A Factor and Cluster Analysis of the Perceived Institutional Context of Academic Advising

Lawrence J. Severy, University of Florida
Naomi P. Lee, Bowling Green State University
Cheryl J. Polson, Kansas State University

Data from the 1992 membership survey were analyzed based on two ideas: advisors can report their perceptions of their work environments, and these perceptions vary across the NACADA membership. First, a perceptual "space" was defined. Second, in the context of this perceptual space, respondents to the 1992 membership survey were empirically grouped based upon their reported perceptions. We described the "perceptual space" of advisors and profiled the "types" of groups statistically identified. The relevance of these groupings toward the programming and delivery of advising services was considered and is presented below.

A number of widely accepted premises guide research based upon perceptions. Fundamental among these is that perception is reality. People respond to what they believe to be the case, rather than to the actual facts of the situation, and behave accordingly. If an advisor thinks that his or her salary is below scale, he or she will probably act in ways that reflect the disgruntled perception, even if the advisor's perception does not reflect reality. The data reflect the advisors' perceptions about the context of their advising activities.

A second premise is that "an average" advisor for any given type or size of institution does not exist. Similarly, a "typical" context within which advisors conduct their activities is also probably nonexistent. Our approach was to assume variability and search for and describe the different types of situations described by the survey respondents.

Related to identification of situation types is the issue of stereotypes. People hold many stereotypes about advisors who work in different settings such as community colleges, small private liberal arts colleges in the northeast, large state universities with doctoral programs, schools with church affiliations, or predominantly southern Black colleges. This research project may dispel these artificial classifications by demonstrating that advising contexts may be similar across traditional categories of institutions.

A third premise is that ideal situations were not important. Our goal was to identify perceptions of actual advising contexts. The analysis depended upon the reported observations of advisors working in their respective environments.

Given these perspectives, it is possible to describe our study of advisors' perceptions of the contexts in which they perform and the issues which are related to these perceptions. We identified the underlying perceptual dimensions of the advising context by conducting a factor analysis of survey items that assessed features of advisors' work environments. Based upon the factor analysis results, we constructed Likert scales that were used to characterize the advising context. In the second analysis we used cluster analytic techniques to empirically generate different groups of contexts. This analysis created categories for identifying the situations advisors confront on a daily basis. The situation categories were then profiled and compared on the perception variables. We concluded our research by addressing the relationship between context groups and programming and delivery services; we concluded our report with a discussion of the implications of these relationships.

Survey Methodology

Descriptions of the methodologies used in the 1992 national survey of the NACADA membership are available in Lee, Polson, and Severy (1994) and Severy, Lee, and Polson (1993). In January 1992, surveys were mailed to 750 NACADA members. A reminder postcard was sent to all addresses 7 days later. All questionnaires were encoded with an identification number to determine when a response was received. To insure anonymity, this information was destroyed once we received the completed questionnaire. A second questionnaire was sent to those not responding after 3 weeks. A response rate of 75% was achieved as 562 surveys were completed and returned.

Open-ended responses from prior membership surveys suggested important features of advising contexts. In the 1992 survey, previous survey responses were used to develop 19 different qualities of advising programs. The qualities were presented as items in a Likert scale format. Respondents were asked whether, at their institutions, advising was effective with respect to these aspects of advising programs.

The specific program features that were rated by respondents appear in Table 1. The questionnaire stated, "Previous surveys indicated that most people think there are some things that are done well in their programs and some things that need improvement. Below is a list of aspects typical of many advising programs. Please rate your advising program for its effectiveness in each of these areas by circling the number under the appropriate rating." The response categories for each item were particularly effective, somewhat effective, somewhat ineffective, or not effective (scored 4, 3, 2, 1, respectively).

Results

Factor Analysis of Perception Ratings

A principal components extraction technique was followed by a varimax rotation. This factor analysis strategy accounted for an estimated 55.2% of the common variance and generated an optimal solution with three factors. The factors accounted for the variance, upon rotation, of 24%, 16%, and 15%, respectively, for Factors 1, 2, and 3.

