends in information systems management. However, Delphi is not fundamentally a forecasting procedure. It has also been applied by Weinberger (1992) to evaluate the strategic importance of jobs in pay rate decisions, by Olshfski and Joseph (1991) to assess the training

needs of executives in the public sector, and by Miller, Gibson and Wright (1991) to analyze the economic base of a region. Delphi is a technique for improving group interaction; therefore, it can be used for any purpose for which a committee or decision making group is appropriate (Erffmeyer et al., 1986; Martino, 1985).

While structuring group interaction may be useful, Hegedus and Rasmussen (1986, pp. 546-547) conclude from a review of the empirical literature that structured interaction itself is insufficient to enable groups to successfully perform complex evaluation tasks. Furthermore, they suggest that group decision techniques be integrated with other decision procedures that "break the problems into small pieces" (Hegedus and Rasmussen 1986, p. 558). To improve the effectiveness of the group process in this study, AHP is used to divide the hiring decision into smaller decision components. AHP is integrated into a series of Delphi rounds by three transition functions: (a) anonymous feedback, (b) synthesis of criteria or alternatives, and (c) restructuring of the hierarchy. The AHP-Delphi is depicted in part B of Figure 4.

FEEDBACK

AHP is integrated into a Delphi framework by repeating the AHP after the decision participants receive anonymous feedback of the criteria, weights and ratings which were articulated by the other participants. With this feedback, each evaluator uses the AHP program to reconsider his set of criteria and to repeat the rating of the candidates with the revised set of criteria.

The Delphi process achieves interaction among the members of a group of experts without the limitations of interpersonal interaction. With anonymous feedback of the criteria, weights and ratings of other participants, individuals with different organizational perspectives contribute to each other's understanding of the issues involved in hiring new accounting faculty. With this impersonal interaction, it is expected that individuals will redefine their criteria, revise their ratings of the candidates and move toward a consensus.

SYNTHESIS

The Delphi process requires a group of investigators who pool the responses of the decision participants. In addition, the investigators help the decision participants toward a consensus by editing the criteria or the alternatives (North & Pyke, 1969). At some point, the criteria identified by the decision participants, the weights they assign to the criteria and their rating of the candidates are reviewed to arrive at a synthesized set of mutually exclusive and collectively exhaustive criteria and alternatives. Criteria or alternatives that are accorded very little importance could be dropped. Some hiring criteria listed by the different participants might not be identical but might describe approximately the same concept. Judicious redefinition of criteria can represent a number of apparently different criteria listed by different participants. After a hierarchy is synthesized from the output of previous AHP rounds, the participants in the decision make pairwise comparisons with the AHP program as before, except that each participant uses the synthesized set of criteria and alternatives.

RESTRUCTURING

Several issues have been raised concerning the effective use of AHP. These issues include the number of levels in the hierarchy, the number of criteria to be considered at each level and the existence of correlated criteria. In applying AHP, there has been a tendency to make the hierarchy complicated by including a large number of levels and criteria. For example, in a portfolio selection problem, Saaty and Vargas (1982) delineate sixteen benefit criteria, thirty-seven cost criteria, eight subobjectives and thirty-seven business units in a nine level hierarchy. Such a complex hierarchical structure makes the task of collecting responses for pairwise comparisons both time consuming and tedious for the decision participants. In addition, a complex hierarchy increases the risk of unreliable results because of inconsistent responses and correlated criteria.

Because of these considerations, the hiring decision hierarchy is kept simple in the early rounds. It is limited to one level of criteria and one level of alternatives. In later rounds, the hierarchy can be restructured to include more levels by defining subcriteria. Restructuring can eliminate inconsistencies caused by correlated criteria or by criteria that are not clearly defined for each participant (Weiss & Rao, 1987). After receiving anonymous feedback from the previous AHP round, the participants in the decision make pairwise comparisons as in previous rounds except that each participant uses the restructured hierarchy.

RESULTS

The AHP-Delphi methodology was applied to the hiring decision in the accounting department of a private, urban university which is seeking AACSB accreditation. There were four participants who functioned as evaluators in the decision process: the dean of the school of business administration, the director of graduate programs in business administration, the chairman of the accounting department, and a faculty representative from the accounting department. There were four candidates who were being considered for a tenure-track position in the accounting department. The candidates were evaluated on the basis of their potential to further the objectives of the institution.

In this study, the AHP-Delphi process was implemented in five rounds. Each of the participants in the project was interviewed by the investigators after each of the AHP-Delphi rounds. As suggested by Dalkey and Helmer (1963), these interviews were conducted to provide the investigators with an understanding of the participants' responses and to help the investigators avoid distorting the intent of the participants as the investigators performed the transition processes.

In round one, each evaluator was asked to use the AHP program to analyze the problem by identifying criteria and by making a series of comparisons between pairs of criteria and between pairs of candidates. This round was intended to familiarize each participant with the problem, the AHP program and the idea of pairwise comparisons.

The first round was successful in developing a diverse set of criteria from four decision participants with different organizational perspectives. The criteria and weights which were identified by each participant are listed in the Appendix. The criteria and weights indicate both a diversity of viewpoints among the participants and some agreement on several criteria. The overall ratings of the candidates are as different as the criteria and weights identified by the participants. Because of the lack of consensus, round two was implemented.

To begin the second round, each participant received anonymous feedback from the first round. Without revealing the sources, each participant was provided with a listing of the criteria identified by each participant and a graphical representation of the criteria weights and candidate ratings which resulted from the process of pairwise comparisons. A sample of the feedback from round one is presented in Figure 5. One reason for this detailed feedback was to provide the interaction necessary for the participants to reconsider their judgements. Another reason was to minimize the pull of the median which Brockhoff (1983) noted as a potential problem in a Delphi.

After reviewing this anonymous feedback, each evaluator was asked to repeat the AHP process. The participants did redefine their criteria and revise the weights assigned to their criteria in response to the feedback from the other participants. The revised criteria and weights are presented in the Appendix. Even with the redefinition of the criteria and the revision of the weights, the overall ratings of the candidates from round two are essentially the same as the overall ratings of the candidates from round one. After two rounds, there remained a lack of consensus about the ranking of the candidates, and round three was implemented.

To begin the third round, the investigators synthesized a single set of criteria from the individual evaluations in the preceding round. Weiss and Rao (1987, pp. 51-56) discuss design issues involved in the implementation of AHP and guidelines for synthesizing a set of criteria. The set of criteria which was synthesized from the output of round two is presented in the Appendix. Each evaluator was given anonymous feedback from round two in the format presented in Figure 5 and was asked to repeat the AHP process with the synthesized set of criteria.

Round three resulted in a more consistent ranking of the candidates. Figure 6 presents the overall ranking of the candidates. As a result of their judgements, each of the evaluators ranked candidate 3 as the first choice. Although a consensus about a first choice was reached, the chairman assigned significantly more priority to candidate 3 than any other participant, and some conflict remained regarding a second choice. Furthermore, the chairman continued to be inconsistent in assigning priorities to the criteria. In order to resolve these issues, the process was continued.

In round four, the hierarchy was restructured. The restructuring was intended to delineate the criteria more clearly and to reduce the number of pairwise comparisons at any level. The restructuring was accomplished by assigning some of the criteria from round three to a level of subcriteria under teaching and research. With this restructuring the number of criteria was reduced

