

VALIDATION OF THE BIGLAN MODEL

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The empirical validity of the Biglan model of academic disciplines is supported by the results of this study. Examples are provided to illustrate how the systematic use of this model could enhance the quality of research on university faculty members and the academic administration of institutions of higher learning.

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Dressel and Mayhew (1974) noted that research on the intellectual and attitudinal characteristics of college students and their paths through the academic system is much more advanced than that which focuses on faculty members. This disparity may be attributed in part to the longer history and greater volume of research focusing on college students. But troublesome educational and governance issues identified during the era of student unrest and organizational and administrative dilemmas imbedded in the current period of fiscal austerity have contributed greatly to a resurgence of interest in research on faculty members throughout the past decade. Massive national surveys by prestigious professional associations (e.g., Carnegie Commission on Higher Education, American Council on Education) have provided burgeoning information on faculty activities and opinions. While such information might be of practical value in illuminating the posture of faculty on contemporary matters, there is little evidence to suggest that this information has substantively advanced our systematic knowledge and understanding of faculty as a special cadre of professionals or enhanced the quality of governance and administration in institutions of higher learning.

One distinct possibility underlying the disparity in the respective merits of the student and faculty research literatures is the much stronger theoretical

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orientation of the former. For example, person-environment interaction theories have guided much of the research on the social, emotional, vocational, and intellectual dimensions of college student life (Barker, 1968; Clark and Trow, 1966; Holland, 1973; Pervin, 1967; Stern, 1970). Such examples are unfortunately too rare when one examines the research literature on the faculty. This lack of attention to the development, testing, and refinement of theoretical constructs has contributed to a research literature on college and university faculty members that has been characterized as fragmented and uncoordinated, egocentric by virtue of its neglect of works by colleagues in allied disciplines, and failing to contribute to the culmination of tested knowledge (Dressel and Mayhew, 1974; Light, 1974).

Clearly we know more about the faculty than ever before. The difficulty is not one of information, but one of an inadequate theoretical or conceptual perspective to give meaning and a sense of continuity to the burgeoning information. For example, the research literature is replete with descriptions of wide variations in the attitudes and activities of faculty in various academic disciplines, and it has been hypothesized that such diversity results from an underlying selective recruitment process of individuals into subject matter areas that have prevailing orthodoxies, biases, and definitions of the "right way" to think and act (Bragg, 1976; Kelly and Hart, 1971; Lipset and Ladd, 1971). But it has not been possible to subject these hypotheses to systematic inquiry due to the absence of appropriate conceptual frameworks in which subject matter areas could be ordered along one or more relevant dimensions (Lodahl and Gordon, 1972).

This study represents a direct test of the empirical validity of the conceptual framework proposed by Biglan (1973a) to guide the systematic investigation of diversity in faculty activities and attitudes. Are the three dimensions that are the bases of the Biglan model valid when applied to a more comprehensive set of research measures and a more heterogeneous faculty sample than in previous studies? What is the salience of each of these dimensions in differentiating faculty affiliated with different subject matter areas? What are the distinctive attributes of faculty affiliated with academic disciplines classified according to this three-dimensional model? How might this model be used in conjunction with other theoretical constructs to advance our systematic knowledge of faculty careers and to improve the quality of academic administration? These questions constitute the primary research focus of this paper.

THE CONCEPTUAL FRAMEWORK

Accumulating evidence suggests that the three-dimensional model of academic subject matter areas developed by Biglan (1973a) has the potential to

TABLE 1. Clustering of Academic Task Areas in Three Dimensions

Task area	Hard		Soft	
	Nonlife system	Life system	Nonlife system	Life system
Pure	Astronomy	Botany	English	Anthropology
	Chemistry	Entomology	History	Political science
	Geology	Microbiology	Philosophy	Psychology
	Math	Physiology	Communications	Sociology
	Physics	Zoology		
Applied	Ceramic engineering	Agronomy	Accounting	Educational administration and supervision
	Civil engineering	Dairy science	Finance	Secondary and continuing education
	Computer science	Horticulture	Economics	Special education
	Mechanical engineering	Agricultural economics		Vocational and technical education

From Biglan (1973b), reprinted by permission. Copyright 1973 by the American Psychological Association.

assist research on members of the academic professions to progress beyond its present stage of highly descriptive findings to a more advanced level of scientific inquiry. The apparent potential of this model is based upon its intuitive appeal, the rigorous techniques used in its initial development, and the consistency of supportive evidence based on subsequent research results.

