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CURRENT VIEWS OF DEPARTMENTAL QUALITY: AN EMPIRICAL EXAMINATION

Clifton F. Conrad and Robert T. Blackburn

Judging by the escalating rhetoric of the last several years, "quality" has emerged as a most salient issue confronting higher education. Of course, it may be that quality is little more than the latest cause célèbre or, worse, that much of the concern represents a disingenuous strategy aimed mostly at increasing support for financially beleaguered colleges and universities. Still, the scope and depth of recent initiatives seem to belie these interpretations and suggest a widespread commitment to revitalizing the higher learning.

The most visible efforts to address quality in higher education have been extra-institutional: stiffening accreditation standards, statewide program reviews, and reputational studies such as the one conducted recently by the Conference Board of Associated Research Councils (Jones, Lindzey, & Coggeshall, 1982). But no less telling has been a range of institutional initiatives designed to preserve and enhance quality. Faced with severe financial constraints, many institutions are seeking to maintain quality through adjustments in resource allocation and program review. Hundreds of colleges and universities have taken steps to preserve and enhance quality by such means as raising admissions standards, revamping general education programs, and upgrading the quality of their faculty and staff.

One of the most striking features across these efforts is the lack of shared agreement about the concept of quality itself. There are pointed differences regarding what goes into the making of something of high quality and, in turn, what can be done to nurture excellence. Notwithstanding this diversity, there seem to be four major alternative views

Clifton F. Conrad is a professor in and the Associate Dean for Academic Affairs of the College of Education at the University of Arizona.

Robert T. Blackburn is a professor in the Center for the Study of Higher Education at the University of Michigan.

of quality: a faculty view, a student view, a resource view, and an outcomes view. Each of these perspectives attaches a general meaning to the concept and suggests a cluster of related attributes that are seen as central components of program quality.

Most recent efforts to improve quality, whether for purposes of assessing it or taking steps to improve it, have been informed by one or more of these four views. Yet for the most part each adopted view seems to draw its support primarily from the opinions of those most concerned with quality—faculty, administrators, students, experts—rather than from research on academic quality. To be sure, the subjective character of the concept itself seems to militate against efforts to study quality. Nonetheless, there is a growing body of research which provides a good foundation for examining empirically the major views of quality. While they have not been applied systematically to examining differing perspectives on quality, studies of the correlates of departmental quality provide such a foundation.

In the last two decades, there has been a fairly large number of studies of the correlates of departmental quality. In brief, this research has been aimed at identifying objective, quantifiable factors that are associated with departments considered to be of high quality. Nearly all of these studies have examined various correlates of departmental quality as measured in the reputational studies of Cartter (1966) and Roose and Anderson (1970) that ranked graduate departments in the nation's major research universities. Recently, however, one study (Astin & Solmon, 1981) examined correlates of quality at the undergraduate level, and another (Conrad & Blackburn, in press) identified correlates of graduate departmental quality in regional colleges and universities. This expanded body of research is appropriate for investigating differing views of quality because the literature identifies individual factors and clusters of factors associated with departments of high quality that can be used to illuminate each of the views.

The purpose of this article is to examine four widely held views of quality in light of research on the correlates of quality. Since most of the research findings relate to graduate departmental quality, the main emphasis is on departmental quality at the graduate level. Nonetheless, the analysis also is intended to stimulate discussion about departmental and institutional quality at the undergraduate level.

The first section examines the four major views of quality and the research evidence as it applies to each. For each of the four views, the general perspective on quality and the cluster of attributes associated with the view are examined in light of relevant research findings drawn from the literature on correlates of quality. The second section describes a study that we completed recently of the correlates of graduate departmental quality in regional colleges and universities. The findings of that study are presented in relation to each of the four major views of quality as well as previous research. After introducing several caveats about the use of quantitative correlate research, the concluding section draws several implications for improving program quality.

Four Views of Quality

Faculty View

Probably the most widely held view is one that equates departmental quality with faculty quality. It suggests that a department is only as good as its faculty. Proponents of this view contend that a first-rate department is above all characterized by a faculty that is comprised of highly trained and productive scholars, one which enjoys a solid reputation among its peers.