FIGURE 5

A Sample Feedback Report

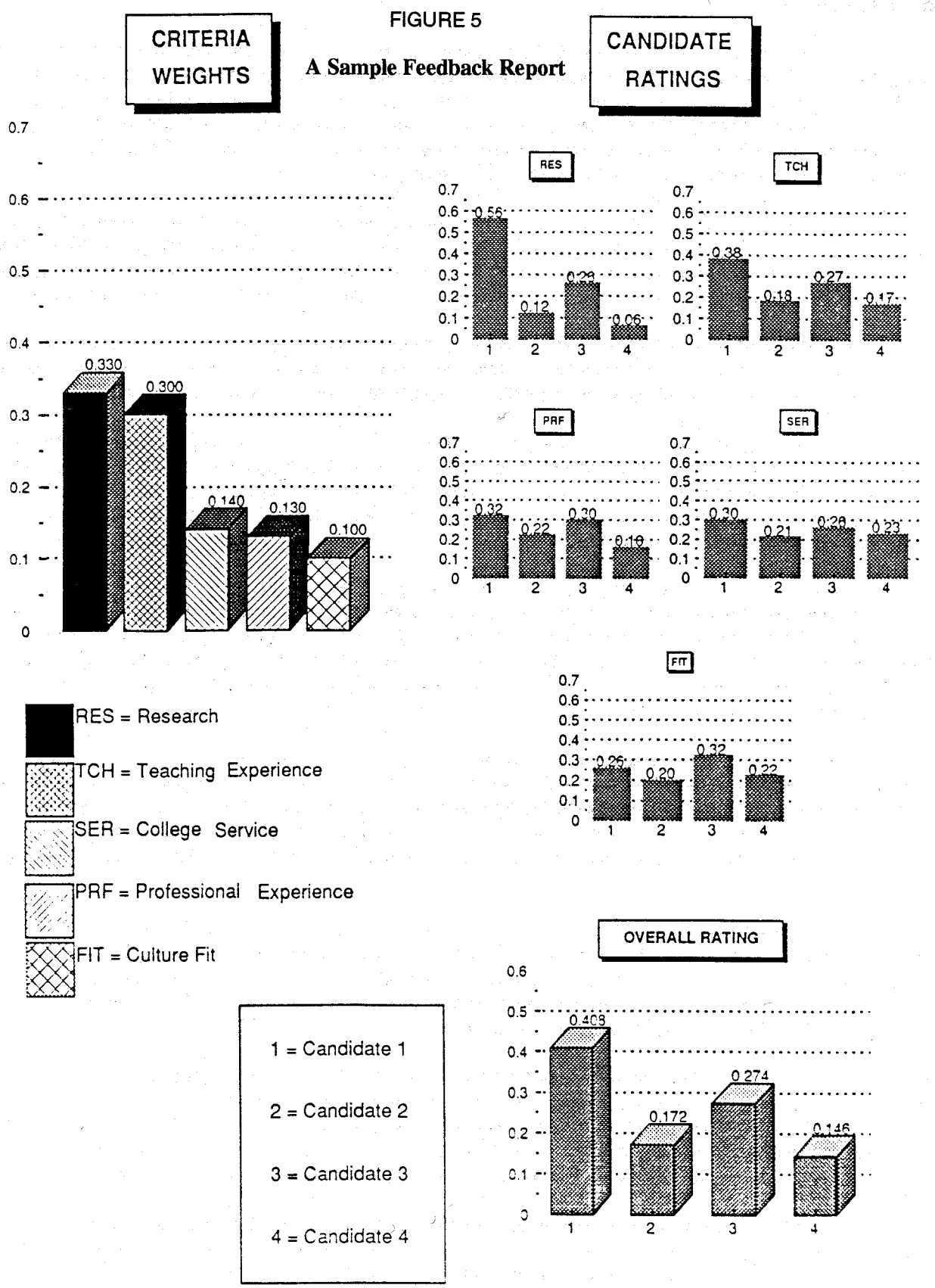


FIGURE 6

Third Round Summary

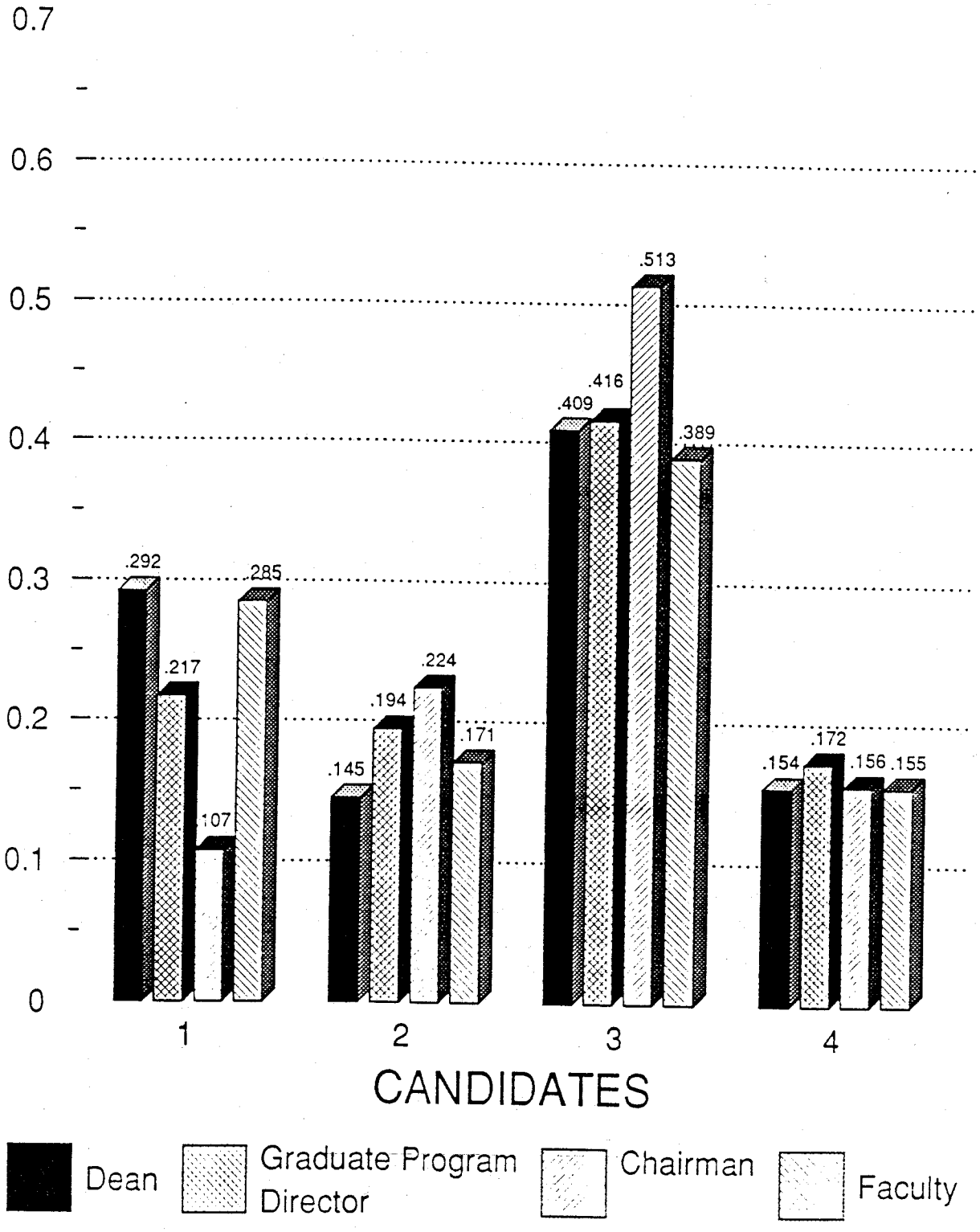
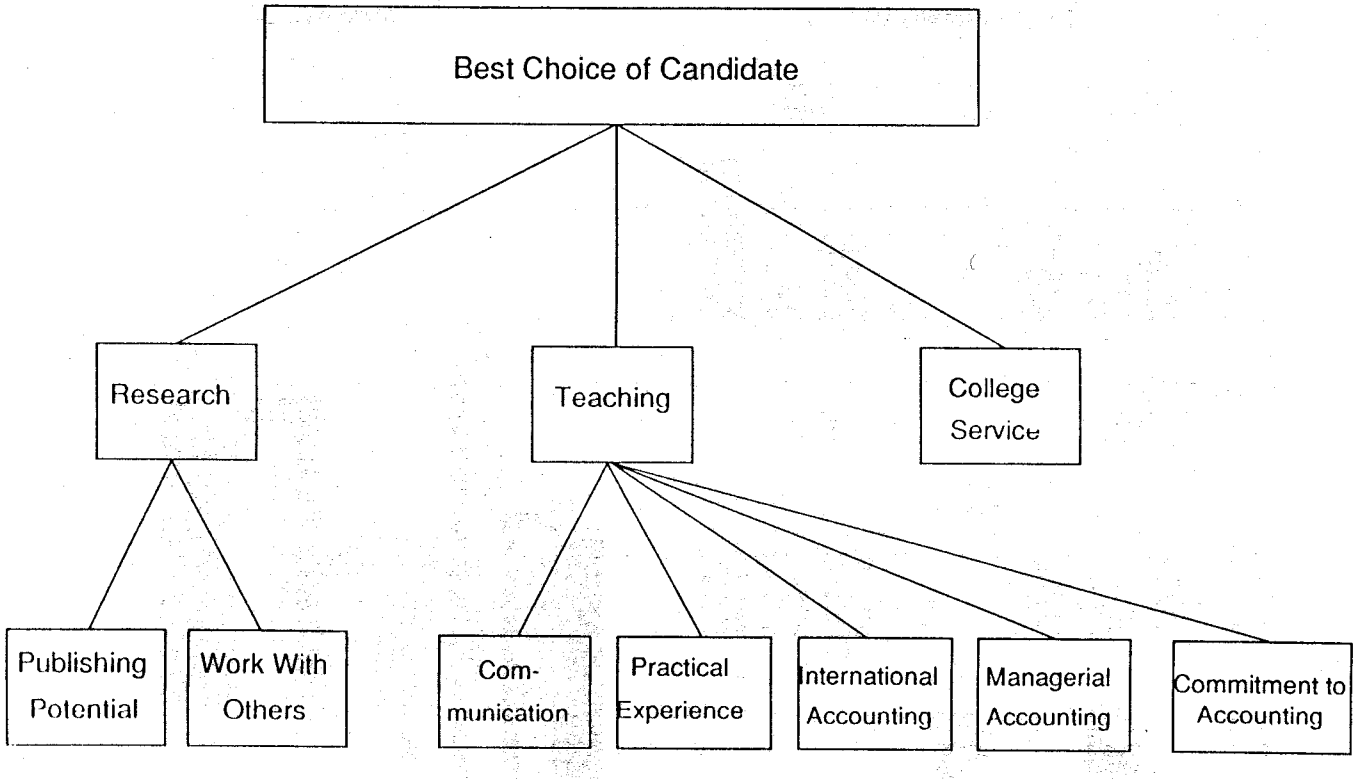


FIGURE 7

Restructured Hierarchy



from nine to four, and the number of items to be compared at any level was reduced to five subcriteria under teaching. The restructured hierarchy is presented in Figure 7.

