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Power and Centrality in the Allocation of Resources in Colleges and Universities

Judith Dozier Hackman

This work proposes a research-based theory about how colleges and universities allocate resources among units. The pivotal concept of centrality (how closely a unit's purposes match those central to the organization) affects how four other theoretical concepts interact: internal resource allocations, environmental power, institutional power, and resource negotiation strategies. A unit's environmental power, gained by its relative ability to acquire external resources needed by the institution, and a unit's institutional power combine with resource negotiation strategies to explain about half of the variance in internal resource allocations. The theory is developed from interviews at six varied institutions and is supported by analyses of data obtained from questionnaires completed by administrators of a state university, a liberal arts college, and a comprehensive college.•

Whether the times are good or bad, some departments and offices in colleges and universities gain in institutional resources while other units lose. The purpose of this research is to work toward a practical theory of resource allocations that will explain such gains and losses in times of financial difficulty. It is hoped that these ideas eventually can be extended to universities and colleges when they are not under financial stress and then to organizations outside of academia. The intent is to offer insight into questions such as the following: (1) What factors most strongly affect the amount of money and space that a department or office acquires in the institution? (2) How does the allocation of resources differ between units central to the purposes of the institution and those units that are peripheral? and (3) What budget negotiation strategies help departments and offices increase their share of available resources?

PROPOSED THEORY AND BACKGROUND

Although much of the proposed theory has evolved from the study described here, it also relates to and draws on previous studies about resource allocations and organizational power (Perrow, 1970; Hickson et al., 1971; Hinings et al., 1974; Pfeffer and Salancik, 1974; Salancik and Pfeffer, 1974; Hills and Mahoney, 1978). The theory rests on the basic assumption that colleges and universities are open systems in interaction with their environment (Katz and Kahn, 1978; Miller, 1978). From the environment these institutions bring in essential resources (such as students, faculty, staff, money, and other kinds of support), and in return they contribute services and products (especially educated students and knowledge). The proposed theory is based on five concepts: centrality, resource allocations, environmental power, institutional power, and resource allocation strategies.

Centrality

Centrality, the pivotal concept in this research, is defined as how closely the purposes of a unit match the central mission of its institution. Although centrality is defined as a continuum, for research purposes it is useful to characterize units as core or peripheral.

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Core units. Core units are those whose functions are essential to the central mission of an institution. Without the core, the organization would have another overall purpose. The particular departments or offices viewed as core units vary among different institutions of higher education and differ over time within particular institutions. As an institution adapts to its environment, what is central changes continuously, although often imperceptibly.

For research universities, central activities are usually teaching and research by faculty members. Core units are primarily academic departments and schools but may also include research centers and institutes. Smaller institutions and those that focus primarily on teaching less frequently have research units.

Peripheral units. Peripheral units are the noncentral parts of the institution. They vary widely in size and mission, both within an individual college or university and from one institution to another. Included in this category are most administrative and support offices, as well as specialized units such as conference centers and summer camps. The roles of various kinds of peripheral units in colleges and universities have been described by various authors (Gulko, 1972; Ikenberry and Friedman, 1972; Bowen, 1977; Collier, 1978).

Resource Allocations

Resource allocations, the dependent variable in the proposed theory, is the relative share of internal institutional resources acquired by a unit, especially money, space, and campus location. A major assumption is that core and peripheral units acquire institutional resources in different ways. The present research focuses on one important aspect of resource allocations — the relative *change* in a unit's share of the general budget. This emphasis accords with Hills and Mahoney (1978: 458), who state that "subunit budgeting tends toward incremental budgeting rather than comprehensive budgeting, suggesting that investigation of budgeting criteria ought to focus on incremental budgets rather than total budgets."[1]

Environmental and Institutional Power

Two of the five proposed concepts refer to forms of unit power, the essential but elusive concept that many social scientists have at some time studied (Weber, 1947; Lasswell and Kaplan, 1950; Simon, 1953; French and Raven, 1977; Emerson, 1962; Gamson, 1968; Perrow, 1970; Hickson et al., 1971; Hinings et al., 1974; Pfeffer and Salancik, 1974; Salancik and Pfeffer, 1974). The form of power studied here is relational power among intraorganizational units within institutions that are open systems. The focus is on how power influences decision making in colleges and universities, especially critical decisions about resource allocations to academic departments and nonacademic offices.

Although much of the literature stresses unilateral power, the present research (like much of the research cited below) follows Emerson's (1962) view of power as a relational condition. According to Emerson, we understand the power of a unit or an individual when we know its relationship to the object of

1 The term "subunit" is used interchangeably with "unit" in the literature on resource allocations and intraorganizational power.

that power. The power of one unit over a second equals the dependence of the second unit on the first. Power therefore is relative from relationship to relationship and even from situation to situation.