The next step in the analysis involved a formal scaling analysis. Specifically, the items with high factor loadings on each of the three factors were placed in one of three scales. The result was that eight items represented the first factor, six items represented the second factor, and four items represented the third factor. Alpha estimates of reliability were calculated for each of the scales. Alpha reflects the internal consistency of scales, but is also dependent upon scale length. Short scales generally do not generate high estimates.

We described the character of the three factors, as well as documented for future use the appropriateness of the related advising activities scales. The first factor generated a scale which was labeled *Breadth of Advising Services*. As can be noted in Table 1, scaling of the eight items created an alpha of 0.78. The listed items reflect a broad range of consumer services. This dimension seems to assess the extent of available services at a university's advising program. Clearly, if a respondent indicated "yes" to each item, one would assume that the program serves a complex array of consumers. Therefore, high versus low scorers on this scale (factor) clearly differ in the context of their advising environment with regard to the diversity of potential students and related issues requiring attention.

The second factor generated a scale which was labeled *Resources for Advising*. The six items loading on this factor cover a range of issues including financial and physical support (three items), training for advisors (two items), and the organization of

Table 1 Scales Representing the Perceptual Space of Advising

Scale Name	Items	Factor Loading
Breadth of Advising Services	(Alpha = 0.78)	
	Advising honor students	0.78
	Advising minority students	0.75
	Advising high risk students	0.64
	Providing assistance in career exploration	0.59
	Advising the undecided students	0.52
	Advising freshmen/new students	0.41
	New student orientation	0.40
	Advising adult learners	0.25
Resources for Advising	(Alpha = 0.78)	
	Fiscal/physical support	0.72
	Policies which recognize and reward effective advisors	0.70
	Manual for advisors	0.68
	Training program for advisors	0.67
	Professional development in advising	0.53
	Organization of advising services	0.25
Quality of Advising Services	(Alpha = 0.72)	
	Student access to advisors	0.77
	Success in helping the student feel like an individual	0.75
	Qualifications of advisors	0.68
	Providing accurate information	0.66

Note. One survey item (use of technology in advising) did not load on any of the three factors.

Figure 1 Overall perceptions of advising contexts (*N*=553)