Biglan's model contains eight mutually exclusive clusters of subject matter areas (i.e., academic disciplines) based upon (1) the degree to which a clearly delineated paradigm exists, *hard* versus *soft* areas, (2) the extent of concern with the practical application of the subject matter, *pure* versus *applied* areas, and (3) the level of involvement with living or organic objects of study, *life system* versus *nonlife system* areas. The model was derived from the application of nonmetric, multidimensional scaling procedures to the responses of faculty at a large, public university and a small, private liberal arts college to a series of questions regarding their perceptions of the relative similarity of selected subject matter areas. Three dimensions were found to be common in the solutions for both the university and liberal arts college samples (see Table 1).

The first dimension reflects the degree to which an academic discipline has

a commonly agreed upon set of problems for study and accepted methods to be used in their exploration. The more scientific disciplines (e.g., biological sciences and engineering) tend to possess more clearly delineated paradigms, and these hard subject matter areas comprise one end of the continuum for the first dimension; at the other end are such soft areas as philosophy and education.

The second dimension reflects the level of concern within the discipline for the practical application of its subject matter. Academic disciplines that traditionally express less concern with practical application (e.g., history and mathematics) are at one end of a continuum for the second dimension, while the agricultural sciences and accounting are located near the opposite end with other subject matter areas that express a greater concern with practical application.

The third dimension reflects the relative involvement with the study of living or organic objects within the discipline. Such subject matter areas as the biological sciences and education clearly emphasize the study of living systems and are at one end of the continuum for the third dimension. Astronomy, mathematics, and other areas that have little or no involvement with the study of living systems are at the opposite end of the continuum.

The validity of these three dimensions has been substantiated further by the results obtained in recent studies of variations in the goals of academic departments (Smart and Elton, 1975), professional duties of department heads (Smart and Elton, 1976), financial reward structures of academic departments (Smart and McLaughlin, 1978), and publication rates and sources of research funding of faculty (Creswell and Bean, 1981). Three statistically significant dimensions emerged in each study, and the plotting of group centroids was highly consistent with the three-dimensional model developed by Biglan (1973a). The ability of the model to discern systematic differences in faculty attitudinal and behavioral patterns has been demonstrated by the findings of research on the social connectedness, professional commitments, and scholarly outputs of faculty (Biglan, 1973b), variations in salary averages by academic rank (Muffo and Langston, 1981), response rates to different forms of survey questionnaires (Hesseldenz and Smith, 1977), professional development training needs of academic department heads (Creswell et al., 1979), and the level and sources of faculty job satisfaction (Eison, 1976).

While the accumulating evidence provided by these studies clearly suggests the potential of Biglan's model to provide a theoretically integrated framework for research on members of the academic professions, the generalizability of these findings has been limited by the restrictive nature of the research measures employed and the institutionally specific nature of the samples used in these studies. That is, most research has been based on a homogeneous set of research measures (e.g., goals of academic departments) and the responses

of faculty in a single or highly similar set of institutions (e.g., land-grant universities). The present study differs from these earlier efforts principally in its use of a much more comprehensive set of research measures and a heterogeneous institutional sample of faculty respondents. These qualities of the present study provide a much more rigorous test of the empirical validity and ultimate utility of Biglan's model than any of the previous studies.

RESEARCH PROCEDURES

Data for this study were obtained from the responses of a nationally representative sample of faculty in 301 institutions of higher learning to a questionnaire that was developed and administered by the American Council on Education (ACE). Bayer (1973) has provided a thorough description of the ACE questionnaire, sampling procedure, response rate, and score distributions of the 53,034 respondents.