Applying Emerson's work to colleges and universities gives, for any one department or office, a full set of different power relationships across all of the other units in the institution. The power of a unit vis à vis the rest of the institution equals the dependence of the organization on that unit. Dependence, from Emerson's (1962) perspective, is (1) directly proportional to the criticality of the resources that the unit controls and (2) inversely proportional to the substitutability of the unit for acquiring these resources, that is, the availability of those resources from other units.

Until recently, most research on power in work organizations examined power among hierarchical levels or interpersonal power. In reviewing literature for his study of functional group power among departments in industrial firms, Perrow (1970: 84) found "only a single study that asks survey questions regarding the power of functional *groups*." In the past decade there has been more research at the unit level. Hickson et al. (1971) and Hinings et al. (1974) proposed and studied a strategic-contingencies theory of intraorganizational power that examined structural rather than personal sources of power in subunits of work organizations. More closely related to the present study is the research of Hills and Mahoney (1978) and the work of Salancik and Pfeffer, who investigated power and resource allocations among academic departments in universities (Pfeffer and Salancik, 1974; Salancik and Pfeffer, 1974).

Environmental power. The proposed concept of environmental power follows Emerson's view of power and is consistent with Pfeffer and Salancik's (1974: 470) finding that "power accrues to those departments that are most instrumental in bringing in or providing resources which are highly valued by the total organization." Environmental power is the relative ability of a unit to bring in outside resources that are critically needed by the institution. A unit realizes this form of power when the rest of the institution recognizes both the organization's motivational investment in the resources that the unit can acquire (criticality) and the relative ability of the unit to bring in needed resources from the environment (substitutability). The research examined the relative ability of a unit to obtain environmental resources such as those listed in Table 1, each weighted by how critical the resource was to the institution as a whole.

Institutional power. Institutional power is the unit's relative influence within the institution, independent of its environmental power. Variables examined that were potentially related to internal institutional power are listed in Table 1.

Resource Negotiation Strategies

Resource negotiation strategies are strategies used by unit heads to acquire resource allocations, particularly in negotiating budgets. In the present study, the strategies surveyed included how much a unit head used each of the strategies listed in Table 1 in negotiating the unit's annual budget allocation.

Table 1

Variables Examined for Three Concepts

Environmental Power	Institutional Power	Resource Negotiation Strategies
1. Student recruitment and retention	1. Historical power within institution	1. Focusing on needs of total institution
2. Faculty recruitment and retention	2. Length of time in institution	2. Focusing on needs of division
3. Recruitment and retention of other expertise	3. Visibility within institution	3. Focusing on needs of unit
4. Prestige	4. Visibility outside institution	4. Focusing on needs of unit members
5. Ability to cope with current societal needs and problems	5. Visibility with board of trustees	5. Presenting lowest feasible budget
6. Overall outside financial support	6. Number of full-time-equivalent employees	6. Overstating budget needs
7. Federal government support	7. Percentage of faculty relative to managerial and professional staff	7. Omitting important items
8. Foundation support	8. Number of students served	8. Including budget request for innovative programs
9. Business and industry support	9. Interaction with central administration	
10. Alumni support	10. Number of times monthly that unit director talks with central administration	
11. Community support	11. Support of president	
12. State support	12. Ease of direct access to president	
13. State legislature support	13. Support of dean or director	
	14. Legal commitments from institution	

Research Design

The study focused on four groups of institutional units, formed by relating the two key concepts of centrality to the dependent variable, resource allocations: peripheral losers, peripheral gainers, core losers, and core gainers. The study was conducted in two phases. The first emphasized theory development, using a modified grounded-theory methodology of interviews, document collection, and relevant literature review (Glaser and Strauss, 1967; Conrad, 1978). The second phase provided provisional testing and theory refinement based on more detailed case investigation and survey techniques.

In the first phase, top administrators were asked to identify and discuss institutional units that fell into each of the four groups and to explore why and how the units lost or gained budget allocations. In the second phase, questionnaires given to heads of units in each group asked them to describe their units on scales reflecting the five theoretical concepts. Analyses of these qualitative and quantitative data made it possible to explore the resource patterns of the four groups and thereby lay a foundation for further theory development.

METHODS

Participating Institutions

Table 2 characterizes the six institutions that took part in the research and lists the numbers and kinds of participants from each. The institutions ranged from a small, religious undergraduate women's college to a state university with several graduate and professional schools; from a well-known liberal arts college with a national student body to institutions that were primarily regional in enrollment.