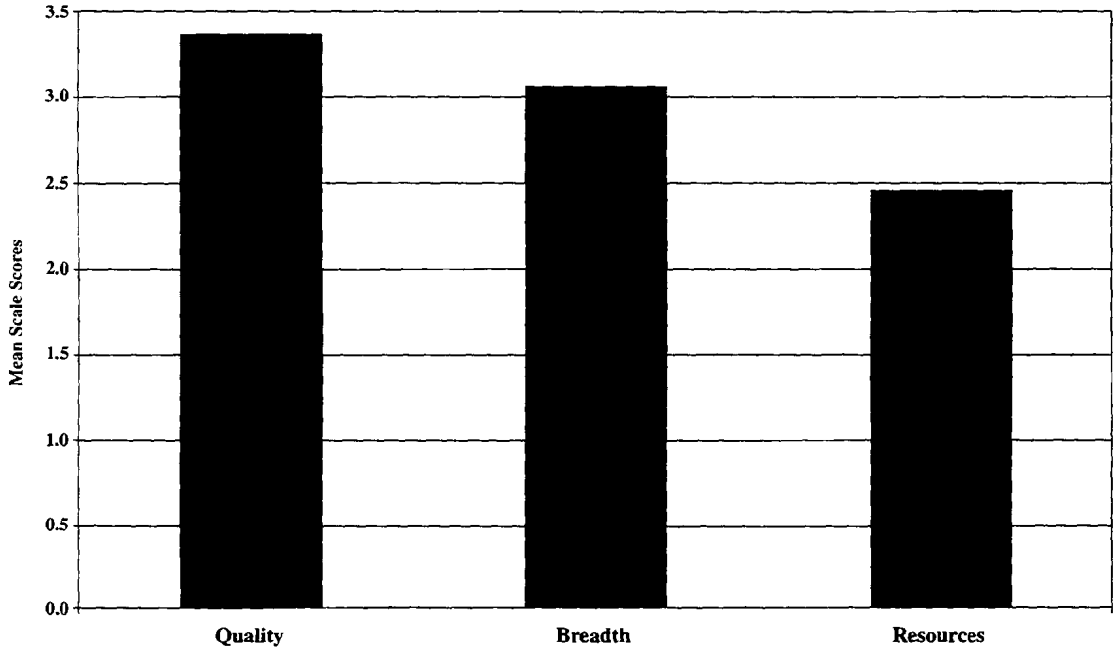
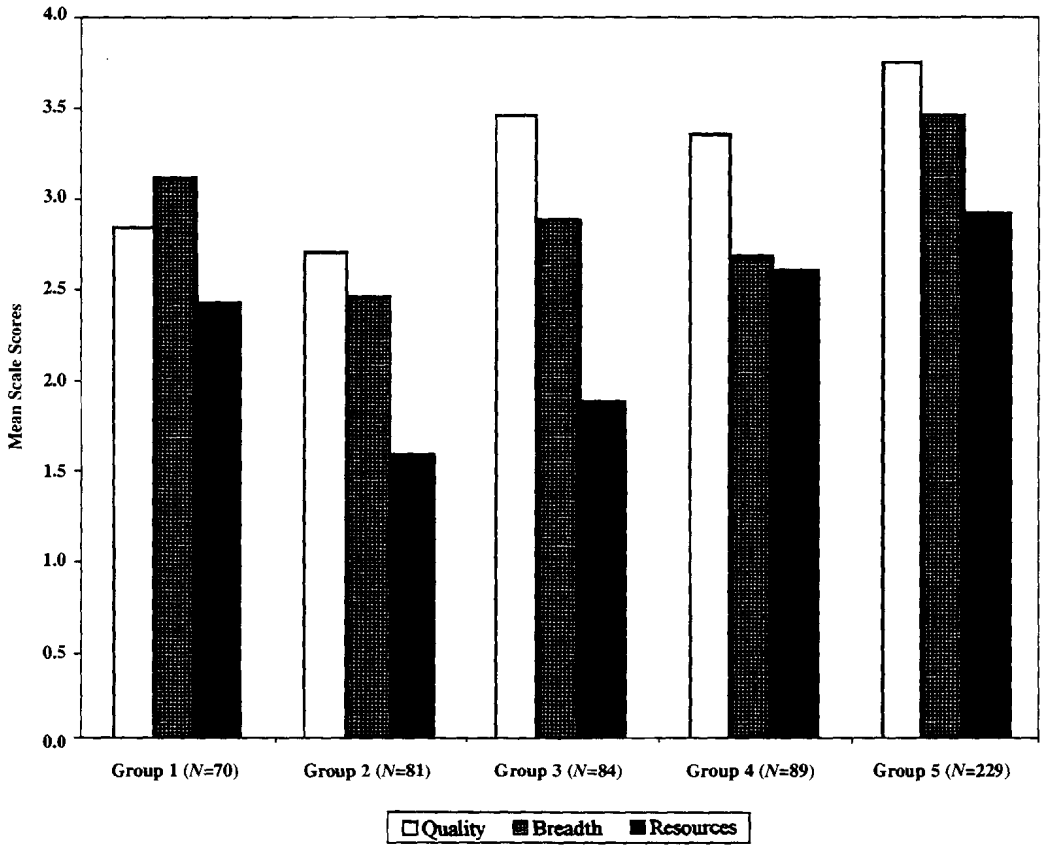


Figure 2 Comparison of Advising Groups



advising services. The alpha estimate of reliability was 0.78. Those with high scores on this scale indicate that their programs have resources to provide manuals, training, professional development, and so forth to advisors and that sufficient funds are available to reward effective performance. Low scorers perceive that their programs are without appropriate funding for advising endeavors.