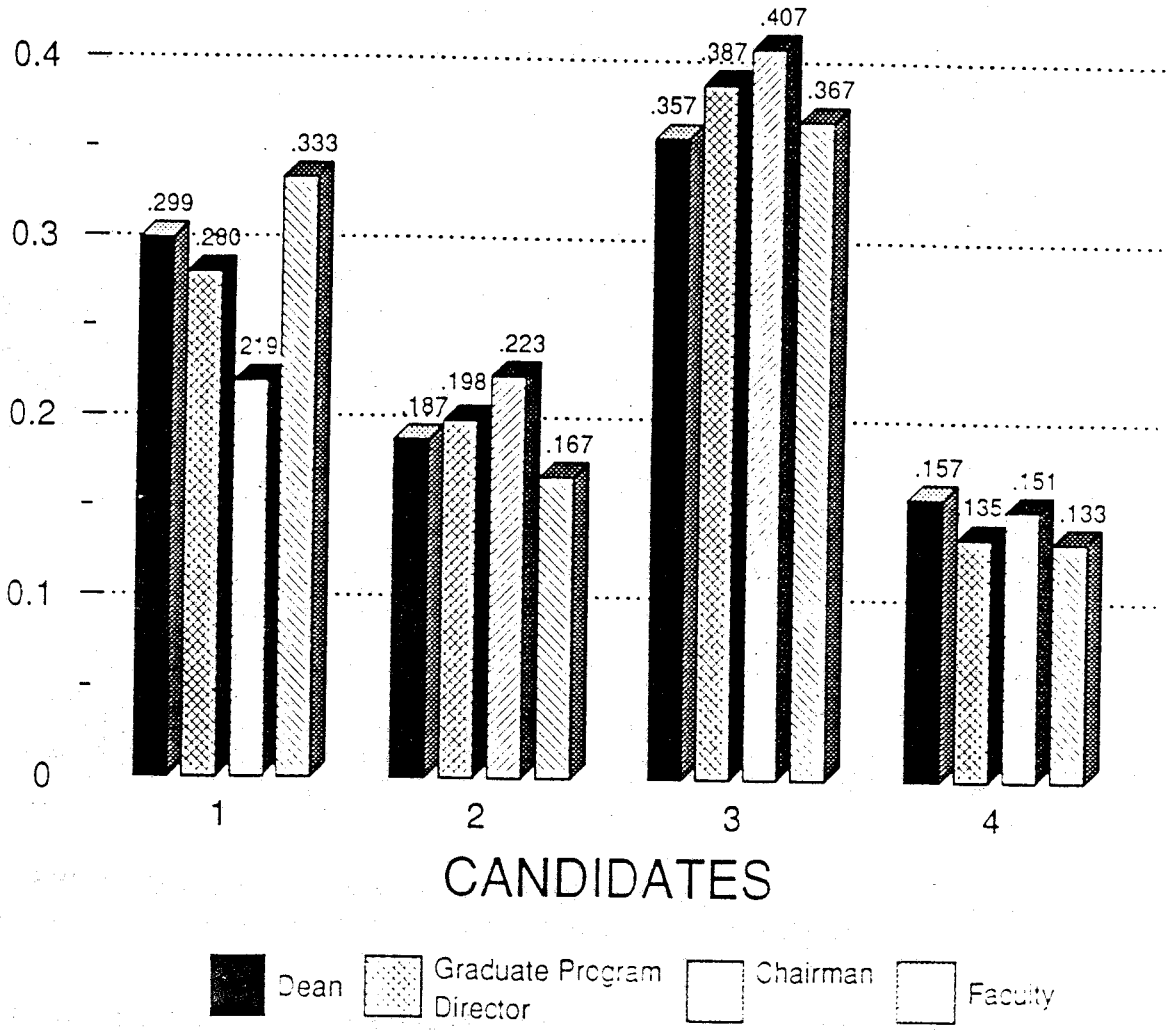
After receiving anonymous feedback from round three, the decision participants repeated the AHP program with the restructured hierarchy. The overall rating of the candidates is reported in Figure 8. Restructuring the hierarchy was useful in two ways. First, the chairman, who had difficulty in comparing the nine criteria in round three, achieved consistency with the restructured hierarchy. Second, the judgements of the participants achieved stability (Martino, 1983). Candidate 3 remained the first choice and the decision participants moved closer to a consensus about a second choice. Three of the four participants ranked candidate 1 as the second overall choice. Even the chairman, with fewer criteria in the restructured hierarchy, increased the weight assigned to research and ranked candidate 1 more favorably. However, there still was some disagreement about the priority of the criteria and the rating of the candidates on the criteria. As Dalkey and Helmer (1963) have noted, it cannot be expected that the final responses will coincide; some terminal disagreement is to be expected.

A fifth AHP-Delphi round was conducted to evaluate the stability of the judgements and the consensus. In this round, the participants were presented with a hierarchy which was developed outside the AHP-Delphi process in this research. This final hierarchy had been developed by the researchers from discussions with faculty, graduate program directors and deans other than the participants in this study.

As before, the participants were given anonymous feedback from the previous round and were asked to repeat the AHP process with the final hierarchy. The weights for all the criteria at the different levels of this final hierarchy, together with the arithmetic and geometric means of the weights assigned by the evaluators, are presented in Figure 10 through Figure 12. The overall ratings of the candidates from the fifth round, with the arithmetic and geometric means of these overall ratings, are

FIGURE 8

Fourth Round Summary



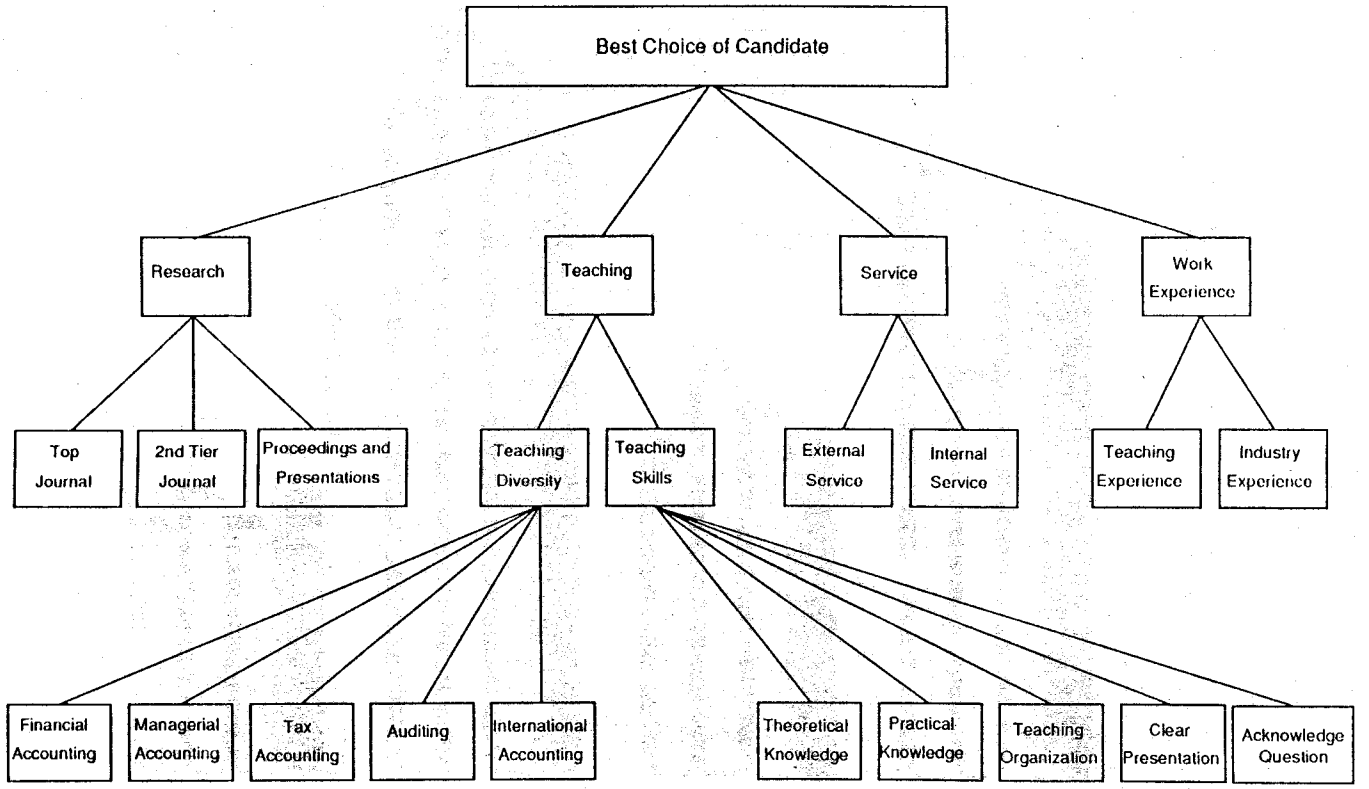
presented in Figure 13. The geometric mean is suggested by Saaty (1990a, p. 228) as a tool to combine individual judgements. A comparison of the criteria weights and the overall ratings to the arithmetic and geometric means reveals relatively small deviations and indicates that residual disagreement is minimal. It is also important to note that all the evaluators were very consistent in their judgements. The overall inconsistency ratios were .02 for both the dean and the director of graduate programs and .03 for both the chairman and the faculty member. Finally, a comparison between the overall ratings from the fourth and the fifth rounds indicates that the rankings of the candidates remained unchanged with the exception that now there is unanimous agreement on candidate 1 as the second choice.