The faculty view of quality finds strong support in the literature on correlates of departmental quality. Many studies have found large, significant correlations between various measures of faculty scholarly productivity (such as mean number of research articles and mean number of books) and graduate departmental quality or prestige (Drew, 1975; Glenn & Villemez, 1970; Hagstrom, 1971; Lawrence & Green, 1980; Lewis, 1968). Moreover, some studies have found moderate correlations between various measures of grant support—such as percentage of faculty with extramural research grants—and departmental prestige (Hagstrom, 1971).

The most arresting overall finding in the quantitative correlate research is that some studies have found that from one-half to over three-fourths of the variance in graduate departmental quality can be explained by a small number of variables related to scholarly productivity. At one extreme, for example, Drew and Karpf (1981) found that a single measure of scholarly productivity—departmental rate of publication in highly cited journals—correlated 0.91 with reputational rankings of departments.

In terms of the educational training and background of faculty, several studies have found moderate to large correlations between reputation of the doctoral-granting institution of faculty and research productivity (Clemente & Sturgis, 1974; Crane, 1965) which, as noted above, correlates very highly with reputational peer rankings of departmental quality. Several researchers have found moderate positive correlations between departmental quality or faculty productivity and individual faculty prestige (Lightfield, 1971) and age and tenure status of the faculty (Blackburn, 1972).

In short, the faculty view of departmental quality is strongly supported by empirical studies of the quantitative correlates of quality. Most important, this research strongly suggests that faculty scholarly productivity is the central component of departmental quality. While these findings are striking, a word of caution is in order: all of the studies discussed here examined departmental quality at the graduate level in leading research universities where faculty scholarly productivity probably was the major criterion on which departmental quality or prestige was initially determined. The potentially self-fulfilling characteristic of this research raises the question of whether or not faculty-related characteristics in general and scholarly productivity in particular really are

such central components of quality, especially in graduate and undergraduate departments located in institutions outside of the highly reputed institutions. There is little evidence that the faculty view of quality enjoys strong empirical support in these latter settings.

Student View

Adherents to a student view of quality suggest that a department is only as good as its students. They contend that highly qualified students, as indicated by measures of student selectivity (for example, the average ACT scores of freshmen), are the foundation of a high quality program. Further, these proponents argue that institutional and department size, as indicated by the number of students enrolled as well as by the number of faculty, are associated with departmental quality. According to this view, size enhances departmental quality because it helps to guarantee adequate library resources for students and faculty, helps to attract outside research funds, and helps to insure that adequate physical facilities such as laboratories and seminar rooms are provided for student learning and faculty research.

The student view of quality finds some support in the literature on correlates of departmental quality. Some studies have found significant relationships between measures of student selectivity and departmental quality (Astin & Solmon, 1981; Hagstrom, 1971). The moderate correlations found in these studies give support to Blackburn and Lingenfelter's assertion that "student quality can stand in its own right as a criterion of excellence" because "well-qualified students are an essential element of an excellent program" (1973, p. 8).

Many researchers have examined the role of institutional and departmental size on departmental quality. Institutional size has been found to be positively related to library size, research funds, physical plant, and graduate faculty quality (Astin, 1980) which, in turn, is highly related to graduate departmental quality. At the undergraduate level, however, institutional size has not been found to be positively associated with departmental quality. A study by Astin and Solmon (1981) found a negative association between institutional size and undergraduate departmental quality. As for department size, most studies of the correlates of top-ranked graduate departments have consistently identified department size (as measured by number of students or number of faculty) as a significant positive correlate of departmental quality or prestige (Blackburn & Lingenfelter, 1973; Elton & Rogers, 1971; Elton & Rose, 1972; Hagstrom, 1971).

In summary, there is some empirical support for the student view. But it cannot be said that this view enjoys the same degree of empirical support as does the faculty view. While both student quality and size (graduate level) are positively correlated with departmental quality, by themselves they do not explain large amounts of variance in departmental quality.