Table 2 Items Reflecting Differential Responses by Group

	Group I	Group II	Group III	Group IV	Group V
Demographics					
1. Are you a man or a woman? (percent female)	64%	58%	77%	80%	74%
2. Which single title best describes how you think of yourself?					
a) Undergraduate Advisor	5 (21%)	31 (38%)	53 (63%)	35 (39%)	101 (44%)
b) Administrator	37 (53%)	25 (36%)	19 (23%)	41 (46%)	81 (35%)
c) Teacher	1 (1%)	12 (17%)	5 (7%)	8 (9%)	22 (10%)
d) Other	11 (16%)	12 (17%)	7 (8%)	4 (4%)	22 (10%)
3. Institutional type					
a) Public Research (Doctoral)	18 (26%)	25 (31%)	48 (57%)	23 (26%)	81 (35%)
b) Public Comprehensive	21 (30%)	20 (25%)	15 (18%)	15 (17%)	44 (19%)
c) Private Research (Doctoral)	6 (9%)	4 (5%)	6 (7%)	5 (6%)	24 (10%)
d) Private Liberal Arts	9 (13%)	13 (16%)	7 (8%)	21 (24%)	33 (14%)
e) Two-Year College	9 (13%)	13 (16%)	5 (6%)	13 (15%)	26 (11%)
Professional Issues					
4. Advising has undergone many changes in recent years. Over the past decade, how do you think that advising as a field has changed?					
a) Has increased in credibility	44%	45%	59%	1%	69%
b) Has become recognized as a profession	29%	17%	15%	4%	35%
5. What things might improve your advising program?					
a) More training of academic advisors	78%	80%	44%	56%	51%
b) More room for advancement within advising	30%	45%	67%	37%	49%
6. What type(s) of training and professional development opportunities are available to you as an advisor?					
a) New advisor orientation	24%	9%	11%	24%	86%
b) Support for attendance at advising conferences	72%	54%	58%	71%	26%
c) Computer technology	52%	24%	50%	40%	74%
d) Opportunity to consult with a mentor	25%	9%	17%	33%	49%

Table 2 Continued

	Group I	Group II	Group III	Group IV	Group V
Effectiveness Survey					
7. Are advisors in your university evaluated? (percent "yes")	52%	45%	78%	64%	78%
8. What types of encouragement does your campus offer to faculty who excel in advising? Advising effectiveness considered in personnel evaluation and merit salary increases	30%	6%	11%	15%	14%
9. How has the change (or lack of change) in monetary and personnel resources affected the quality and quantity of advising on your campus? (1=strong positive, 3=no change, 5=strong negative)	2.26	1.52	1.70	2.25	2.54

The third factor generated a scale labeled *Quality of Advising Services*. Only four items comprise the scale. However due to the uniformly high factor loadings, an alpha of 0.73 indicates strong internal consistency. The first two items on this scale refer to impact on students, namely student accessibility to advising and individual treatment for each individual by advisors. The other two items refer to specific qualities of the advisors, specifically the credentials of the advisors and the level of accurate information advisors provide. Clearly, survey respondents who score this factor high believe that their programs have talented advisors who are available to students. Alternatively, those who generate low scores on this dimension are indicating perceived problems in accessibility, impact, or advisor qualification and training.

An interesting comparison of the mean scale scores across the three domains is presented in Figure 1. (The means were derived by adding together the item scores in each scale and dividing by the number of items in each scale.) Those responding to the national survey believe that their advising programs were demonstrating success while at the same time experiencing a resource gap. The quality of programs was felt to be quite high. Many programs were perceived as diverse and complex. However, the mean reflecting perceived resources was below the midpoint of the scale.

Cluster Analysis of Survey Respondents

Advisor perceptions on the 19 items were used to empirically cluster (or group) survey respondents. The clustering procedure employed the SAS routine known as FASTCLUS. This analysis produced an optimum solution with the creation of five different groups of respondents.

This form of cluster analysis is designed for use with large data sets (100 to 100,000) and divides the large pool of subjects into smaller subsets based upon similar answers to stimulus items. Specifically, persons are placed in groups (clusters) such that when graphically plotted all distances between observations in the same cluster are less than all distances between observations in different clusters. Therefore, some degree of homogeneity of response pattern exists within each cluster, but quite different patterns may exist across clusters.

The five resultant clusters evinced an interesting variability in group size. Four groups represented approximately equal numbers of respondents and one large group represented just less than one-half of the survey population. The five groups respectively contained 70, 81, 84, 89, and 229 members. The groups may be described with the three-dimensional scale space created via the factor analysis and identified above. The results are depicted in Figure 2.