■ DISCUSSION

This paper demonstrates a GDSS which integrates AHP and Delphi to structure the elicitation and analysis of group preferences. While this study uses AHP-Delphi to resolve conflict in the hiring of accounting faculty, the process is applicable to a broad spectrum of complex problems which require judgements involving qualitative criteria from a group of decision

FIGURE 9

Final Hierarchy



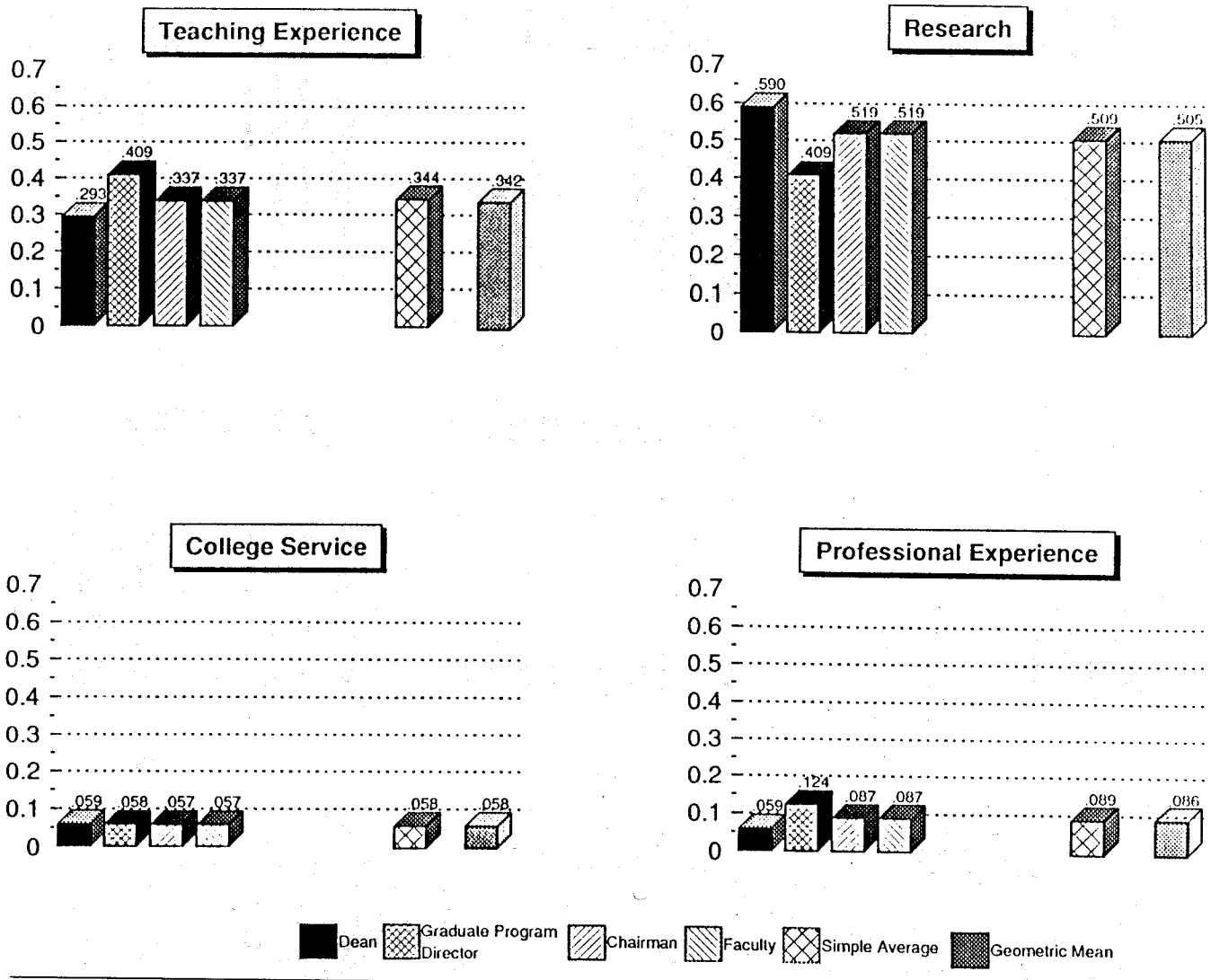
makers. Overall, the outcomes of this study are consistent with the previous research on AHP, Delphi and GDSS. Specifically, the proposed framework has the potential to increase the quality of group decision making because it affects group processes in three major ways.

First, the AHP-Delphi GDSS encourages group members to channel their efforts toward task-oriented activities. AHP provides a systematic approach to formulate and solve unstructured problems by directing the decision maker to decompose the problem into a hierarchy of criteria and alternatives, then to use pairwise comparisions on ratio scales to evaluate both qualitative and quantitative criteria (Harker & Vargas, 1987). While AHP gives each participant the priorities implicit in their own pairwise comparisons and the consistency with which the comparisons were made, Delphi gives feedback about the decisions of other group members. Implementing the process by using a GDSS provided immediate feedback to the decision makers about their choices, permitted the judgements of the group members to be integrated and enabled sensitivity analysis to be conducted. Together, these attributes of the GDSS increase the depth of the analysis and contribute to providing a higher quality decision (Alavi,1991).

Second, in a group setting, status differences can reduce the willingness of group members to participate, and a few individuals can dominate the decision process. In AHP-Delphi, individuals are questioned systematically, and feedback is provided anonymously. The logical structure of AHP and the impersonal interaction in Delphi reduce the inhibitory effects of status differences and the potential for domination of the group by a few individuals (Jessup, Connolly & Galegher, 1990). Because AHP-Delphi contributes to more even participation, the group members are more likely to be satisfied with the process and confident in the outcome (Lewis & Keleman, 1990; Pinsonneault & Kraemer, 1990).

FIGURE 10

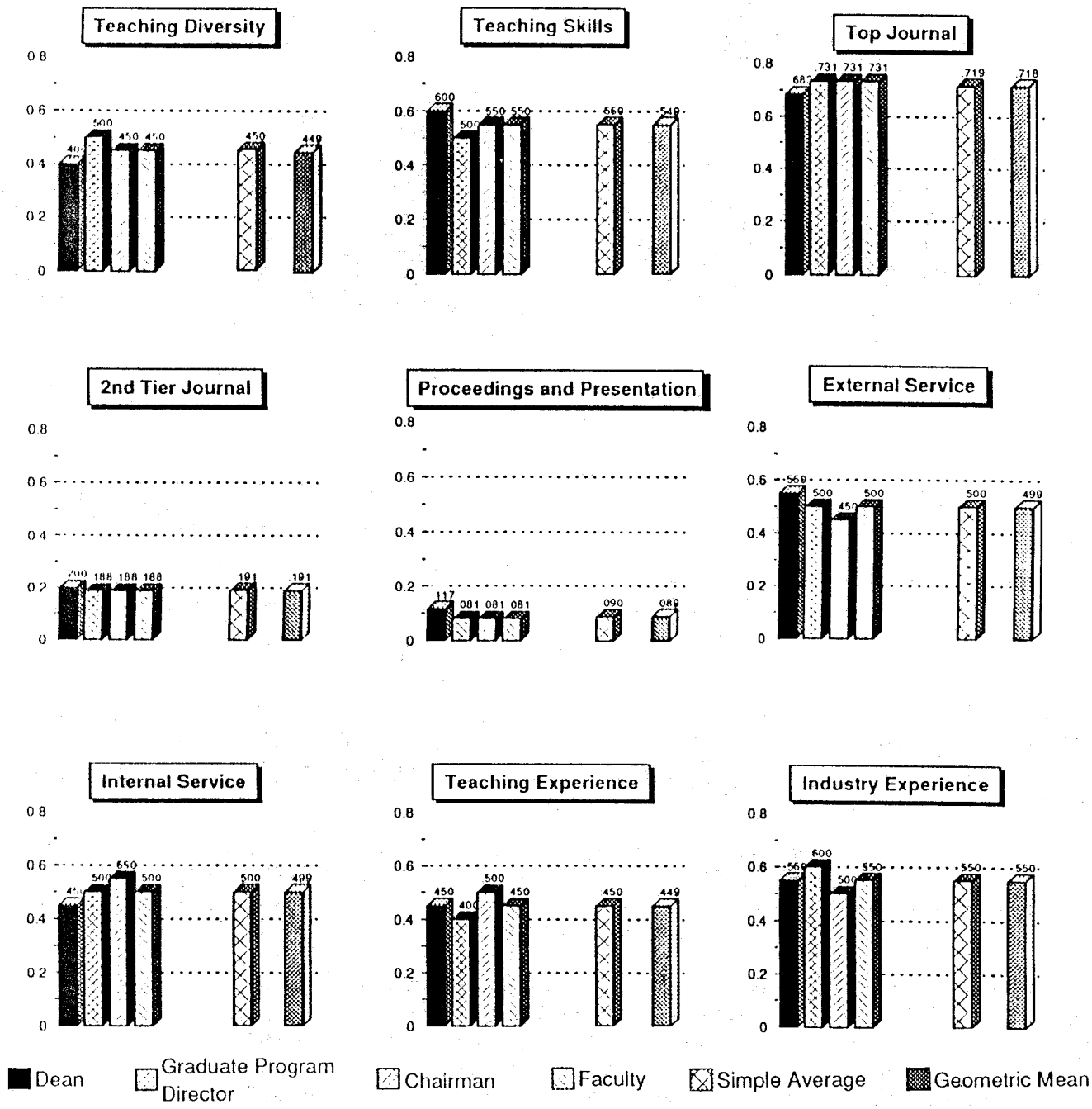
Fifth Round Level 2 Criteria:
Individual Ratings vs Arithmetic and Geometric Means