All six institutions were located in New England, and all were accredited by the New England Association of Schools and

Table 2

Characteristics and Participation of Six Institutions Studied*

			Interviews					Completed questionnaires†	
			Phase 1			Phase 2		Phase 2	
Type of institution	Size 1979–80	Highest degree	Pres.	Vice Pres.	Other	Division heads *N*	Department heads *N*	Division heads *N* (%)	Department heads *N* (%)
State university	14,200	Doctorate	Pres.	Academic Admin. & Bus. Development Student	Pres. Asst. (2) Acad. Asso. V.P. (2)	8	3	11 (92)	17 (65)
Liberal arts college	2,700	Doctorate	Pres.	Academic Admin. & Bus.		3	3	2 (67)	14 (70)
Comprehensive college	3,800	Master's	Pres.	Admin. & Bus.	Pres. Asst.			4 (57)	24 (89)
Women's college	550	Bachelor's	Pres.	Academic Admin. & Bus. Student					
Technical university	7,250	Master's	–	Academic Admin. & Bus. External					
Regional university	9,750	Doctorate	–	Administrative Business Development	Planning Dir.				
Total			4	16	6	11	6	17 (77%)†	55 (75%)†

*Most analyses of questionnaire data reported in this paper combine responses from heads of departments, such as academic chairs and office directors, and from deans and division heads.
†Two additional questionnaires were returned too late for inclusion in data analyses, for a total return of 74 (77.9%).

Colleges. All of them had budgetary problems, although the levels of their financial stress varied. And although the details of budgeting differed, all began the annual budget process with requests from the departments that then moved up through division heads and deans to final decisions at the central administrative level. A few of the institutions had tried zero-based budgeting, but in practice their budgets had been primarily incremental, with occasional selective reductions and increases.

Phase 1

In the first phase of the research, preliminary interviews were conducted with 26 key administrators centrally involved in budgetary decisions at each of the institutions, and relevant documents were collected. The major goal was to tap the experience of knowledgeable persons in order to develop the theory and to clarify questions for Phase 2. Administrators were asked (1) to describe the annual budgetary process of their institution and (2) to discuss resource allocation experiences for four specific units that they identified as fitting each of the four groups (the designations for the four groups were not used during data collection), defined as follows:

Core gainers: Units central to the institution that have had an increase in their relative share of the budget in recent years.

Core losers: Units central to the institution that have had a decrease in their relative share of the budget.

Peripheral gainers: Units not central to the institution that have had an increase in their relative share of the budget.

Peripheral losers: Units not central to the institution that have had a decrease in their relative share of the budget.

Phase 1 interviews were transcribed, and their contents were coded and tallied. This analysis contributed to the theory development and to the design of Phase 2 questionnaires.

Phase 2

This phase of the study concentrated on the state university, the liberal arts college, and the comprehensive college. For these three institutions, 95 budgetary units were categorized as fitting into one of the four groups. In Phase 2, the identification of budgetary gainers and losers during the Phase 1 interviews was verified by a second administrator at each institution. Academic units were categorized as "core" and all other units as "peripheral." Because the central purpose of colleges and universities is to educate students (and in research institutions to extend knowledge through research), treating academic departments as core units sufficiently matched the definition of centrality.[2] Questionnaires were mailed to the 95 unit heads (chairs of academic departments, office directors, and also some division directors and deans); 74 questionnaires were returned, for a completion rate of 77.9 percent. (Two of the 74 arrived too late for the data analysis.) Second visits to two of the three Phase 2 institutions made it possible to examine additional institutional documents and to interview 17 unit heads, most of whom also answered the questionnaire.

Development of Phase 2 questionnaire. The Phase 2 questionnaire, developed from Phase 1 of the study, covered several topics, including: (1) the institutional budgetary process, (2) areas emphasized by the administration, and (3) the unit's internal resource allocations, environmental power, institutional power, and budgetary strategies. Most of the questions were forced-choice and asked respondents to indicate their best answer. Open-ended questions were placed throughout the questionnaire to solicit additional categories for the proposed concepts and to develop the theory further. Two essentially identical instruments were used, one with wording adapted to heads of divisions and the other to heads of departments and offices.

Two questions were combined to measure a unit's environmental power. The first one examined a unit's "substitutability" (its relative ability to bring in each of the 13 environmental resources listed in Table 1) by asking, "On each of the following items, how do the contributions of your budgetary unit compare with those of other similar units?" Responses were given on a 5-point scale, where 1 = Much Lower than Most Similar Units and 5 = Much Higher. The second question measured "criticality" (the importance of each of the 13 resources to the institution) by asking, "How important do you believe each of the outside resources are to the future health and viability of your campus?" on a 5-point scale, where 1 = Not Important and 5 = Very Important. These importance ratings were used to weight the contribution responses in developing indices of environmental power.