Variables

The initial set of measures consisted of all 71 variables in the five major categories of survey items included in the ACE questionnaire. These five categories provided information on (1) how faculty members distribute their time across five areas of professional responsibility (e.g., scheduled teaching, research and scholarly writing), (2) the emphasis each faculty member places on 16 undergraduate teaching goals (e.g., to master knowledge in a discipline, to convey a basic appreciation of the liberal arts), (3) the extent of the faculty member's research and publication activities in four areas (e.g., number of published journal articles, books, manuals, and monographs), (4) the desirability of 17 job characteristics (e.g., higher salary, better colleagues, more opportunities to teach), and (5) the attitudes of respondents on 29 contemporary issues in American higher education and perceptions of their personal value orientations (e.g., collective bargaining by faculty members has no place in a college or university; I consider myself politically conservative).

Factor analytic procedures were used to determine the underlying dimensionality of these 71 measures. This analysis was based on all 14,311 respondents for whom complete data were available and whose academic discipline affiliation was included in the Biglan model (see Table 1). Four second-order factors were identified, and factor scores were developed for all 14,311 respondents according to the procedures defined by Rummel (1970). The following is a brief description of the substantive meaning of each of the four second-order factors which constitute the variables in this study.

Professional Success. This bipolar factor provides a cumulative sense of faculty members' perceptions of professional success in major research uni-

versities. In contrast to colleagues with lower scores, faculty with high positive scores on this factor report that they consider themselves to be more successful than most faculty of similar age and professional training in their fields. That is, they have published more articles, books, manuals, and monographs; spend more on administrative responsibilities and less time on teaching activities; have less interest in job offers that afford greater opportunities to teach and reduced pressure to publish; and are more satisfied with the academic life and their particular field of study.

Research Opportunities. The principal loadings on this factor indicate the interest faculty members would place on a stimulating academic environment and improved research opportunities should they consider seeking a new position. Respondents with high positive scores on this factor would be most likely to consider moving to a new position that affords better research conditions (e.g., more time for research, better research facilities, smaller teaching load) and the opportunity to work with more gifted and stimulating colleagues and students. They also tend to place greater emphasis on teaching goals that stress the cognitive development and research competencies of their students and to be more interested in job opportunities that would improve the living conditions of their families (e.g., better housing, community, schools) than their colleagues with lower scores.

Faculty Conservatism. This bipolar factor provides information derived primarily from measures of the personal values of respondents and their attitudes toward contemporary issues in higher education. Faculty members with high positive scores consider themselves to be politically more conservative and religious than their colleagues with lower scores. In addition, they tend to be more opposed to preferential hiring policies at their institutions, more supportive of channeling federal aid through institutions rather than its being distributed directly to students, and they tend to place greater emphasis on the cognitive growth and research competencies of their students.

Character Development. This factor is comprised principally of faculty responses to the amount of emphasis they place on selected undergraduate teaching goals. Respondents with a high positive score place greater emphasis on the character development (e.g., provide for emotional development, develop moral character) and intellectual self-actualization (e.g., develop creative talents, develop ability to think clearly) of students than their colleagues with lower scores. They also tend to spend more time on teaching and administrative responsibilities and less time on research activities than faculty with lower scores.

Sample

From the initial sample of 14,311 respondents used in the factor analysis,

100 faculty members in each of the eight mutually exclusive academic discipline clusters in the Biglan model, who were affiliated with institutions classified as research universities I or II in the Carnegie Commission (1973) typology of postsecondary institutions, were randomly selected. These eight groups of 100 faculty members each were used in the discriminant function analysis described below.

Statistical Procedures

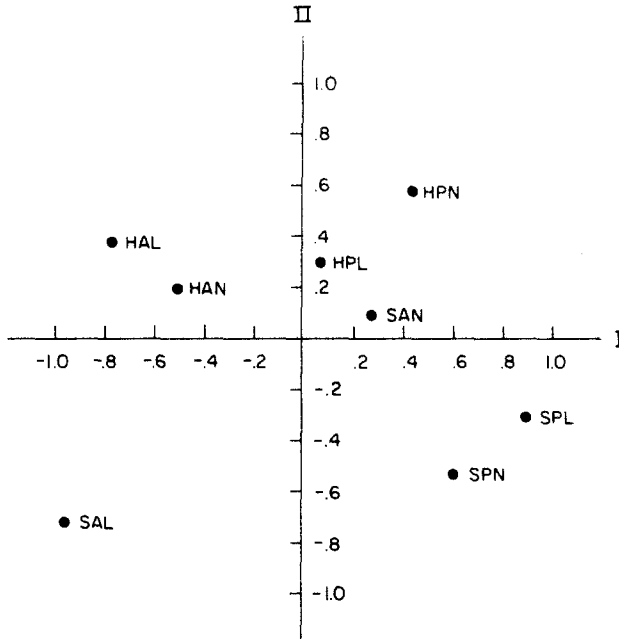
Discriminant function analysis procedures were used to test the validity of the three dimensions that are the basis of the Biglan model and to ascertain the substantive attitudinal and behavioral differences of faculty affiliated with academic disciplines classified according to these three dimensions. The four second-order factor scores constituted the independent variables in this analysis. The dependent variables were the eight groups of 100 faculty members each who were affiliated with the academic discipline clusters shown in Table 1.