Third, group decisions are frequently a source of considerable conflict among the participants as they approach the decision with different sets of criteria and priorities. AHP-Delphi can be viewed as both a conflict-generating and a conflict managment procedure (Hegedus & Rasmussen, 1986, p. 557). The structured interaction of AHP-Delphi replaces the potential for conflict among personalities with competition among ideas. In the initial phases of this study, group members with different organizational perspectives contributed a diversity of viewpoints which inhibited the groupthink phenomenon. The detailed feedback provided the interaction necessary for the group members to rethink the issues, reconsider their judgements and decrease the time to arrive at consensus. The results show that those participating in the hiring decision initially ranked the candidates differently but reached consensus after four AHP-Delphi rounds These results are consistent with observations by Erffmeyer et al. (1986) and Martino (1983) that four rounds are usually sufficient in a Delphi. In a fifth round, the hierarchy was restructured, and the results demonstrate that the consensus reached through task-oriented interaction is stable.

FIGURE 11

Fifth Round Level 3 Criteria:
Individual Ratings vs Arithmetic and Geometric Means



In order to use AHP-Delphi effectively, several issues need to be recognized. First, the procedure assumes knowledgeable individuals (Dalkey et al., 1972); therefore, selection of the participants for the Delphi group is important. This issue is discussed by Brockhoff (1983) and by Preble (1984).

FIGURE 12

Fifth Round Level 4 Criteria:
Individual Ratings vs Arithmetic and Geometric Means

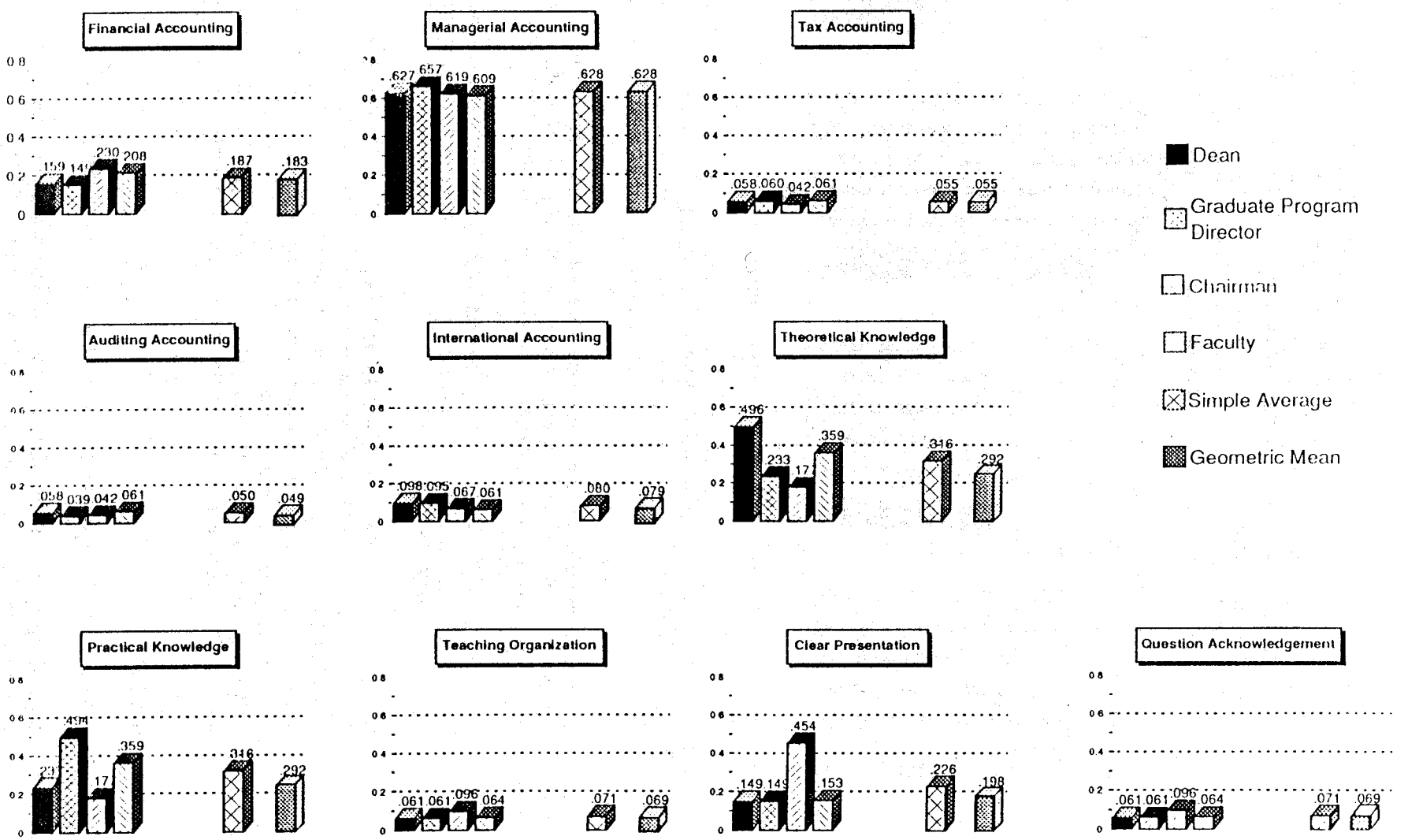
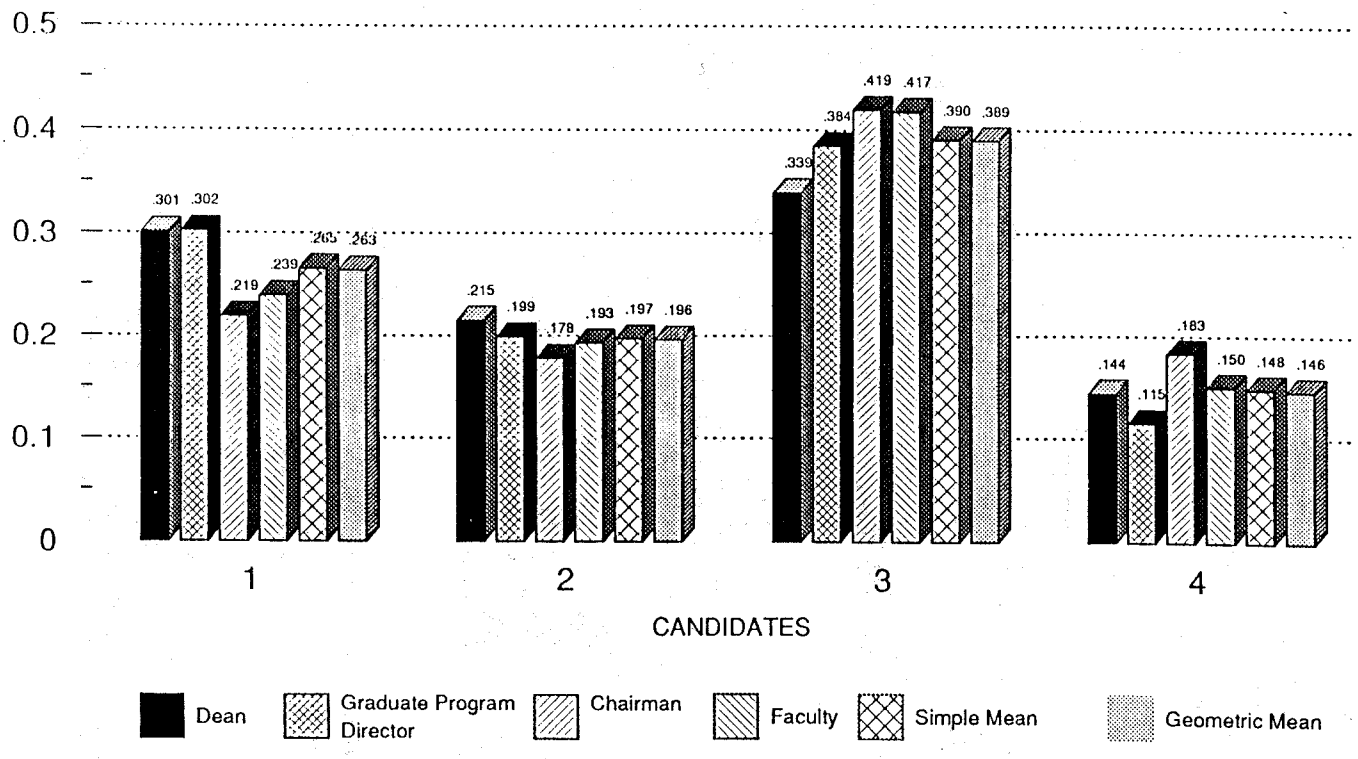


FIGURE 13

Fifth Round Overall Ratings vs Arithmetic and Geometric Means



Second, some leading by the investigators is inevitable in the collating and editing phase of Delphi as the investigators synthesize the responses of the participants and restructure the questions. These processes should be based on interviews with the respondents after each questioning phase to avoid distortion of intent and meaning.