For a unit's institutional power, respondents were asked, "To the best of your knowledge, please indicate how your unit compares with other similar budgetary units in the institution on each of the following characteristics," and a 5-point scale was used, where 1 = Much Lower and 5 = Much Higher. Items were the 14 categories listed in Table 1 for institutional power and a general item on "present power within the institution."

For resource negotiation strategies, respondents were asked to indicate on a 5-point scale, where 1 = Very Little or Not at All

2

Future research should explore the entire continuum of centrality, including non-academic units that may be considered core by some observers and academic units that are closer to the peripheral pole.

and 5 = Very Much, "How much do you use each of the following strategies when you prepare your unit's annual budget?" Items were the eight categories listed in Table 1.

Centrality and resource allocations. For the analyses of questionnaire responses, each of these concepts was represented as a dichotomous variable, depending on the group into which a unit fell.

RESULTS

Results are presented separately for each of the five propositions, which follow:

Proposition 1. A unit's centrality crucially affects the internal resources allocated to it by the institution.

1. Because core units are central to the mission of the institution, they gain internal institutional resources when they strengthen themselves.

2. Because peripheral units are not part of the core, they gain internal institutional resources when they contribute to the institution.

Proposition 2. A unit's environmental power interacts with its centrality to affect the internal resources it is allocated.

1. Core units gain internal institutional resources when they can obtain critical resources from the environment for their own use (e.g., students and academic prestige).

2. Peripheral units gain internal institutional resources when they can obtain resources critically needed by the total institution (e.g., financial resources in times of financial stress).

Proposition 3. A unit's institutional power also affects the internal resources it is allocated.

Proposition 4. The resource negotiation strategies used by the head of a unit interact with unit centrality to affect the internal resources it is allocated.

1. Core units fare better in obtaining internal institutional resources when their strategies emphasize unit needs.

2. Peripheral units fare better in obtaining internal institutional resources when their strategies emphasize institutional needs.

Proposition 5. Because environmental power, institutional power, and resource negotiation strategies are not highly correlated, their combined effect on resource allocations is greater than any of the concepts considered alone.

Proposition 1

The centrality variable proved analytically useful in the Phase 2 provisional statistical testing of the theory and also meaningful to the 26 top administrators interviewed in Phase 1. When asked to name four units fitting the four research groups, they readily identified "central" (core) and "noncentral" (peripheral) units that were gaining and losing resources on their campuses. They most frequently cited academic units as core units, although, in accordance with the idea that centrality is a continuum, a few academic units were described as peripheral or not close to the mission of a particular institution. Some of the units named most frequently in the four groups were:

Core gainers: computer science, business, and engineering
Core losers: teacher education, fine arts, and languages
Peripheral gainers: development, admissions, and administrative computing
Peripheral losers: student affairs, counseling, and the physical plant

The administrators' views about core and peripheral units demonstrated the intuitive usefulness of the centrality concept. Virtually all who were interviewed in Phase 1 stressed that academic goals were central to their institution, frequently making statements such as, "The central mission of the institution is the academic mission."

For most, peripheral units were defined by their optional and vulnerable nature. If they contributed to the overall organization, they were safe, but they were among the first to be scrutinized when funds became limited. Two respondents described their views of peripherality as follows,

> I say it's noncentral because if you . . . had to cut out anything because you didn't have the money for them, I would be cutting out the noncentral units, and that's how I define them. (A vice president for administration and business.)

> [I define a noncentral program] as a program of worth, but if it became a budgetary or programmatic burden on the institution, it could be eliminated without affecting the integrity of the basic academic mission. [By burden, I mean] that the existence of the program causes us to have to cut back the level of support for academic core programs. (Another vice president for administration and business.)

Documents from the two institutions that had developed written budget reallocation plans in recent years explicitly used the concept of centrality as a primary criterion for determining areas to reduce. Their top administrators recalled the use of this criterion:

> Certainly there are [central and noncentral units], and part of the rebalancing plan calls for looking at those things that are so-called peripheral programs and determining whether they are in some ways central to the mission; or, if they are indeed peripheral, they become of lower priority — things that we look at first to cut. (An administrator at the state university.)