EMPIRICAL VALIDITY OF THE BIGLAN MODEL

The degree of confidence that researchers and practitioners can have in the utility of the Biglan model is largely contingent on the validity of its three underlying dimensions. The discriminant function analysis provided a direct test of the empirical validity of the three dimensions which are the bases of the Biglan model through the determination of the number of statistically significant discriminant functions (i.e., dimensions) underlying the data and the position of each academic discipline cluster on each of the resulting dimensions. Confirmation of the empirical validity of the model would be obtained if three statistically significant dimensions emerged *and* if the plotting of the group centroids (i.e., means of the discipline clusters) on these dimensions was highly consistent with the three-dimensional configuration developed by Biglan.

The overall power of the predictor variables in the analysis was examined by Bartlett's test (Rao, 1952) with $p(k-1)$ degrees of freedom, where p is the number of variables and k is the number of groups. The total discriminant analysis produced is a chi-square value of 681.82 ($df=28$; $p<.001$) and yielded three statistically significant ($p<.001$) discriminant functions ($\chi^2 = 474.31, 244.36, 35.59$, respectively). The plotting of group centroids in Figures 1 and 2 indicates the position of each of the eight academic discipline clusters in Biglan's model on each of the three discriminant functions (i.e., dimensions).

The substantive nature of the dimension measured by each function is



HPL = hard-pure-life; HPN = hard-pure-nonlife; HAL = hard-applied-life; HAN = hard-applied-nonlife; SPL = soft-pure-life; SPN = soft-pure-nonlife; SAL = soft-applied-life; SAN = soft-applied-nonlife.

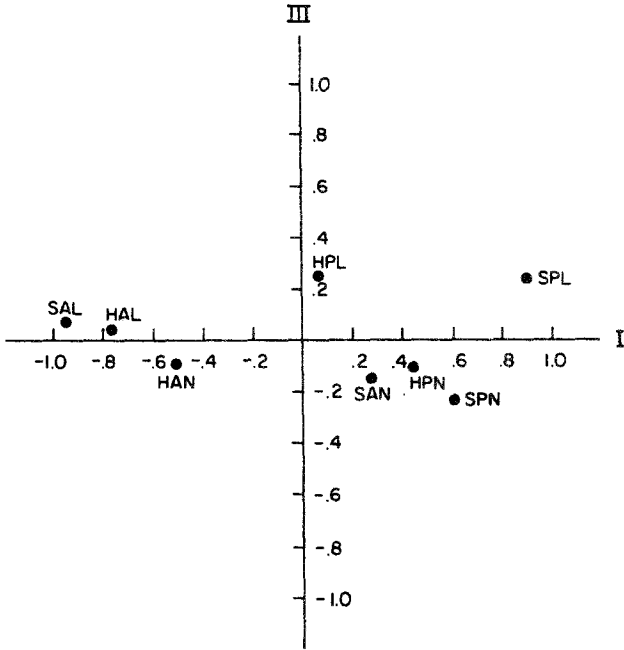
FIG. 1. Centroids of Biglan's eight academic discipline clusters on discriminant functions I and II.

defined by the standardized discriminant weights presented in Table 2. The manner in which each dimension differentiates the eight academic discipline clusters may be obtained from inspection of the standardized discriminant weights presented in Table 2 and the plotting of the group centroids in Figures 1 and 2.

The means and standard deviations of the discipline clusters grouped according to Biglan's three dimensions (i.e., pure versus applied, hard versus soft, life versus nonlife systems) are presented in Table 3 to aid in the interpretation of group differences.