Third, it is always a possibility that an individual with formal authority could override a group decision support system. However, AHP-Delphi more clearly defines the risks associated with such action by providing the perspective of knowledgeable individuals to the person with formal authority.

In the future, research with AHP-Delphi could explore many problems which require judgements about qualitative characteristics from a number of decision-makers. One interesting area of research would be to examine how the priorities assigned to criteria or alternatives vary among the constituencies involved in a decision. In this research, the judgements of all of the participants were given equal weight. An extension would be to assign different weights to the participants to reflect differences in their expertise, experience or organizational level. Another possible extension would be to have the participants in a decision use AHP as a group after a series of Delphi rounds. The possible applications and extensions of AHP-Delphi are numerous since most significant decisions are group decisions involving judgements about qualitative criteria.

■ REFERENCES

Alavi, M. (1991). Group Decision Support Systems: A key to business team productivity. *Journal of Information Systems Management, 8*(3), 36-41.

Arrington, C., Hillison, W., & Jensen, R.E. (1984). An application of Analytical Hierarchy Process to model expert judgements on analytical review procedures. *Journal of Accounting Research, 22*(1), 298-311.

Azis, I. J. (1990). Analytic Hierarchy Process in the benefit-cost framework: A post-evaluation of the Trans-Sumatra Highway Project. *European Journal of Operational Research, 48*(1), 38-48.

Bagranoff, N. A. (1989). Using an Analytic Hierarchy Approach to design internal control systems. *Journal of Accounting and EDP, 4*(4), 37-41.

Bijl, R. (1992). Delphi in a future scenario study on mental health and mental health care. *Futures, 24*(3), 232-250.

Bowden, R. J. (1989). Feedback forecasting games: An overview. *Journal of Forecasting, 8*(2), 117-127.

Brice, H., & Wegner, T. (1989). A quantitative approach to corporate social responsibility programme formulation. *Managerial & Decision Economics, 10*(2), 163-171.

Brockhoff, K. (1983). Group process for forecasting. *European Journal of Operational Research, 13*(2), 115-127.

Charnes, A., Cooper, W., Deitrick, J., Moody, W. & Shin, H. (1990). Optimal hiring decisions for entry-level auditors in a CPA firm: A computerized model for improving hiring practices. *Advances In Accounting, 8,* 247-270.

Cook, D. R., Staschak, S., & Green, W. T. (1990). Equitable allocation of livers for orthotopic transplantation: An application of the Analytic Hierarchy Process. *European Journal of Operational Research, 48*(1), 49-56.

Dalkey, N. C., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management Science, 9,* 458-467.

Dalkey, N. C., Rourke, D. L., Lewis, R., & Snyder, D. (1972). *Studies in the quality of life.* Lexington: D.C. Heath and Company.

Erffmeyer, R. C., Erffmeyer, E. S., & Lane, I. M. (1986). The Delphi technique: An empirical evaluation of the optimal number of rounds. *Group & Organization Studies, 11*(1-2), 120-128.

Gray, P. (1984). Review of *The Analytic Hierarchy Process,* and *Decision making for leaders]. Interfaces, 14*(3) 97-99.

Hamalainen, R. P. (1990). A decision aid in the public debate on nuclear power. *European Journal of Operational Research, 48*(1), 66-76.

Harker, P. T., & Vargas, L. G. (1987). The theory of ratio scale estimation: Saaty's Analytic Hierarchy Process. *Management Science, 33*(11), 1383-1403.

Harper, R. M., Jr. (1988). AHP judgement models of EDP auditors' evaluations of internal control for local area networks. *Journal of Information Systems, 3*(1), 67-86.

Hegedus, D. M., & Rasmussen, R. V. (1986). Task effectiveness and interaction process of a modified nominal group technique in solving an evaluation problem. *Journal of Management, 12*(4), 545-560.

Janis, I. L. (1972). *Victims of groupthink.* Boston: Houghton Mifflin.

Janis, I. L. (1982). *Groupthink.* (2nd ed.). Boston: Houghton Mifflin.

Jessup, L. M., Connolly, T., & Galegher, J. (1990). The effects of anonymity on GDSS group process with an idea-generating task. *MIS Quarterly, 14*(3), 313-321.

Jessup, L. M., & Tansik, D. A. (1991). Decision making in an automated environment: The effect of anonymity and proximity with a Group Decision Support System. *Decision Sciences, 22*(2), 266-279.

Kaplan, R. S., & Atkinson, A. A. (1989). *Advanced management accounting.* Englewood Cliffs: Prentice Hall.

Khaksari, S., Ravindra, K., & Grieves, R. (1989). A new approach to determining optimum portfolio mix. *Journal of Portfolio Management, 15*(3), 43-49.

Lewis, L. F., & Keleman, K. S. (1990). Experiences with GDSS development: Lab and field studies. *Journal of Information Science Principles & Practice, 16*(3), 195-205.

Martino, J. P. (1983). *Technological forecasting for decision making.* New York: Elsevier Science Publishing.

Martino, J. P. (1985). Looking ahead with confidence. *IEEE Spectrum, 22*(3), 76-81.

McCauley, C. (1989). The nature of social influence in groupthink: compliance and internalization. *Journal of Personality and Social Psychology, 57*(2), 250-260.

Miller, M. M., Gibson, L. J., & Wright, N. G. (1991). Location quotient: A basic tool for economic development analysis. *Economic Development Review, 9*(2), 65-68.

Moorhead, G., Ference, R. J., & Neck, C. P. (1991). Group decision fiascoes continue: space shuttle Challenger and a revised groupthink framework. *Human Relations, 44*(6), 539-550.

Morley, D. (1992). Strengths and weaknesses. *Manufacturing Systems, 10*(1), 42.

Muralidhar, K., Santhanam, R., & Wilson, R. (1990). Using the Analytic Hierarchy Process for information system project selection. *Information and Management, 18*(2), 87-95.

Niederman, F., Brancheau, J. C., & Wetherbe, J. C. (1991). Information systems management issues for the 1990s. *MIS Quarterly, 15*(4), 474-500.

North, H. Q., & Pyke, D. L. (1969). Probes of the technological future. *Harvard Business Review, 47*(3), 68-82.

Olshfski, D., & Joseph, A. (1991). Assessing training needs of executives using the Delphi Technique. *Public Productivity &*

Management Review, 14(3), 297-301.
Pinsonneault, A., & Kraemer, K. L. (1990). The effects of electronic meetings on group processes and outcomes: An assessment of the empirical research. *European Journal of Operational Research, 46*(2), 143-161.
Poe, C. D., & Viator, R. E. (1990). AACSB accounting accreditation and administrators' attitudes toward criteria for the evaluation of faculty. *Issues in Accounting Education, 5*(1), 59-77.
Preble, J. F. (1984). The selection of Delphi panels for strategic planning purposes. *Strategic Management Journal, 5*(2), 157-170.
Saaty, T. L. (1972). *An eigenvalue allocation model for prioritization and planning.* Energy Management and Policy Center, University of Pennsylvania.
Saaty, T. L. (1977). A scaling method for priorities in hierarchical structures. *Journal of Mathematical Psychology, 15*(3), 234-281.
Saaty, T. L. (1986). Axiomatic foundation of the Analytic Hierarchy Process. *Management Science, 32,* 841-855.
Saaty, T. L. (1987). Concepts, theory, and techniques: Rank generation, preservation, and reversal in the Analytic Hierarchy Decision Process. *Decision Sciences, 18*(2), 157-177.
Saaty, T. L. (1990a). *Decision making for leaders: The Analytic Hierarchy Process for decisions in a complex world.* Pittsburgh: RWS Publications.
Saaty, T. L. (1990b). *Multicriteria decision making: The Analytic Hierarchy Process.* Pittsburgh: RWS Publications.
Saaty, T. L., & Vargas, L. (1982). *The logic of priorities.* Boston: Kluwer-Nijhoff.
Sauser, W. I., Jr. (1988). Injecting contrast: a key to quality decisions. *Advanced Management Journal, 53*(4), 20-23.
Searcy, W. P., Karake, Z. A., & Forman, E. H. (1990). Informational system for integrating strategic management methodologies. *Information Age, 12*(3), 130-140.
Shields, T. J., Silcock, G. W., & Donegan, H. A. (1990). Towards the development of a fire safety systems evaluation for public assembly buildings. *Construction Management & Economics, 8*(2), 147-158.
Steenge, A. E., Bulten, A., & Peters, F. G. (1990). The decentralization of a sales support department in a medium-large company: A quantitative assessment based on ideas of Thomas L. Saaty and Stafford Beer. *European Journal of Operational Research, 48*(1), 120-127.
Taras, D. G. (1991). Breaking the silence: differentiating crises of agreement. *Public Administration Quarterly, 14*(4), 401-418.
Weinberger, T. E. (1992). The strategic centrality of jobs: A measure of value. *Compensation & Benefits Review, 24*(1), 61-68.
Weiss, E. N., & Rao, V. R. (1987). AHP design issues for large-scale systems. *Decision Sciences, 18*(1), 43-61.
Wilkinson, J. W. (1991). *Accounting and information systems.* New York: John Wiley & Sons.
Williams, J. R., Tiller, M. G., Herring III, H. C., & Scheiner, J. H. (1988). *A framework for the development of accounting education research.* Sarasota: American Accounting Association.
Wu, N. (1990). Identifying, measuring and analyzing multidimensional attributes for design and redesign consideration. *International Journal of Operations and Production Management, 10*(4), 65-72.
Zahedi, F. (1986). The Analytical Hierarchy Process—A survey of the method and its applications. *Interfaces, 16*(4), 96-108.