> [When] we started talking about programs, we tried to divide them between core and peripheral. [Interviewer: You used those words?] Yes, we did. [Interviewer: I have been concerned that the word "peripheral" would be seen as pejorative.] Well, I'll tell you, it had pejorative connotations here . . . . People didn't like us using those terms one bit, but we used them anyway . . . . Four peripheral programs, when we began saying we were constrained, became [the] first target. (An administrator at the liberal arts college.)

Centrality also proved to be a key concept in the analyses of questionnaire responses. As the results for Propositions 2 and 5 demonstrate, numerous relationships that otherwise would have been obscured were clarified when core and peripheral units were analyzed separately. Both the interview and questionnaire responses supported Proposition 1.

Proposition 2

In the Phase 1 semistructured interviews, top administrators were asked how and why the departments and offices they named gained or lost resources. Analyses of their transcribed responses revealed, first of all, that the ability to bring in external resources was by far the predominant explanation of why programs had grown, and a decrease in such power was the major reason for decline. For example, a vice president at one of the regional institutions stated, "The key driving forces here are enrollment in the departments and the ability to generate outside related funds."

Second, the tally of responses for the four research groups showed different patterns for core and peripheral units. Most frequently mentioned for core units was the ability to attract and retain students, for example:

> The losses have been in the language and literature departments . . . largely because it was thought that there simply was not a significant enough student demand. We should be putting our eggs where there is a demand. (An academic vice president.)

> For ongoing central academic programs, the budget responsibility is very much a function of perceived or real market potential, and that word is used without apology in this institution . . . . Programs that are healthy, of course, this is the real side of it, come in and say, "We doubled our enrollments . . . we want something new." And that will be responded to. (Another academic vice president.)

For peripheral units it was the ability to bring in financial resources. As one administrator said, "They'll either have to pay their own way and increase by getting their own revenues, or they will shrink."

Questionnaire responses confirmed and extended these findings. Multivariate analyses of questionnaire data showed that the external resources that related significantly to internal resource allocations differed for the core and peripheral units.

Two separate indices were created from answers to the environmental power questions to summarize how environmental power interacted with centrality and resource allocations. The Appendix lists the specific questionnaire items that composed each of the indices, gives their correlations with budgetary change, and describes the derivation of the indices. The core unit index is called "tapping external academic resources," because of its items. Core gainers were distinguished from core losers by their success in acquiring such needed academic external resources as students, academic prestige, and their ability to help students cope with current societal needs and problems. The peripheral unit index is called "tapping external financial resources." At least in current times of financial stress, the peripheral gainers, in contrast to peripheral losers, acquire internal budget resources by attracting much-needed financial support.

Table 3

Stepwise Multiple Regressions of Environmental Power and Institutional Power on the Budgetary Change of Core and Peripheral Units

Independent variables	Explained Variance(%) Unit heads*	Adjusted for population†	*F*-ratio
Environmental power index alone			
Core units	28.6	26.7	14.844••
Peripheral units	19.8	17.2	7.649•
Institutional power index alone			
Core units‡	41.3	38.0	12.663••
Peripheral units‡	38.1	34.0	9.224••

•$p < .01$; ••$p < .001$
*$N = 39$ for core units, $N = 33$ for peripheral units.
†Takes into account smaller sample size.
‡Multiple correlation = .64 for core units, .62 for peripheral units.

Table 3 gives results of multiple regression analyses that explored the relationships among centrality, budget allocations, environmental power, and institutional power. Considering environmental power alone, the core index "tapping external academic resources" accounted for 28.6 percent of the variance in budget change among the 39 core respondents, and the peripheral index "tapping external financial resources" accounted for 19.8 percent of budget change variance among the 33 peripheral unit heads.[3]

Proposition 3

In the Phase 1 interviews, aspects of institutional power were mentioned much less frequently than explanations of environmental power. Respondents did, however, mention some internal factors that influenced gains and losses in budget allocations, especially the importance of support from top administrators, such as the president or a dean. For example:

> That program was developed by the Dean. The faculty efforts had started many years ago, at least ten years ago. We had some modest reputation; we had the expertise here; but he put the whole thing together. It was his idea; he marketed it; he sold it. (An academic vice president talking about a scientific research unit.)

> I guess the success of that program will depend on the continued success of that advocate. If the individual loses interest or moves on, the budget ultimately will probably be eliminated or moved into some other responsibility area. (An administrator talking about a student service unit.)

> Sports have increased because we expanded the football program and the president decided to emphasize it. (An administrator at the technical university.)

> The film program could be a real winner, but not enough resources are allocated. It sits by itself and doesn't have a champion. If it were moved under the Dean of Arts and Sciences, then I think it would most likely get some money. (An administrator at the regional university.)