Resource View

One of the most popular views of quality is one that takes financial resources and funding as the *sine qua non* of departmental quality. From this perspective, institutional and departmental affluence means that departmental human resources—faculty, staff, and students—are well-nourished. Plentiful financial resources support rich and diverse programs and curricular concentrations, as well as educational facilities that support faculty and students. In short, departmental quality from the resource point of view considers monetary support as the vital resource for supporting faculty, students, programs, and facilities.

Despite the widespread conviction that financial resources are a central factor in nurturing quality, there is relatively little research directly linking the two. To be sure, a few studies have found relationships between measures of institutional affluence (such as endowments, expenditures per student, faculty salaries, research funds, and student-faculty ratios) and departmental quality (Abbott & Barlow, 1972; Astin & Solmon, 1981; Beyer & Snipper, 1974). For the most part, however, studies of the quantitative correlates of quality have not investigated extensively the relationship between either institutional or departmental resources *per se* and departmental quality. A few researchers have investigated factors that are directly linked to financial support, such as facilities and program characteristics. Since facilities and programs are institutional resources acquired through the direct expenditures of monies, the research findings in regard to relationships between facilities and program characteristics and departmental quality are relevant.

The resource view as it applies to facilities finds some support in the literature on quality. In particular, several scholars consider library strength as an important indicator of quality (Cartter, 1966; Perkins & Snell, 1962). Jordan (1963), for example, found that highly rated institutions have larger libraries and spend more per student on library salaries. Cartter (1966) found an association between number of volumes in the library and departmental quality. Unfortunately, there have been no systematic studies of the relationship between departmental physical facilities such as laboratories, office space, computer capabilities, and teaching facilities to departmental quality (Blackburn & Lingenfelter, 1973).

Another important area of financial resource allocation is programmatic. It is argued frequently that the more money directed into strengthening both institutional and departmental program offerings, the better the quality of departments. In particular, it is held that strong departments have a large number and a diversity of programs through the doctoral level and are located in institutions which have a large number and diversity of doctoral programs. Moreover, it is sometimes suggested that high quality departments are located in institutions where major emphasis is placed on programs in the natural sciences. Unfortunately, only rarely have characteristics of academic program offerings been investigated in relation to departmental quality. However, one study found an association between magnitude of doctoral programs

(as measured by number of degrees awarded) and departmental quality (National Science Board, 1969), and another found a correlation between institutional curriculum concentration in the natural sciences and departmental quality at the undergraduate level (Astin & Solmon, 1981).

In short, it is widely assumed that financial resources are linked to departmental quality. Yet there is a limited amount of empirical research directly relating resources to departmental quality. A few studies have shown direct correlation between institutional affluence and quality, and several measures of facilities and program characteristics have been found to be linked to quality. But most researchers have not investigated—either directly or indirectly—the relationship between resources and quality.

Outcomes View

An increasingly popular view of quality focuses on departmental outcomes. Proponents of an outcomes view contend that the ultimate test of departmental quality lies not in faculty or students or resources but rather in the quality of outcomes. Such outcomes include the products of faculty research and successful graduates.

As described by Astin (1980), the outcomes view is older than is commonly acknowledged. In the 1950s, some of the first work using this approach looked at such outcomes as the proportion of institutional graduates who win graduate fellowships (Knapp & Greenbaum, 1953) and the proportion of institutional graduates who go on to get doctorates (Knapp & Goodrich, 1952). In the last 30 years, various studies have linked measures of student success (for example, lifetime earnings and percentage of graduates who go on to graduate school and win postdoctoral fellowships) to institutional and departmental quality (Hagstrom, 1971). Similarly, several studies have found strong correlations between departments with highly productive faculty in terms of research products and departments receiving high ratings in reputational studies (Berelson, 1960; Cartter, 1966; Crane, 1965).

The outcomes view is particularly appealing to those in elite institutions because most outcomes measures, like most faculty and student measures, turn out to be highly related to reputational rankings of departmental quality (Astin, 1980). Departments with good reputations tend to have highly productive faculty and students who are highly successful after leaving college. While the outcomes view has considerable support, one is reminded to take a caution from Astin regarding the dangers of uncritically embracing an outcomes view without taking inputs into account. As Astin has argued, outcomes—by themselves—do not tell us anything about impact or effectiveness. His research has shown, for example, that most student learning outcomes depend more on the quality of students admitted than on the quality of the program (Astin, 1962; Astin & Panos, 1969). Without taking inputs into account, an outcomes approach may tell us little about what a department has contributed and, in turn, its quality.