Function I: Pure Versus Applied Disciplines

The first discriminant function accounts for 64% of the total variation and tends to differentiate the pure and applied discipline clusters (see Figure 1, horizontal axis). The nature of this function is defined primarily by the large negative standardized discriminant weights of faculty conservatism and char-



HPL = hard-pure-life; HPN = hard-pure-nonlife; HAL = hard-applied-life; HAN = hard-applied-nonlife; SPL = soft-pure-life; SPN = soft-pure-nonlife; SAL = soft-applied-life; SAN = soft-applied-nonlife.

FIG. 2. Centroids of Biglan's eight academic discipline clusters on discriminant functions I and III.

acter development (see Table 2). The location of three of the four applied discipline clusters (i.e., hard-applied-life, soft-applied-life, hard-applied-nonlife) on the negative end of the first function indicates that faculty in applied fields earned higher scores on faculty conservatism and character development than their colleagues in pure discipline areas. On the other hand, the location of all four pure discipline clusters on the positive end of this function indicates a reversed pattern of scores on the predictor variables (i.e., lower scores for faculty in pure areas on faculty conservatism and character development). These score distribution patterns of faculty in pure and applied disciplines are fully substantiated by inspection of the respective group means in Table 3.

Function II: Hard Versus Soft Disciplines

The second discriminant function accounts for 31% of the total variation and provides clear differentiation between hard and soft disciplines (see

TABLE 2. Standardized Discriminant Weights of Predictor Variables

Predictor variables	Standardized discriminant weights ^a		
	I	II	III
Professional success	.16	-.12	.83
Job considerations	.31	.20	.51
Faculty conservatism	-.68	.70	.22
Character development	-.68	-.72	.13

^aThe standardized discriminant weights are presented for the first three discriminant functions (I, II, III) that were statistically significant ($p < .001$).

Figure 1, vertical axis). The nature of this function is defined primarily by the large negative standardized discriminant weight of character development and the large positive weight of faculty conservatism (see Table 2). The location of all four hard discipline clusters on the positive end of the second function indicates that faculty in hard disciplines earned higher scores on faculty conservatism and lower scores on character development than their colleagues in soft disciplines. A reversed pattern of scores was characteristic of faculty in soft disciplines given the location of three of the four soft discipline clusters (i.e., soft-applied-life, soft-pure-nonlife, soft-pure-life) on the negative end of the second function. It should also be noted that the centroid of the fourth soft cluster (i.e., soft-applied-nonlife) is lower than that of any hard discipline cluster. These score distribution patterns of faculty in hard and soft discipline areas are again fully substantiated by the respective group means in Table 3.

Function III: Life System Versus Nonlife System Disciplines

The third discriminant function accounted for 4% of the total variation and provides clear differentiation between life and nonlife system discipline areas (see Figure 2, vertical axis). The nature of the third function is defined primarily by the large positive weights of professional success and research opportunities (see Table 2). The location of all four life system clusters on the positive end of this function and all four nonlife system clusters on the negative end suggests that faculty in life system disciplines earned higher scores on professional success and research opportunities than their colleagues in nonlife system areas. Inspection of the respective group means on these variables in Table 3 confirms this finding.

DISCUSSION

The results of this study provide strong support for the empirical validity

TABLE 3. Group Means and Standard Deviations of Predictor Variables

Predictor variables	Discipline clusters					
	Pure	Applied	Hard	Soft	Life	Nonlife
Professional success						
M	.17	.00	.03	.14	.16	.01
SD	.80	.75	.75	.80	.77	.78
Job considerations						
M	.10	-.11	.01	-.02	.00	-.02
SD	.88	.77	.86	.78	.85	.79
Faculty conservatism						
M	-.11	.39	.44	-.15	.22	.06
SD	.75	.75	.73	.78	.73	.78
Character development						
M	-.30	.18	-.14	.02	.10	-.22
SD	.71	.78	.74	.75	.77	.71

Note. The pure-applied dimension reflects discriminant function I; the hard-soft dimension reflects discriminant function II; and the life-nonlife dimension reflects discriminant function III.

of the Biglan model since three statistically significant discriminant functions emerged *and* provided differentiation between the eight clusters of academic disciplines in a manner highly consistent with Biglan’s (1973a) three dimensions.