Analysis of the questionnaire items for institutional power followed the same procedures used for environmental power. Two summary indices of the institutional power questionnaire items were derived (Appendix). Here, too, the goal in constructing the indices was to compute summary scores that would distinguish between gainers and losers separately for core and for peripheral units.

In the two regression analyses reported in Table 3, institutional power was added second, after environmental power. For core units, institutional power added 12.7 percent in explained budgetary change variance, making a total of 41.3 percent. For peripheral units, institutional power added 18.3 percent, for a total of 38.1 percent. When these findings were adjusted for the population, taking into account the sample size (39 core respondents, 33 peripheral respondents), environmental power and institutional power explained 38 percent for core and 34 percent for peripheral unit heads.

In contrast to environmental power, the relationship between institutional power and budget allocations appears fairly similar for core and peripheral units. For both, all of the positive items measured aspects of a unit's present internal ties to the organization, whether through administrative support, constituent service, or general visibility.

3

For all of the analyses of resource allocations, the questionnaire respondents are heads of units with relatively extreme gains or losses. Analyses of units across the full spectrum of budget change might show somewhat different results.

Contrary to original expectations, perceptions of past power actually weighed negatively on both indices. Longevity and a unit's self-perceived power five years earlier both correlated negatively with budget gains. It may well be that in times of financial stress and change (both in higher education and in the general society), longevity and past institutional power are outweighed by the need to attend to present concerns. The nature of the relationship between environmental power and institutional power remains unclear. For peripheral units, no significant correlation between the two power variables ($r = -.03$) was found for the institutions in this study. For core units, the .37 correlation showed a connection, although causal directions could not be determined.

Proposition 4

Although this is the most tentative of the five propositions, there were some useful findings about resource negotiation strategies. First, analysis of the interview responses and questionnaire comments generated a number of additional strategies (Hackman, 1983) that should be explored in future research. Second, multiple regressions with the eight strategy categories from the questionnaire added to environmental power and institutional power showed increased explanations of variance in resource allocations. For core department and office unit heads (excluding heads of divisions and schools), 60.1 percent ($p < .001$) of the variance was explained; for peripheral department and office unit heads, 42.5 percent ($p < .10$) was explained. The most provocative finding was that "focusing on unit needs" loaded high on the core unit regression, supporting the conclusion that core units benefit when they help themselves. For peripheral units, "focusing on institutional needs" was high, supporting the idea that peripheral units gain when they contribute to the total institution.

Proposition 5

Two separate stepwise regressions were run to examine the unique and combined contributions of environmental and institutional power: one for core respondents and one for peripheral respondents (Table 3). Environmental and institutional power were virtually independent of each other for peripheral units; the two peripheral power indices correlated $-.03$. Even for the two core-unit indices, with a correlation of .37, their combination improved upon either considered alone. The correlations of environmental power with resource allocations was .54 for core units and .44 for peripheral units; the correlation of institutional power with resource allocations was .53 for core units and .41 for peripheral units.

For core respondents (Table 3), the combined environmental and institutional power indices explained 41.3 percent of the variance in budgetary change, with a multiple correlation of .64. The environmental power index alone explained 28.6 percent of the variance, and the institutional power index alone explained 28 percent. For peripheral respondents, the combined indices accounted for 38.1 percent of budgetary change, a multiple correlation of .62. Separately, the variance explained was 19.8 percent for environmental power, 17 percent for institutional power.

		ENVIRONMENTAL POWER					
		LOW			HIGH		
INSTITUTIONAL POWER	LOW	10C 1C	Losers Gainers	2P 0P	4C 5C	Losers Gainers	7P 2P
	HIGH	3C 3C	Losers Gainers	8P 6P	0C 13C	Losers Gainers	0P 8P

Figure 1: Contingency table for high and low environmental and institutional power indices showing losers and gainers for core (C) and peripheral (P) units.

A second way to examine the combined power indices is shown in the contingency table in Figure 1. Each index was divided into high and low scores. All of the respondents with high-high scores on both the environmental and institutional power indices were budgetary gainers, and all but one of the low-low were losers. For both core and peripheral respondents, several respondents fell on the diagonal of mixed scores.

An additional set of regressions that added resource negotiation strategies (and because of the different content in strategy questions excluded division heads) showed even higher values for explained variance (60.1 percent for 29 core department heads, 42.5 percent for 25 peripheral department heads) (Hackman, 1983).

DISCUSSION AND CONCLUSIONS

Provisional Testing

Although the purpose of this research was to develop rather than to test a theory of resource allocations in colleges and universities, the initial results are quite promising. The study has demonstrated that a unit's centrality interacts with its environmental power and resource negotiation strategies to affect the internal resource allocations that it acquires from the organization. In addition, a unit's institutional power separately influences its internal resource allocations.