The Study

This study of graduate departmental quality differs from most of the extant research in three major ways. First, nearly all studies have focused on highly ranked departments in major research universities. This study utilized departments in less prestigious regional colleges and universities. Because departments outside of the elite institutions seem to have differing and probably more diverse goals, it was expected that the factors associated with departmental quality in regional colleges and universities might be different from those factors isolated in studies of departments in elite institutions. Second, since many studies have concentrated on faculty-related correlates of departmental quality, other potential dimensions of quality also were explored, including factors related to students, curriculum, and facilities. Third, virtually all previous studies have used departmental reputation as the measure of the dependent variable. This study, however, extracted its measure of departmental quality from external reviewers' assessments of program quality. Reputational studies have been criticized severely in the literature (Lawrence & Green, 1980), and it was decided that the informed judgment of external reviewers would provide a preferable measure of departmental quality.

The study itself, which is discussed more fully in a companion article (Conrad & Blackburn, in press), was not explicitly designed to test the four views of quality. However, since the factors investigated can be grouped into categories which correspond to the four views, the findings provide an instructive foundation for examining further the empirical support for each of the views. Because the methodology and overall statistical findings have already been reported, the major focus here is on reinterpreting the findings by systematically relating them to each of the four views as well as to previous research. Following an overview of the methodology and major findings, each of the four views is reexamined in light of the factors found to be associated with departmental quality.

Overview

The study sought to isolate correlates of departmental quality at the masters and doctoral level in regional colleges and universities. The 45 departments in the sample represented 14 public institutions in 2 states and included 12 departments in biology, 9 in chemistry, 6 in education, 10 in history, and 8 in mathematics. The departments were selected on the basis of their representativeness of major disciplines and fields of study and in consideration of data availability.

The measure of the dependent variable—departmental quality—was extracted from reports generated independently of the study by teams of external reviewers which reviewed all departments in the sample. A typical team consisted of three experts of national reputation in the discipline being reviewed who were from another geographical region

of the country. Each team conducted site visits; corroborated departmental self-studies; collected additional data; and interviewed students, faculty, and administrators. For each of the five disciplines, the same team visited all departments in a state. The reviewing team prepared a report which discussed the strengths and weaknesses of each department as well as provided an overall consensus judgment of the quality of the department. For purposes of statistical analysis, three evaluation experts distinct from the review teams quantified the site visitors' reports by rating each department on a five-point scale. Agreement among the raters was essentially identical in all but two of the 45 departments. (The scores on these two departments were adjudicated by rereading and rescoring. The rank order of the departmental quality measure did not change after the adjustments were made.) The departmental ratings were distributed fairly evenly across the five-point rating scale.

Based on a comprehensive review of the literature on departmental quality, 164 independent variables were selected initially for inclusion in the study. Each of the departments in the sample had prepared self-studies that followed a common format. Higher Education General Information Survey (HEGIS) reports were used to supplement and corroborate the self-study data. In spite of this comprehensive data base, lack of uniformity in some of the data and missing data reduced the number of variables actually used in the study to 73. For example, the variable "department rate of publication in highly cited journals" had to be omitted from the study. Variable measures were produced for two levels: departmental and institutional. The justification for the inclusion of institutional variables was that departments exist within an institutional environment which can be expected to affect departmental quality. Of the 73 variables included in the final pool, 41 related to faculty, 6 to students, 25 to program, and 1 to facilities. (For a more extended discussion of the methodology, including procedures used in estimating missing data, see Conrad & Blackburn, in press.)