Table 3 Institutional Issues Reflecting Differential Responses by Group

	Group I	Group II	Group III	Group IV	Group V
1. Does your institution have a central advising office for some or all students on campus (percent saying "yes")	56%	47%	66%	72%	70%
2. Please identify advising issues or concerns which seem especially important to institutions of the type and size of yours:					
a) Increasing advising organization/administration	84%	78%	64%	63%	67%
b) Improving support for advising	63%	65%	69%	44%	59%
3. How have monetary resources to support advising changed since 1985? Increased resources for advisement	46%	20%	17%	37%	40%
4. How have personnel resources to support advising changed since 1985?					
a) Increased personnel	46%	22%	27%	40%	44%
b) Increased coordination of advising	31%	10%	22%	32%	34%
5. What things might improve your advising program?					
a) Development of a policy/mission statement	25%	37%	75%	20%	13%
b) Development of an advising manual	17%	64%	36%	20%	22%
c) Change in delivery system—who does advising	46%	44%	24%	25%	15%
d) Computerized advising assistance	39%	46%	25%	43%	26%
6. There are many factors that may affect resources allocated to advising. Please indicate what changes you have seen in state support on your campus. (1=decrease, 3=increase)	1.93	1.66	1.68	2.08	1.80

The groups were further characterized by examining the responses of the advisors to other items on the survey, specifically those items addressing demographic, professional effectiveness, and institutional issues. Tables 2 and 3 address these different responses. We identified deviations among the groups, without particular reference to statistical significance as determined by analysis of variance and chi square techniques, and discuss our findings below.

GROUP I The profile of these 70 respondents contrasts with the total-sample pattern of scores; unlike the other groups, group I gave breadth of the program the highest score. In fact, this is the only group that did not score the perceived quality of the program highest. Further, while the resources score is lower than the other two dimensions, it is not substantially lower—as is the case with other groups. Consequently, group I respondents describe the context of their advising programs as ambitious, but less successful than other programs. They believe that they are supported with average resources.

Several demographic characteristics of group I reflect upon the work setting. This group had the smallest percentage of undergraduate advisors (21%) and the highest percentage of administrators (53%). It had the smallest percentage of respondents from public doctoral research institutions (26%). With regard to professional issues, more than an average number of advisors in this group agreed that advising as a field has become recognized as a profession, desired more training (78%), and professed that their institutions provide support for attendance at advising conferences (72%). This group scored the highest in the belief that "advising effectiveness is considered in personnel evaluation and merit salary increases" and believe that increasing advising organization and administration is especially important to "institutions of the type and size of yours" (84%). This group also provided the highest rating of increased monetary and personnel resources since 1985 yet expressed a desire for changes in individual institution's delivery systems.

The results suggest a curious blend: Group I respondents are from well-funded, broad-based programs that lack comparable high quality results. The benefits of professional development and recognition are available. Yet members express a general dissatisfaction with program effectiveness and suggest that alternative approaches to organization, administration, and service delivery are needed.

GROUP II Eighty-one survey respondents generated a pattern of scores which is very similar to the overall results. Namely, this group gave quality the highest score, followed with breadth, and scored resources the lowest mean score. Compared to the other four groups, group II ranked the lowest on all scales.

This group has the highest representation of males (42%), includes a relatively large number of faculty (17%), and has the smallest percentage of respondents from private doctoral research institutions (5%). As for professional issues, these individuals expressed desire for more training (80%) and reported the fewest opportunities for new advisor orientation (9%), the chance to speak with a mentor (9%), and access to computer technologies (24%).

This report suggests a lack of commitment and academic advising priorities at group II respondents' institutions. Forty-five percent of group II advisors are in a unit that is evaluated and 35% have advising effectiveness considered in personnel evaluation and merit salary increases. Forty-seven percent of these individuals report having no centralized advising office, consistent with 20% of group II advisors who reported the least increased coordination of advising since 1985. They espouse the largest need for an advising manual and computerized assistance for advising. Group II individuals seem to hold a relatively negative perception of their advising contexts.