A number of built-in checks and balances support the study's validity and potential for replication. The two-phase study design offers some mutually substantiating findings. Subjective interview responses are reflected in answers to quantified questionnaires; top administrators usually agree with heads of departmental and divisional units; and qualitative analyses are supported by quantitative statistics. Although the proposed theory requires additional testing and elaboration, it is possible to explore its potential contributions.

Relation to Past and Future Research

An important test of a theory's usefulness is its ability to integrate information that previously may have seemed confused and complex. Although it is not claimed that the proposed theory can make sense out of all the related literature, there are connections with past research, and it makes poten-

tial contributions that improve understanding. First, how does the present research and the proposed theory connect with previous work on power among organizational units? Second, which of the many organizational views of higher education institutions are supported by the research results? Third, what does the proposed theory suggest about budgeting theory and practice? And fourth, what is most unique about the research findings of this study?

Previous research on power among intraorganizational units. Although the present study followed a somewhat different methodology from that of Salancik and Pfeffer's (1974) research on academic departments, the findings about environmental power accord with their conclusions.

The present work also proposes the following ideas in the effort to understand power among intraorganizational units in colleges and universities: In addition to environmental power, there may be a second, sometimes unrelated internal institutional power that contributes to a unit's ability to acquire internal resources. For peripheral units, there was virtually no (−.03) correlation between the two power variables. Resource negotiation strategies are a third factor identified as affecting and adding to an explanation of internal resource allocations. Finally, the present research differs from that of Salancik and Pfeffer in its consideration of nonacademic as well as academic units. Power dynamics for core (academic) units were found to be quite different from those for peripheral units.

The present research was conducted without reference to the strategic-contingencies theory of intraorganizational power proposed by Hickson et al. (1971) and further tested by Hinings et al. (1974). It is useful, therefore, to compare the two theories. Strategic-contingencies theory includes several concepts closely related to those in the present study. Both theories emphasize structural sources of power rather than personality factors of individuals as explanations of power differences (Hinings et al., 1974: 23); both consider organizations as open systems, and both follow Emerson's (1962) notion that the power of a unit is related to the dependency of other units upon it.

As in the present work, the strategic-contingencies theorists emphasize the importance of centrality, but they define it as the degree to which a unit's activities are linked to the workflow of other units. Another difference is their treatment of power as the dependent variable, to be predicted from measures of (1) substitutability, (2) uncertainty, (3) coping with uncertainty, and (4) centrality (place in workflow of units). In the present research, the dependent variable is not power itself, but rather a result of its exercise — the allocation of internal resources.

The two sets of concepts are clearly related. That they were developed quite separately provides a certain level of validation for the present research. Further work is required to identify the meaningful similarities and differences between the proposed theory and that of other theories of power among intraorganizational units.

Organizational theory. Institutions of higher education have been variously characterized: as organized anarchies (Cohen and March, 1974), as collegial communities (Goodman, 1962; Millett, 1962), as academic bureaucracies (Stroup, 1966), as open systems (Pfeffer and Salancik, 1974), as increasingly centralized institutions (Mortimer and McConnell, 1978), and as political organizations (Baldridge, 1971; Pfeffer and Salancik, 1974; Pfeffer, 1977; Hills and Mahoney, 1978). At least for the study of resource allocations, the results of this study support the view of colleges and universities as political organizations that operate as open systems in interaction with the environment.

Open systems. The value of the open-systems perspective is demonstrated by analyses of one of the theory's key concepts, environmental power. Multiple regressions of questionnaire data from unit heads show that this variable accounts for about one-fourth of the variance in budget allocations. Similarly, central administrators who were interviewed for the study spontaneously and repeatedly used this notion to explain why particular budgetary units had gained or lost in recent years.

Political organizations. The very consideration of budgetary allocations and budgetary strategies is de facto a political issue, if we accept Harold Lasswell's classic definition of politics, "Who gets what, when, and where." This study has been about who (which budgetary units) gets what (budgetary gains or losses), when (in recent years), and how (with what environmental and institutional power, using what budgetary strategies). The definition of environmental power draws heavily on Emerson's (1962) and Pfeffer and Salancik's (1974) views of power, which link political behavior directly to systems theory.

Two other key concepts add support to the political view of colleges and universities: Institutional power is defined as the strength of a unit's influence within the organization, demonstrated by such measures as support from the president, number of students served, visibility, and overall internal power ratings. The addition of institutional power to environmental power ratings increases the explanation of resource allocation variance in the data to about two-fifths. And the further addition of resource negotiation strategies, another political concept, raises the statistical explanation even higher.