The purpose of the analysis was to isolate those variables and combinations of variables that best explain variation in departmental quality. The initial step in the analysis was to compute simple correlations between departmental quality and each of the 73 variables. Based on their strength of association, 32 of these variables were retained for analysis. Table 1 displays the simple correlation coefficients for each of the 32 variables. Regression analysis was then used to isolate combinations of variables of conceptual similarity that best explain variation in departmental quality. The 32 variables were grouped into 14 subgroups (such as scholarly productivity and teaching workload) within four overall groups: faculty, students, program, and facilities. Departmental quality was regressed separately on each of the 14 subgroups, which allowed the variables of conceptual similarity to explain as much of the variation in quality as possible. As shown in Table 1, the coefficients of determination (R^2) for each of the subgroups can be used to compare the subgroups based on the percentage of variation in quality which they explain. The findings reported in Table 1, including both the zero-

Table 1

Correlation Coefficients Between Selected Independent Variables and Departmental Quality and Multiple Correlations Between Selected Subgroups and Departmental Quality

Subgroup/Independent Variables	Correlation Coefficient	Coefficient of Determination (R^2) for Subgroup
Faculty		
Scholarly Productivity		
Mean number of conference papers last 5 years	.36*	
Mean yearly publication rate last 5 years	.36*	
% faculty with 4 or more career publications	.26*	
Mean number of articles published in local journals last 5 years	−.26*	
Mean number of all publications, 1974–1979	.25	
Mean number of book reviews last 5 years	.18	
Mean number of all publications, 1968–1973	.10	.282
Grantsmanship		
Mean dollar value of grants	.23	
Mean number of grants received	.17	.074
Age and Tenure		
% faculty with tenure	−.26*	
% faculty over 50 years of age	−.23	.106
Work Experience Outside Current Institution		
% faculty who have worked 9 or more years in government, business, industry, or other colleges and universities	−.17	.028
Educational Qualifications		
% faculty whose highest degree is terminal degree	.24	.059
Geographical Origin of Highest Degree		
% faculty with highest degree from regional university	.27*	
% faculty with highest degree from in-state university	.23	.083

Table 1 (continued)

Subgroup/Independent Variables	Correlation Coefficient	Coefficient of Determination (R^2) for Subgroup
Faculty		
Teaching Workload		
Mean number of semester hours currently teaching at both graduate and undergraduate level	−.35*	.124*
Students		
Number		
Total student enrollment at undergraduate level (I)[a]	.43*	
Total student enrollment at undergraduate and graduate level (I)	.42*	
Total student enrollment at graduate level (I)	.31*	
Number of undergraduate students enrolled in program	.22	.321*
Ability		
Mean undergraduate students ACT test score (I)	.31*	.094*
Program		
Graduate Degrees Awarded		
Total number of degrees awarded annually at specialist level	.23	
Total number of degrees awarded annually at masters level	.19	
Total number of degrees awarded annually at doctoral level	.11	.069
Number and Range		
Range of masters degree programs (I)	.17	
Total number of doctoral degree programs (I)	.16	
Total number of baccalaureate degree programs (I)	.09	.034

Table 1 (continued)

Subgroup/Independent Variables	Correlation Coefficient	Coefficient of Determination (R^2) for Subgroup
Program		
Proportion of Degree Programs at Specialist and Doctoral Level		
% of degree programs at doctoral level (I)	.26*	
% of degree programs at specialist level (I)	−.19	.168*
Curriculum Concentration		
% of undergraduate students majoring in the natural sciences (I)	.54*	
% of graduate students majoring in the natural sciences (I)	.46*	.307*
Facilities		
Library Size		
Number of volumes in the library (I)	.15	.021

*Significant at the $p < .05$ level

[a](I) refers to institutional variables

order correlations and the regression coefficients for each of the 14 subgroups, provide an empirical foundation for reexamining each of the four views of quality.

Faculty View Reexamined

Previous research has strongly supported the faculty view of quality—a view positing that highly trained faculty with good reputations and backgrounds who are highly productive scholars provide the essential foundation for a strong department. In this study, certain findings support the faculty view, while others challenge existing beliefs.