GROUP III The responses from this group of 84 advisors follow a general pattern similar to that of group II and the overall ratings: The quality score posts the highest rating, perceptions of breadth follow, and the index of resources received the lowest score. However, the discrepancies between the perceptions of advising contexts appear more salient. The quality score is very high, and conversely, the resources score is very low.

These individuals represent the lowest percentage of administrators (23%) and the highest percentage of undergraduate advisors (63%). Eight percent are employed by private liberal arts institutions, and 6% are at two-year colleges. These respondents feel that advising as a field had increased credibility (59%). They scored the need for advising training lower than any other group. They expressed the highest rating (67%) for needed advancement within advising.

Group III and group V had the highest percentages of respondents stating that their units are evaluated (78%). However, only 11% of group III advisors perceived that advising effectiveness is considered during the personnel evaluation and merit pay deliberations for faculty advisors. Consistent with group III respondents who indicated the lowest level of increased resources for advisement (17%), advisors in the group suggested that improving support for advising is an important issue (69%). The results suggest that these advisors believe that their institutions should improve their programs. Yet only 25% felt computerized advising assistance was needed. Group III represents advisors from predominantly

large universities that provide good services with less than sufficient resources.

GROUP IV Eighty-nine survey respondents generated another unique pattern; it is different from both the overall pattern and that for each of the other groups. Each of the other groups reported a large discrepancy between the breadth of programs and the perceived resources to support advising activities. Group IV respondents rated resources at approximately the same level as program breadth. With relatively good support, this group also perceives its services to be of high quality.

Group IV has the greatest percentage of female respondents (80%). A disproportionately large percentage of these advisors are employed by private liberal arts institutions. Ratings on perceptions of structural features correspond to identified concerns. These advisors gave a high score for receiving increasing resources and scored the lowest on the need for increased support and on the need for increased advising organization/administration. They did score the need for computerized advising assistance relatively high.

With regard to professional issues, 1% of the advisors believe that the credibility of advising as a field has increased in the last decade, and 4% believe that advising has become recognized as a profession. In contrast, 71% of the respondents declared that they are supported in attending advising conferences. These ratings may reflect issues on campuses of certain institutional types. Note that 72% of the respondents reported being located in an institution with a central advising office and of having experienced the greatest increase in coordination of advising since 1985 (32%).

GROUP V The largest of the groups with 229 respondents provided a general pattern of scores across the three dimensions that reflects the overall pattern for the entire survey population. However, these advisors perceive their advising environments in an extremely positive light—distinctly different than the other groups. They scored the highest on each of the three scales: Quality is viewed as being extremely high, services are perceived as diverse, and funding is rated above average.

Sixty-nine percent of these advisors agree that advising as a field has increased in credibility, and 35% believe it has become recognized as a profession. These advisors report the greatest opportunities for a) receiving new advisor orientation (86%), b) having access to computer technology (74%), and c) consulting with a mentor (49%). However, these individuals perceived low fund availability for attending advising conferences. Seventy percent of group V advisors have centralized advising, 34% perceive the largest gains in the coordination of their advising programs, and 78% are likely to be evaluated.

Figure 2 compares the five groups on the three-dimensional scales. The most obvious characteristic of the five groups is the general pattern that shows quality scored the highest, breadth scored lower, and resources received the lowest scores. Groups II, III, and V demonstrate a high, middle, and low version of the same pattern.

Many domains appear to have no statistical relationship to the cluster results. A number of constructs were rated in more or less the same way by representatives of all five groups. Consider demographic issues. Advisors in all five groups tend to be of the same age, have been in their current positions for about the same length of time, have similar educational degrees, and belong to the same professional organizations. Also, each group displays similar ethnic composition.

A related common domain involves issues of career path. The groups did not vary with regard to preparation for current positions, percentage of those holding first positions, career goals, and required preparation for achieving career goals. Further, the advisors in the five groups responded in a similar fashion to a variety of professional issues, including hiring standards for the unit, familiarity with the Council for the Advancement of Standards, belief that advisors should be professionally certified, and areas of interest for future research of the advising profession.