The first function that emerged corresponds to Biglan’s second dimension, “concern with application.” The salient attributes that distinguish faculty in pure disciplines from their colleagues in applied areas are those related to personal value orientations, attitudes toward contemporary issues facing the academic community, and the emphasis placed on selected undergraduate teaching goals. As opposed to their colleagues in pure subject matter areas, faculty in applied disciplines tend to regard themselves as more politically conservative and religious individuals, more supportive of awarding federal aid directly to institutions (rather than to students), less supportive of preferential hiring practices for minority and women faculty at their institutions, and placing greater emphasis on the character development and intellectual self-actualization of their undergraduate students. Faculty in applied disciplines also report spending more time on administrative assignments and less time on research activities than those in pure subject matter areas.

The second function that emerged corresponds to Biglan’s first dimension, “existence of a paradigm.” Faculty in hard disciplines are characterized primarily by their self-perceptions of being more politically conservative and

religious individuals, their support of awarding federal aid directly to institutions, their opposition to preferential hiring practices for minority and women faculty, their tendency to spend more time on research activities, and their greater emphasis on the cognitive development and career preparedness of undergraduate students. On the other hand, faculty in soft disciplines are characterized primarily by their greater emphasis on the character development and intellectual self-actualization of undergraduate students and their tendency to devote more time to administrative assignments.

The third function that emerged corresponds to Biglan's third dimension, "involvement with life systems." The salient attributes that distinguish faculty in life system disciplines from their colleagues in nonlife system areas are those concerning perceptions of their professional careers and the attractiveness of selected job characteristics. Faculty in life system disciplines report higher levels of publication productivity, perceptions of career success, and interests in future career opportunities that would afford improved family living conditions, involvement with better colleagues and students, more favorable research conditions, and greater professional stature. These orientations are not shared as strongly by faculty in nonlife system disciplines, who are characterized primarily by their perceptions of lower levels of career success and satisfaction, the desire for greater teaching opportunities and less pressure to publish, and the tendency to spend more time on teaching related activities.

To summarize, faculty in hard-applied disciplines earned significantly lower scores on the factor of faculty conservatism than did their colleagues in the soft-pure disciplines. Ladd and Lipset (1975) reported disciplinary locations of faculty on a liberalism-conservatism scale. Faculty in engineering and agriculture (hard-applied) were found to be the two most politically conservative disciplines while faculty in the humanities and social sciences (soft-pure) represented the two most liberal disciplines. Disciplines representing hard-pure and soft-applied categories were located between these extremes on the liberalism-conservatism scale. Williams et al., (1974) reported similar findings in a study of British academics.

Pure-hard faculty earned significantly lower scores on the factor of character development than did their colleagues in applied-soft disciplines. Rugg et al., (1981) provide partial support for this finding. They asked 207 faculty in a major public university to respond to the institutional goals inventory. On the scale of individual personal development, the two extreme faculty groups were science-mathematics (pure-hard) and education (applied-soft); the science-mathematics faculty assigned less importance to student personal development goals than did faculty in education. Williams et al., (1974) in their study of British academics developed an index score, based on nine items, representing positive attitudes to students by faculty. All faculty were

categorized into one of the following five groups: humanities, social studies, pure science, applied science, and medicine. Social studies faculty comprised the following areas: education, social, administrative, and business studies. Social studies faculty (soft-applied) obtained the highest positive attitude index score while applied science (hard-applied) obtained the lowest score. Pure science faculty (hard-pure) differed only slightly from applied science faculty in their low student index score.

Faculty in life disciplines earned significantly higher factor scores on research opportunities and professional success than did their colleagues in nonlife disciplines. A major component of these two factors is the emphasis on publication and opportunities for research. The interpretation of this finding is not clear, although Fulton and Trow (1975) reported that faculty in physical sciences, engineering, humanities, and business (nonlife) more frequently were inactive or not currently publishing than were faculty in biological and social science (life). It may well be that the life-nonlife dimension is of more statistical than practical significance.