Like previous research, correlations between measures of scholarly productivity and departmental quality were found (Table 1). Four of our seven measures of scholarly productivity had moderate correlations with departmental quality, and the combinations of all seven variables in the subgroup accounted for over 28% of the variance in quality. Whereas previous research has found that most of the variance in departmental quality could be explained by a few measures of scholarly productivity, these findings suggest that scholarly productivity may not be as important in regional colleges and universities. Moreover, the findings in regard to grant support lead to a similar conclusion. While

the measures of grant support have small correlations with departmental quality (Table 1), these relationships do not approach the strength of association found in previous research.

Those holding a faculty view of quality frequently assert that older, more experienced, and tenured faculty contribute disproportionately to departmental quality. As noted earlier, previous studies have found a positive association between age and tenure and faculty productivity. These results, however, dispute those findings as applied to departmental quality. In this study, measures of age, tenure, and outside work experience had small negative correlations with departmental quality (Table 1). These findings raise questions about existing beliefs regarding the relative contribution of older, more experienced, and tenured faculty to departmental quality.

Proponents of a faculty view also assert that a quality department is made up of faculty who are highly trained in their field. While the correlations found here are lower than in previous research, the results generally support this belief. A measure of the quality of doctoral-granting institutions (percentage of faculty with their highest degree from a major research university) had a small correlation with departmental quality, though it was not large enough to be included in Table 1. Moreover, a measure of faculty educational qualifications was moderately correlated with departmental quality as were two measures of the geographical origin of the highest degree of faculty (Table 1).

Finally, many adherents of a faculty view claim that departments in which faculty teach fewer hours are of higher quality. While previous research has rarely examined this relationship, this study found a fairly strong negative correlation between teaching workload and departmental quality (Table 1). The findings suggest that lower teaching loads are associated with higher quality departments.

In summary, this research gives some support to the faculty view of quality. Like previous research, it found associations between faculty scholarly productivity and educational training and departmental quality. Moreover, it found that lower teaching loads are linked with departmental quality. Yet, while these findings give support to these popular conceptions about the relationship between faculty characteristics and departmental quality, the findings also raise questions about this widely shared view. First, the strength of association between faculty scholarly productivity, grantsmanship, and educational training and departmental quality found in previous research was not substantiated. Second, traditional beliefs about the impact of age, tenure status, and experience of faculty were not supported. These latter findings challenge several widely held beliefs about faculty characteristics and their relationship to departmental quality.

Student View Reexamined

Previous research has provided some support for the view that student quality (as measured by student selectivity) and institutional and

departmental size (as measured by number of students) are associated with high quality departments. Several findings in this study lend further empirical support to the student view.

The single measure of student ability, mean undergraduate ACT score, was moderately associated with departmental quality (Table 1). This finding supports the view that high quality departments are more likely to be located in institutions where overall student quality is high as measured by performance on standardized admissions tests. Also examined was the relationship between departmental and institutional size and departmental quality. While the number of undergraduate students enrolled in departments had a fairly moderate correlation with departmental quality, three measures of institutional enrollment had moderate to large correlations with departmental quality (Table 1). When all four variables related to student enrollment were combined in a regression equation, they explained over 32% of the variance in departmental quality. This finding provides empirical support for those who believe that departmental and institutional size are important ingredients of departmental quality—at least at the graduate level in regional colleges and universities.

Resource View Reexamined

Previous research has provided some support for the resource view of quality, the view that financial resources are essential for departmental quality. While this study was designed initially to examine seven measures of departmental financial support, missing data precluded investigating any one of the seven variables. However, it was able to investigate a substantial number of variables related to financial support including measures of facilities and programs. While indirect, the findings regarding these variables provide some support for the resource view.

The single measure of facilities—library volumes—had only a small correlation with departmental quality (Table 1). However, various measures of program characteristics had small to large correlations with departmental quality. As shown in Table 1, three measures of departmental graduate degrees awarded and two of the proportion of institutional degrees awarded at the specialist and doctoral level had small to moderate correlations with departmental quality. Moreover, three institutional measures of the number and range of programs had small correlations with graduate departmental quality. Finally, two measures of institutional curriculum concentration—percentage of undergraduate and graduate students majoring in the natural sciences—had large correlations with departmental quality (Table 1). This latter finding is consistent with Astin and Solmon's (1981) finding at the undergraduate level.