In addition to these more or less individual assessments, advisors in the five groups responded in a similar fashion to a host of institutional constructs. They may be classified into three subareas. First, the five groups seem to have the same combinations of various advising models. Reporting lines (now and 5 years ago), assignment strategies and methods, and university structures (umbrellas) appear in equal frequencies within the groups. Second, advising loads also appear consistent across the groups. Third, the system support for advising seems similar in a number of areas. Commitment to technology, resources for development and advisor rewards, and the sources of support did not vary as a function of group.

Discussion and Conclusion

The original intent of this analysis was to describe the perceived context within which advisors conduct their activities. The question was whether generating groupings of individuals through completely empirical processes would be more informative than the typical categories used in the profession (e.g., type or size of institution).

The first phase required the creation of a perceptual space of the advising context. The identification of a three-dimensional factor space with quality, breadth, and resources as features of advising programs was successful. Survey participants' descriptions of their programs were well captured by these underlying factors. Since it was possible to create reliable scales of these dimensions with credible internal consistency, other investigators and program managers can ask their staff members to rate their own programs and place such programs within the space identified here. One can compare individual programs to the five types identified in this national survey.

The attempt to empirically group advisors according to their perceptions of advising contexts was successful. The five generated groups evince meaningfully different patterns, as characterized on the quality, breadth, and resources dimensions. Generally, quality received the highest ratings, breadth followed, and resources scored lowest. Three groups reflected this pattern, with the variation being in the relative presence of the characteristic. One group (the largest) had very positive responses, another group gave moderate scores, and a third group gave relatively negative responses. Two other patterns were identified, one with respondents suggesting relatively significant breadth of programs, and another with advisors reporting relatively high support.

These environmental descriptions seem to be related to a number of other items included in the national survey. The groups can often be understood in terms of these other characteristics. However, note that whatever the category—institutional type, gender, and so forth—representatives of all subtypes in each of the empirically generated groups exist. For example, advisors from all college types are found in all of the groups. This information means that these new groupings, generated as a function of the perceptions advisors have about their work environments, provide additional information beyond that available from other already acknowledged and useful categorizations. As Lewin indicated, not only is behavior a function of the person and the perceived environment, the perceived environment is a function of the people in it and their behavior (Lewin, 1951; Severy, Schlenker, & Brigham, 1976).

References

Lee, N. P., Polson, C. J., and Severy, L. J. (1994). The state of advising as a profession: Results of the 1992 NACADA survey. Unpublished manuscript, University of Florida at Gainesville.

Lewin, K. (1951). Formalization and progress in psychology. In D. Cartwright (Ed.), *Field theory in social science* (pp. 1–29). New York: Harper.

Severy, L. J., Lee, N. P., and Polson, C. J. (1993). A multivariate analysis of the 1992 National Survey of the NACADA membership. Paper presented at the annual meetings of the National Academic Advising Association, Detroit, MI.

SAS. [computer software]. Version 5. 1985. Cary, NC: SAS Institute Inc.

Severy, L. J., Brigham, J. C., and Schlenker, B. R. (1976). *A contemporary introduction to social psychology.* New York: McGraw–Hill.

Authors' Notes

The data described in this report were generated from the 1992 national survey of the NACADA membership conducted by the three authors. All three authors played critical roles in the creation of the survey protocol. The analyses primarily reflect the work of the first author, and the interpretations are those of the first two authors.

Dr. Lawrence J. Severy (Larry) is Director of Advising at the University of Florida; Associate Dean, College of Liberal Arts and Sciences; and the R. David Thomas Professor of Psychology. He is a social psychologist interested in population issues, reproductive health and programs, and consumers issues. Please address correspondence concerning this article to: L. J. Severy, CLAS, P.O. Box 112015, University of Florida, Gainesville, FL 32611–2015.

Dr. Naomi Lee is Director of Student Program Services in the College of Technology at Bowling Green State University. Her current research interest is in the area of distance education.

Dr. Cheryl J. Polson, former vice-president of NACADA and creator of the Commissions on Advising Graduate Students and Adult Learners, is currently an Associate Professor in the Department of Foundations and Adult Education at Kansas State University. She writes extensively on advising adult learners in higher education.