■ APPENDIX

First Round Results

Participant	Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
Dean	Research	.33	.56	.12	.26	.06	.1848	.0396	.0858	.0198
	Teaching Experience	.30	.38	.18	.27	.17	.1140	.0540	.0810	.0510
	College Service	.14	.30	.21	.26	.23	.0420	.0294	.0364	.0322
	Professional Experience	.13	.32	.22	.30	.16	.0416	.0286	.0390	.0208
	Culture Fit	.10	.26	.20	.32	.22	.0260	.0200	.0320	.0220
	Overall Rating of Candidates by this Participant						.4084	.1716	.2742	.1458

First Round Results (cont.)

Participant	Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
Graduate	*Ability to Communicate*	.25	.22	.26	.36	.16	.0550	.0650	.0900	.0400
Director	International Accounting	.25	.45	.18	.25	.12	.1125	.0450	.0625	.0300
	Managerial Accounting	.25	.20	.26	.43	.11	.0500	.0650	.1075	.0275
	Commitment to the Field	.15	.22	.20	.38	.20	.0330	.0300	.0570	.0300
	Enthusiasm for Institution	.10	.22	.30	.37	.11	.0220	.0300	.0370	.0110
	Overall Rating of Candidates by this Participant						.2725	.2350	.3540	.1385
Chairman	Teaching Ability	.78	.08	.30	.57	.05	.0624	.2340	.4446	.0390
	Research Potential	.11	.26	.16	.52	.06	.0286	.0176	.0572	.0066
	College Service	.06	.20	.27	.33	.20	.0120	.0162	.0198	.0120
	Fit with Department	.05	.05	.36	.52	.07	.0025	.0180	.0260	.0035
	Overall Rating of Candidates by this Participant						.1055	.2858	.5476	.0611
Faculty	Affinity for Teaching	.25	.30	.15	.30	.25	.0750	.0375	.0750	.0625
Member	Publishing Potential	.20	.50	.07	.25	.18	.1000	.0140	.0500	.0360
	Assist Others in Research	.15	.44	.10	.26	.20	.0660	.0150	.0390	.0300
	Theory Knowledge	.15	.50	.08	.24	.18	.0750	.0120	.0360	.0270
	Knowledge of Practice	.10	.20	.25	.26	.29	.0200	.0250	.0260	.0290
	Presentation Skill	.10	.27	.16	.31	.26	.0270	.0160	.0310	.0260
	College Service	.05	.33	.21	.26	.20	.0165	.0105	.0130	.0100
	Overall Rating of Candidates by this Participant						.3795	.1300	.2700	.2205

Second Round Results

Participant	Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
Dean	Research	.40	.55	.10	.29	.06	.2200	.0400	.1160	.0240
	Teaching	.32	.25	.23	.38	.14	.0800	.0736	.1216	.0448
	Culture Fit	.10	.20	.29	.37	.14	.0200	.0290	.0370	.0140
	Specialized Fields	.10	.34	.35	.11	.20	.0340	.0350	.0110	.0200
	College Service	.08	.19	.25	.34	.22	.0152	.0200	.0272	.0176
	Overall Rating of Candidates by this Participant						.3692	.1976	.3128	.1204
Graduate	Research	.26	.51	.14	.26	.09	.1326	.0364	.0676	.0234
Director	Commitment to Accounting	.21	.18	.19	.44	.19	.0378	.0399	.0924	.0399
	Communication	.19	.20	.22	.41	.17	.0380	.0418	.0779	.0323
	Managerial Accounting	.13	.21	.21	.45	.13	.0273	.0273	.0585	.0169
	Culture Fit	.11	.16	.27	.46	.11	.0176	.0297	.0506	.0121
	International Accounting	.10	.45	.18	.18	.19	.0450	.0180	.0180	.0190
	Overall Rating of Candidates by this Participant						.2983	.1931	.3650	.1436
Chairman	Teaching Ability	.62	.09	.25	.54	.12	.0558	.1550	.3348	.0744
	Research Potential	.16	.28	.19	.49	.04	.0448	.0304	.0784	.0064
	Professional Experience	.11	.05	.33	.41	.21	.0055	.0363	.0451	.0231
	Managerial	.06	.12	.33	.37	.18	.0072	.0198	.0222	.0108
	College Service	.05	.25	.25	.25	.25	.0125	.0125	.0125	.0125
	Overall Rating of Candidates by this Participant						.1258	.2540	.4930	.1272

Second Round Results (cont.)

Participant	Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
Faculty	Publishing Potential	.25	.52	.09	.28	.11	.1300	.0225	.0700	.0275
Member	Teaching .20	.32	.15	.41	.12	.0640	.0300	.0820	.0240	
	Work with Others	.15	.41	.11	.31	.17	.0615	.0165	.0465	.0255
	Practical Experience	.13	.17	.23	.33	.27	.0221	.0299	.0429	.0351
	Theory Knowledge	.12	.47	.11	.28	.14	.0564	.0132	.0336	.0168
	Communication	.09	.24	.19	.36	.21	.0216	.0171	.0324	.0189
	College Service	.06	.36	.18	.29	.17	.0216	.0108	.0174	.0102
	Overall Rating of Candidates by this Participant						.3772	.1400	.3248	.1580

Third Round Results

Participant	Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
Dean	Research Potential	.26	.52	.05	.36	.07	.1352	.0130	.0936	.0182
	Teaching	.24	.28	.08	.48	.16	.0672	.0192	.1152	.0384
	Communications	.11	.11	.26	.42	.21	.0121	.0286	.0462	.0231
	Culture Fit	.10	.20	.11	.45	.24	.0200	.0110	.0450	.0240
	College Service	.08	.22	.16	.37	.25	.0176	.0128	.0296	.0200
	Commitment to Accounting	.06	.19	.24	.44	.13	.0114	.0144	.0264	.0078
	Managerial Accounting	.06	.18	.35	.32	.15	.0108	.0210	.0192	.0090
	Practical Experience	.06	.13	.28	.45	.14	.0078	.0168	.0270	.0084
	International Accounting	.03	.33	.27	.22	.18	.0099	.0081	.0066	.0054
	Overall rating of Candidates by this Participant						.2920	.1449	.4088	.1543
Graduate	Research Potential	.17	.47	.12	.28	.13	.0799	.0204	.0476	.0221
Director	Teaching .15	.17	.19	.49	.15	.0255	.0285	.0735	.0225	
	Communications	.13	.15	.19	.47	.19	.0195	.0247	.0611	.0247
	Managerial Accounting	.12	.13	.17	.55	.15	.0156	.0204	.0660	.0180
	Commitment to Accounting	.11	.09	.21	.52	.18	.0099	.0231	.0572	.0198
	College Service	.09	.20	.26	.32	.22	.0180	.0234	.0288	.0198
	International Accounting	.09	.34	.21	.22	.23	.0306	.0189	.0198	.0207
	Practical Experience	.08	.14	.25	.39	.22	.0112	.0200	.0312	.0176
	Culture Fit	.06	.11	.25	.52	.12	.0066	.0150	.0312	.0072
	Overall Rating of Candidates by this Participant						.2168	.1944	.4164	.1724
Chairman	Teaching	.43	.06	.21	.58	.15	.0258	.0903	.2494	.0645
	Research Potential	.20	.24	.18	.50	.08	.0480	.0360	.1000	.0160
	Practical Experience	.08	.01	.31	.44	.24	.0008	.0248	.0352	.0192
	College Service	.06	.25	.25	.25	.25	.0150	.0150	.0150	.0150
	Communications	.06	.04	.17	.68	.11	.0024	.0102	.0408	.0066
	International Accounting	.05	.25	.25	.25	.25	.0125	.0125	.0125	.0125
	Managerial Accounting	.05	.01	.36	.38	.25	.0005	.0180	.0190	.0125
	Commitment to Accounting	.04	.03	.27	.59	.11	.0012	.0108	.0236	.0044
	Culture Fit	.03	.03	.21	.59	.17	.0009	.0063	.0177	.0051
	Overall Rating of Candidates by this Participant						.1071	.2239	.5132	.1558

Third Round Results (cont.)