While these results do not directly support the resource view of quality, they do suggest that resources help purchase those things for which money is needed: graduate programs, a large number and range

of programs, and a heavy concentration of program offerings in the natural sciences. Moreover, they strongly suggest that overall institutional program offerings play a significant role in departmental quality. In short, the findings support previous research in suggesting that financial resources seem to be important because they allow institutions to develop large and diverse programs and provide good facilities. Still, more research is needed which explores more directly the connection between resources and quality.

Outcomes View Reexamined

Previous research has provided some support for the outcomes view—a view of quality suggesting that what distinguishes higher quality departments from those of lesser quality is the quality of their products or outcomes. As a way of examining the outcomes view in relation to these findings, each of the 14 subgroups in the analysis can be classified as including primarily "inputs" or "outputs." Two of the 14 subgroups identified in Table 1 are clearly outputs. One of these subgroups, scholarly productivity, falls in the faculty category, while the other—graduate degrees awarded—falls in the program category. While the latter explains less than 7% of the variance in departmental quality, the faculty scholarly productivity subgroup explains over 28% of the variance in departmental quality. Of all 14 subgroups in the analysis, the faculty scholarly productivity subgroup explains the third largest amount of variance. In short, these findings provide some support for the outcomes view in general and shed some light on the types of outcomes associated with departmental quality.

At the same time, the remaining 12 subgroups in the study can be classified as inputs. This suggests that inputs, not outcomes, are the more fundamental attributes of high quality programs. Nevertheless, this finding must be tempered by a feature of the study: most of the variables included in the final pool of 73 variables were input rather than output variables. Many of the original output measures—such as percentage of graduates employed in their field of study—had to be dropped from the analysis due to missing data. Thus the lack of support for the outcomes view across the 14 subgroups may be the result of the fact that relatively few of the variables examined were output measures. While the factors examined here provide some support for the outcomes view, it might have been that with additional outcome measures more support would have been found.

Summary

This study, which examined multiple and diverse correlates of quality, provides empirical support for four alternative views of quality. While the faculty and student views had the strongest empirical support, the resource and outcomes views also received some empirical confirmation. Moreover, various individual attributes and clusters of attri-

butes associated with each of the four views have been linked to departmental quality, thereby helping to illuminate central components of each view. In short, the findings suggest that multiple factors related to faculty, students, resources, and outcomes are associated in varying degrees with departmental excellence—that no single view, by itself, captures fully the diversity of elements that are associated with a high quality program.

To a considerable extent, the findings reported here corroborate previous research: all four views enjoy at least moderate empirical support, and many of the clusters of attributes associated with each of the views (such as faculty training) are held in common. At the same time, there are some important overall differences. Most important, the faculty view of quality was not as dominant as has been the case in previous research. In most studies faculty scholarly productivity has been found to explain a large amount of variation in departmental quality, yet here it explained a much smaller proportion. Moreover, several clusters of attributes associated with each of the views that were previously identified as important were found to be of lesser importance, while in other cases the opposite was true. And several clusters of factors and individual factors identified here—such as faculty teaching workload—rarely have been explored in previous research.

In comparing our findings with previous research, it should be emphasized that our research differed from previous studies in several important ways which, in turn, may help to account for the differences in the findings. First, and perhaps most important, out study examined departments in regional colleges and universities whereas nearly all previous studies examined highly ranked departments in major research universities. Clearly the meaning of departmental quality may be somewhat different across the two institutional types. Second, our study used a different measure of departmental quality. Instead of replicating previous studies which employed off-site reputational ratings, we used program reviewers' judgments as the measure of departmental quality. The different measures of departmental quality may be related to the different outcomes. However, with the strength of our dependent variable, it is the former studies that need reinterpretation. Third, this study examined a greater number and diversity of potential correlates of quality than any previous study. The simple fact that multiple and diverse correlates were examined—including some variables that have not been used in previous research—could account for at least some of the differences. Finally, definitions and hence correlates of quality may change over time for a variety of reasons, such as changes in the higher education marketplace and economic conditions. In contrast to our study, nearly all previous studies examined program quality using data no more recent than the early 1970s. In short, the differences between our study and previous research may be explained by differences in methodology and sampling. Further research is needed to explore the extent to which these factors account for the differences found here.