Budgeting theory and practice. Much of the debate on this topic concerns the possibilities and usefulness of rational versus political views of budgeting, of technique and analysis versus politics (Caruthers and Orwig, 1979). The present study reinforces the conclusion of others (e.g., Wildavsky, 1979) that budgeting is a political exercise. At the same time, the analytical results suggest that there may also be an inherent rationality in budgeting, even for institutions whose budget methods are largely incremental. Although there are efforts at some of the six institutions to extract rational justifications for budget requests and, in some cases, to use planning models and information planning systems, the budgeting rationality referred to here is something different from particular budgeting or planning techniques.

The significant relation of environmental power to resource allocations suggests the possibility of a rational link between

budget decisions and the needs of an institution, a link that may be stronger in times of financial stress than in periods in which there is more budgetary slack. Accurate data about the relative ability of units to attract critical outside resources could be a useful tool both for central budget decision makers and (especially when "favorable" to their units) for unit heads.

Unique contributions. The importance of centrality in understanding how organizations allocate resources is the most distinctive finding of the present study. Differences between core and peripheral units are the cornerstone of the proposed theory. Any future research should clarify the concept of centrality and refine the understanding of how to measure what is a core and what is a peripheral program. Second, the power indices identified for core and peripheral units should be tested and revised. Of all the findings, the power indices are the most likely to have been affected by the particularities of participating institutions and individuals.

Implications for practitioners. Finally, it is tempting to look for practical guidelines from the present research, although the findings must be replicated to increase the reliability of any suggestions. Because the study focuses on resource allocations among budgetary units, the most logical implications are for budgetary unit heads. One interpretation is that unit strategists should determine first whether their programs are primarily core or peripheral and then develop their cases accordingly. It appears that core programs will gain internal resources when they acquire environmental resources that contribute to their own purposes — because, in fact, their needs are most often allied with the mission of the organization. In contrast, peripheral programs will benefit internally when they focus on broader institutional needs and bring in external resources that contribute to the whole.

The dynamics of the proposed theory are especially visible during times of economic stress, when the external resources most needed by colleges and universities are financial. The present findings suggest that during these times, peripheral units such as admissions and development offices, which bring in tuition and gifts, will gain in internal resources — particularly if they focus their resource negotiation strategies on the needs of the total institution. Core units, in contrast, will increase when they attract external academic resources, such as students and academic prestige, to their particular departments. Core units gain when they help themselves; peripheral units gain when they help the total institution. And, the administrators of all these units gain when they better understand the complexity of the resource allocation process.

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Appendix: Peripheral and Core Indices of Environmental and Institutional Power and Correlations with Resource Allocations*

Variable	Correlation	Variable	Correlation
Environmental power		Institutional power	
Core index		*Core index*	
Prestige	.56	Power of unit in the institution at present	.41
Ability to cope with current societal needs	.36	Number of students served	.38
Recruitment and retention of students	.19	Support of president for unit	.33
Support from alumni	–.21	Institution's legal commitments to unit	–.25
		Number times talk with central administrators per month	–.22
		Visibility of unit in the institution	.16
		Visibility of unit outside the institution	.16
		Length of time in the institution	–.14
		Number of full-time-equivalent people in unit	–.14
Peripheral index		*Peripheral index*	
Support from federal government	.40	Length of time in the institution	–.39
Ability to cope with current societal needs	–.35	Visibility of unit in the institution	.34
Support from foundations	.21	Power of unit in the institution at present	.32
Prestige	–.15	Visibility of unit to board of trustees	.25
Support from business and industry	.14	Number times talk with central administrators per month	.16
Recruitment and retention of students	–.13		

**Index scores* were averages of the variables listed above, as measured by related questionnaire items (shown in Table 1). For the two institutional power indices, these were the means of the items that asked how a unit compares with other similar budgetary units in the institution on each of the listed variables. For the two environmental power indices, index scores were weighted means of substitutability times institutional criticality for the listed variables. Substitutability was measured by items that asked how the unit's contribution of a resource compared with other similar units; institutional criticality was the average of all respondents in an institution to items that asked about the importance of each resource to the institution.

Index construction followed five steps: (1) one-way anovas were computed on all relevant power items (listed in Table 1) between gainers and losers, separately for core and for peripheral respondents; (2) items were chosen for each index using a rule that required higher significance levels for items with more missing data; (3) missing data were replaced with average group ratings; (4) items that correlated negatively were inverted; and (5) the modified scores were then averaged to compute the four indices.