Participant	Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
Faculty Member	Research Potential	.26	.42	.11	.37	.10	.1092	.0286	.0962	.0260
	Teaching	.21	.25	.17	.44	.14	.0525	.0357	.0924	.0294
	Practical Experience	.12	.14	.23	.37	.26	.0168	.0276	.0444	.0312
	Communications	.11	.15	.22	.45	.18	.0165	.0242	.0495	.0198
	Culture Fit	.08	.31	.16	.37	.16	.0248	.0128	.0296	.0128
	Managerial Accounting	.08	.28	.16	.41	.15	.0224	.0128	.0328	.0120
	Commitment to Accounting	.05	.20	.25	.39	.16	.0100	.0125	.0195	.0080
	International Accounting	.05	.39	.19	.23	.19	.0195	.0095	.0115	.0095
	College Service	.04	.33	.19	.32	.16	.0132	.0076	.0128	.0064
	Overall Rating of Candidates by this Participant						.2849	.1713	.3887	.1551

Fourth Round Results For The Dean

Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
PRIMARY CRITERIA									
Research	.46	.41	.12	.34	.13	.1898	.0529	.1564	.0610
Teaching	.39	.22	.27	.36	.14	.0864	.1068	.1409	.0559
College Service	.15	.15	.18	.40	.27	.0225	.0270	.0600	.0405
Overall Rating of Candidates						.2987	.1867	.3573	.1573
TEACHING SUBCRITERIA									
Managerial Accounting	.24	.22	.31	.34	.13	.0528	.0744	.0816	.0312
Communication	.23	.16	.28	.39	.17	.0368	.0644	.0897	.0391
International Accounting	.23	.38	.25	.23	.14	.0874	.0575	.0529	.0322
Practical Experience	.16	.13	.24	.48	.15	.0208	.0384	.0768	.0240
Commitment to Accounting	.14	.17	.28	.43	.12	.0238	.0392	.0602	.0168
Ratings of Candidates on Teaching						.2216	.2739	.3612	.1433
RESEARCH SUBCRITERIA									
Publishing Potential	.75	.47	.11	.32	.10	.3525	.0825	.2400	.0750
Work with Others	.25	.24	.13	.40	.23	.0600	.0325	.1000	.0575
Ratings of Candidates on Research						.4125	.1150	.3400	.1325
COLLEGE SERVICE	1.00	.15	.18	.40	.27	.1500	.1800	.4000	.2700
Ratings of Candidates on College Service						.1500	.1800	.4000	.2700

Fourth Round Results For The Graduate Program Director

Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
PRIMARY CRITERIA									
Teaching	.50	.20	.22	.42	.16	.0987	.1121	.2078	.0815
Research	.40	.40	.15	.36	.10	.1584	.0580	.1440	.0396
College Service	.10	.23	.28	.35	.14	.0230	.0280	.0350	.0140
Overall Rating of Candidates						.2801	.1981	.3868	.1351
TEACHING SUBCRITERIA									
Managerial Accounting	.28	.16	.21	.51	.12	.0448	.0588	.1428	.0336
Practical Experience	.21	.12	.27	.41	.20	.0252	.0567	.0861	.0420
Communication	.18	.17	.23	.40	.20	.0306	.0414	.0720	.0360
International Accounting	.17	.39	.17	.26	.18	.0663	.0289	.0442	.0306
Commitment to Accounting	.16	.19	.24	.44	.13	.0304	.0384	.0704	.0208
Rating of Candidates on Teaching						.1973	.2242	.4155	.1630
RESEARCH SUBCRITERIA									
Publishing Potential	.70	.45	.13	.33	.09	.3150	.0910	.2310	.0630
Work with Others	.30	.27	.18	.43	.12	.0810	.0540	.1290	.0360
Rating of Candidates on Research						.3960	.1450	.3600	.0990
COLLEGE SERVICE	1.00	.23	.28	.35	.14	.2300	.2800	.3500	.1400
Rating of Candidates on College Service						.2300	.2800	.3500	.1400

Fourth Round Results For The Chairman

Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
PRIMARY CRITERIA									
Teaching	.55	.17	.26	.40	.17	.0910	.1447	.2214	.0930
Research	.35	.29	.15	.46	.09	.1029	.0532	.1610	.0329
College Service	.10	.25	.25	.25	.25	.0250	.0250	.0250	.0250
Overall Rating of Candidates						.2189	.2229	.4074	.1509
TEACHING SUBCRITERIA									
Communication	.25	.12	.24	.42	.22	.0300	.0600	.1050	.0550
Practical Experience	.25	.05	.30	.45	.20	.0125	.0750	.1125	.0500
International Accounting	.20	.40	.20	.30	.10	.0800	.0400	.0600	.0200
Managerial Accounting	.20	.14	.33	.36	.17	.0280	.0660	.0720	.0340
Commitment to Accounting	10	.15	.22	.53	.10	.0150	.0220	.0530	.0100
Rating of Candidates on Teaching						.1655	.2630	.4025	.1690

Fourth Round Results for the Chairman (cont.)

Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
RESEARCH SUBCRITERIA									
Publishing Potential	.80	.33	.14	.45	.08	.2640	.1120	.3600	.0640
Work with Others	.20	.15	.20	.50	.15	.0300	.0400	.1000	.0300
Rating of Candidates on Research						.2940	.1520	.4600	.0940
COLLEGE SERVICE	1.00	.25	.25	.25	.25	.2500	.2500	.2500	.2500
Rating of Candidates on College Service						.2500	.2500	.2500	.2500

Fourth Round Results For The Faculty Representative

Hiring Criteria	Weights	Ratings on Criteria for Candidate: 1	2	3	4	Products of Weights x Ratings for Candidate: 1	2	3	4
PRIMARY CRITERIA									
Research	.50	.43	.11	.35	.11	.2158	.0560	.1748	.0535
Teaching	.45	.23	.22	.39	.16	.1021	.0982	.1773	.0724
College Service	.05	.30	.25	.30	.15	.0150	.0125	.0150	.0075
Overall Rating of Candidates						.3329	.1667	.3671	.1334
TEACHING SUBCRITERIA									
Managerial Accounting	.27	.24	.21	.42	.13	.0648	.0567	.1134	.0351
Communication	.25	.14	.23	.48	.15	.0350	.0575	.1200	.0375
Practical Experience	.23	.12	.25	.39	.24	.0276	.0575	.0897	.0552
International Accounting	.20	.43	.18	.26	.13	.0860	.0360	.0520	.0260
Commitment to Accounting	.05	.27	.21	.38	.14	.0135	.0105	.0190	.0070
Rating of Candidates on Teaching						.2269	.2182	.3941	.1608
RESEARCH SUBCRITERIA									
Publishing Potential	.65	.47	.07	.36	.10	.3055	.0455	.2340	.0650
Work with Others	.35	.36	.19	.33	.12	.1260	.0665	.1155	.0420
Rating of Candidates on Research						.4315	.1120	.3495	.1070
COLLEGE SERVICE	1.00	.30	.25	.30	.15	.3000	.2500	.3000	.1500
Rating of Candidates on College Service						.3000	.2500	.3000	.1500

Authors' Notes

The authors express their appreciation to John Barton of Financial Research, Inc., Oliver Heil of Indiana University, Prafulla Joglekar of LaSalle University, Cyrus Mohebbi of the Prudential-Bache Financial Strategies Group, and Thomas F. Monahan of Villanova University for their useful comments.

BIOGRAPHICAL SKETCHES

Madjid Tavana *is Assistant Professor of Management Information Systems and Director of the Center for Technology and Management at La Salle University. He received an M.B.A. (Management Science) from La Salle University, a Post-Masters (Management Information Systems) from Drexel University, and completed his doctoral coursework (Systems Sciences) at the Wharton School. He has published in such journals as* Interface *and* Organizational Behavior and Statistics. *His research interests are in Decision Support Systems, Expert Systems, and Systems Analysis.*

Dennis Kennedy *is Associate Professor of Accounting at La Salle University. He received an M.B.A. and Ph.D. (Accounting) from Temple University. He has published in such journals as* Journal of Accounting, Auditing and Finance *and* Interface. *His research interests are in the Extractive Petroleum Industry, the Conceptual Framework of Accounting, and Accounting Education.*

Jack Rappaport *is Assistant Professor of Management Science at La Salle University. He received an M.S. (Mathematics) from the Courant Institute at New York University. He has published in the* Journal of Volunteer Administration. *His research interests are in Queuing Theory and the application of Efficient Market Theory to thoroughbred racing.*

Y. Joseph Ugras *is Assistant Professor of Accounting at La Salle University. He received an M.B.A. from Fairleigh Dickinson University and a Ph.D. (Accounting) from Temple University. He has published in such journals as* Journal of Business Ethics. *His research interests are in Accounting Information Systems, Managerial Accounting, and Business Ethics.*