Notwithstanding some important differences between previous stud-

ies and the findings reported here, the research on the quantitative correlates of quality strongly suggests that multiple and diverse factors are associated with high quality programs, that no single view of quality by itself adequately explains variation in program excellence. With this overall finding in mind, we turn to a consideration of the quantitative approach to examining departmental quality.

Discussion

Both in terms of theory and practice, there are some limitations of the quantitative correlate approach that should be mentioned. From a theoretical perspective, it must be remembered that correlation is not causation—that finding a correlation is not the same as finding a cause, nor does it prove or disprove that a particular variable is an attribute of quality. Variables are nothing more than substitute and partial indicators, not the construct itself. For example, mean faculty publication rate has been found to be highly correlated with departmental quality and therefore would seem to be a good indicator of quality. But that finding does not establish that increasing faculty publication rate will necessarily cause an increase in a department's quality. To put it another way, identifying a correlate does not provide a description of quality, nor does it isolate a cause of quality; it simply provides an indicator of its presence or absence (Olscamp, 1978, p. 506).

Having introduced this caveat, we turn to several more direct limitations of the quantitative correlate approach. One is the simple fact that the variables which have been examined are heavily biased toward those things that can be easily quantified and are readily available. Because they do not meet those criteria, factors that may be central to understanding the "qualitative" aspects of quality—like esprit and leadership and morale—simply have not been examined. It is not that it is impossible to devise one or more indicators of such qualitative constructs; rather, it is a difficult task requiring a commitment that researchers so far have been unwilling to make. In any event, the consequence of this omission is that even multidimensional approaches to quality have failed to consider qualitative dimensions that can be expected to be associated with programs of high quality. At the least, there is no way of knowing if they are and, if so, to what degree.

Another type of distortion, which is due to the nonrandomness of the research that has been conducted, affects and limits our understanding of quality. Existing studies are markedly disproportionate with respect to program level (almost exclusively at the graduate level), institutional type (almost entirely in highly ranked institutions), and perspective (most often faculty and much less frequently from a student, resource, or outcome view). When these limitations are coupled with the fact that the studies do not always corroborate one another, the statement that more research is needed is more than the trivial one that concludes many articles. Future research should incorporate a variety of views,

at the undergraduate as well as the graduate level and in all types of institutions, and it should explore qualitative as well as quantitative dimensions.

Despite these limitations in theory as well as in the conduct of inquiry, what has been learned thus far about program quality contributes to our understanding of the elusive concept of quality. This new knowledge also has implications for practice, for decision making within our systems of higher education and within individual programs.

While correlation is not causation, the research literature nevertheless establishes that multiple and diverse factors are associated with programs of high quality. No single view of quality—whether it be a faculty, student, resource, or outcomes view—by itself is sufficient to explain satisfactorily variation in program quality. The major implication of this research is that decisions for improving program quality need to take into account the multidimensional character of quality.

In addition, the qualitative correlate literature can help to provide a framework for improving quality. Consistent with each view, researchers have isolated individual factors and clusters of factors related to programs of high quality. Each of these factors might be given consideration in any design for quality. For example, there is agreement in the literature that faculty who are highly trained, engage in ongoing scholarly publication, and secure outside grant support are most likely to be associated with high quality departments. In turn, supporting efforts aimed at attracting highly competent faculty and increasing faculty scholarly productivity seem likely to improve program quality. In the same vein, other correlates identified in the literature—such as teaching workload, student selectivity, resources, and environment—can be used both as indicators of current program quality and as important factors to take into consideration when designing for program quality.

In summary, the multidimensional factors identified in the literature on quality might serve as a point of departure for efforts aimed at improving program quality. Wisely used, with a recognition of the limitations of current research, they can help to improve our understanding of the elusive concept of quality. In the meantime, research is needed which overcomes the limitations of research in the quantitative correlate tradition.

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