IMPLICATIONS FOR RESEARCH

While events throughout the past decade have contributed to a growing interest in research on college and university faculty, the resultant literature continues to be criticized for its fragmentation and lack of scholarly integration. Repeated calls have been made for increased attention to the development and testing of theoretical constructs which would assist in moving research in this area beyond its present stage of descriptive findings and value statements to a more advanced level of scholarly inquiry. There is increasing evidence based on the results of this study and earlier efforts that Biglan's model of academic disciplines has the potential to aid in enhancing the quality of scholarship and thus the practical utility of research findings on faculty. The following observations are offered to illustrate how the model might be used for these purposes.

The Biglan model would appear to have particular value in the quest to develop systematic knowledge about the internal diversity of institutions of higher learning. Comparable classification models have been most helpful in providing an integrated structure for the development of knowledge of *inter-institutional* differences in terms of organizational patterns of management practices and governance styles (Baldrige et al., 1978) and faculty patterns of research productivity and career orientations (Smart, 1978; Fulton and Trow, 1975). Minimal use of such models in investigations of *intra-institutional* diversity has contributed to the adoption of at least two inappropriate approaches to the study of this phenomenon. The first approach is to collect data from faculty affiliated with a variety of disciplines and to ignore area

differences. This approach is likely to mask different relationships in different subject matter areas. The second approach is to limit studies to but one or a few disciplines. While this is not inherently bad in itself, findings from studies based on the Biglan model suggest that the results obtained from studies of a single (or a few) discipline(s) cannot be generalized to dissimilar academic areas.

Given the results of studies to date, the Biglan model appears to offer particular promise for inquiries in the areas of the organizational and management characteristics of academic departments and the differential factors associated with the career success and satisfaction of faculty in different subject matter areas. Previous research has demonstrated wide variation in the goals of academic departments classified according to the Biglan model (Smart and Elton, 1975). Given the primacy of goals in the study of complex organizations (Parsons, 1960) and their relationship to various aspects of organizational functioning (Steers, 1977), it seems reasonable to expect broad diversity in the structural characteristics and management/leadership styles of these departmental groups as they strive to achieve their unique goals.

Similarly, faculty and chairpersons in the respective discipline groups exhibit wide variation in their professional values and behaviors (Biglan, 1973b; Smart and Elton, 1976). It seems plausible to assume that faculty success in and satisfaction with their professional careers will vary in relation to their congruence with the established norms and expectations of their respective subject matter areas. The three-dimensional model developed by Biglan (1973a) provides eight mutually exclusive clusters of subject matter areas that may be regarded as distinctive academic environments, each exhibiting a unique set of performance norms and expectations. The congruence between these environmental norms and individual predispositions and behaviors should be related to the ultimate career success and satisfaction of faculty members.

The results of this study and others (Biglan, 1973a, b; Creswell and Bean, 1981; Hesseldenz and Smith, 1977; Muffo and Langston, 1981; Smart and Elton, 1975, 1976; Smart and McLaughlin, 1978) have established the validity of the Biglan model with diverse samples of faculty. What is needed now is research that clarifies the Biglan classification scheme for purposes of administrative decision making. For example, many departments and disciplines within a university are not represented in the hard-soft, pure-applied, life-nonlife categories. University administrators are unlikely to alter their customary view of faculty uniformity in the absence of research findings on these unrepresented disciplines. Furthermore, is it possible to refine the Biglan classification scheme by discovering the similarities and differences among specialties within one discipline? That is, where are comparative, experimental, industrial, social, educational, clinical, and counseling psychologists located on the hard-soft, pure-applied, and life-nonlife dimensions?

Accountability is a two-edged sword. It may well be that the success that colleges and universities have in responding to sensitive external conditions will be contingent upon their abilities to "manage" successfully their diverse internal constituencies, and it is in this context that research based upon the Biglan model and similar conceptual frameworks is so vital to the ultimate health of the academic community.

NOTES

1. The canonical correlations between membership in the eight Biglan clusters and each of the three discriminant scores were 0.54, 0.40, and 0.16, respectively. Cooley and Lohnes (1971) noted that the square of the canonical correlations represent "the proportion of variance in the discriminant function that is in common with the variance in the specific matching linear function of the group membership variable" (p. 249). Following this procedure, membership in the eight Biglan clusters of academic disciplines accounts for 29, 16, and 3% of the unique variance in the three significant discriminant functions.

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