

STUDENT ATTITUDES AND PERCEPTIONS AS MEDIATED
BY ORGANIZATIONAL STRUCTURAL VARIABLES

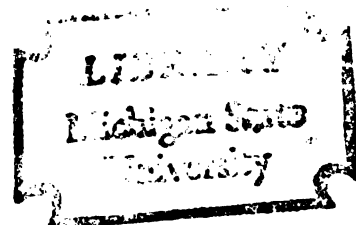
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ABSTRACT

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By

Judith L. Bates

This study examines the relationship between organization structure and student attitudes. A study of college graduates was conducted to gather information on their perceptions of the college experience and their subsequent career or job areas. In addition, structural data were collected from the university departments of which these graduates were a part. Four attitude scales --Job Skills, Tolerance Skills, Personal Development Skills, and Social Skills--were developed and correlated with different departmental structural variables. Each of the six structural variables--size, affluence, teaching productivity, differentiation, research productivity, and proportion of graduate students--was predicted to correlate negatively with students' satisfaction with their college experience. No simple relationship was discovered. Distinctions were found between types of departments as well as among the structural variables.

In some cases strong support exists for the propositions, while in others the results are opposite of what was predicted. Further research is needed to refine the independent variables as well as to explore the possibility of intervening variables.

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AS MEDIATED BY ORGANIZATIONAL
STRUCTURAL VARIABLES

By

Judith L. Bates

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I. LITERATURE REVIEW AND PROPOSITIONS

Attitude change and attitude formation have long been important topics of research for sociologists, as well as social psychologists. One approach to these topics has been the examination of structural differences in social settings where people interact. Wheeler, for example, discusses formal (organizational) socialization settings. There are numerous ways in which such people-processing organizations may differ. Among these are variability in composition of recruit population, ratio of recruits to socializing agents, formation of subcultures among recruits, role differentiation among recruits, extent to which recruits participate in setting of goals, development of separate organizational hierarchies to meet needs of recruits and needs of the external community (Wheeler, 1966: 72-80). These differences all point to various aspects of the structure and structural effects evident in socialization organizations.

Structural attributes and their relations to other organizational variables, such as performance, output, and work-group relations, is one of the areas dealt with by organization literature. Bidwell and Kasarda (1975) investigated attributes of school district

organization and their effect on student achievement. Environmental conditions (particularly resources) were found to have an indirect effect on student achievement via their direct effects on the structure and staff composition of school districts. A laboratory experiment performed by Carzo and Yanouzas (1969) dealt with the effects of a flat or tall organization structure on organization performance. They found that the shape of an organization affected performance--in this case, members of the organization with a tall structure performed better.

The behavior, attitudes, and values of individuals within organizations (clients of inducting organizations are considered to be within the organization) are other aspects of organizations with which the literature on structural effects is concerned. Rice and Mitchell (1973) examined individual behavior in terms of the individual's place in the organization structure. They concluded that the individual's behavior is partially determined by his position on two dimensions of structure--relation to authority and power and interaction with co-workers. Starting with the assumption that different organizational structures will be accompanied by different behaviors and attitudes, Pheysey and Payne (1971) examined three manufacturing organizations with differences in levels of hierarchy, proportion of supportive staff, size, and mechanistic features. The results did show that there

were differences among interactions and groupings of the workers, but not to a significant extent. Studying the relationship between organizational climate, and organizational structure and teacher personalities, George and Bishop (1971) found that teacher perception of organization climate was in part determined by the interaction between organizational structure and individual personality. Pheysey, Payne, and Pugh (1971) also found an association between organizational structure and organizational climate. If the structure was formal, there were also generally formal relationships among the workers and between the workers and the organization. This paper is also involved in an investigation of the way certain aspects of an organization's (a university) structure may influence attitudes and values held by individuals (students) within the organization.

A large amount of research has focused on the subject of the effects or impact of college on students. Stember (1961) found no clear-cut relation between education and attitude change while Lehmann and Dressel (1963) indicated that the factors which specifically cause change from the freshman to senior years had not been isolated. The way students develop and change was seen by Hochbaum (1972) as largely dependent on the organization of the college, specifically on the degree of faculty consensus as related to college goals. When there is high consensus

a college will have greater impact on the shaping and changing of student behavior. The charter of a college determines a large part of the effects of a school according to Meyer (1972). The reasoning behind this is that "a charter is a set of external social conceptions about what college graduates are and what other positions in the social structure they are entitled to or expected to enter" (Meyer, 1972: 124). The effects being referred to in this study appear to be general overall effects as to what going through the organization (graduating) means for the student. A new set of roles (different, depending on the type of college attended) is opened to the student as a result of having fulfilled the requirements set upon him by a specific organization (university or college).

Differences among colleges have also received much treatment in the literature on college impact. Skager, Holland, and Braskamp (1966) found that regardless of initial student status there was a consistent tendency for students at different colleges to show similar relative amounts of change and to differ from students at other colleges. Size of institution and percent of students in practical or aesthetic fields are examples of structural variables used to differentiate colleges in this study and both were found to relate to the differential effects exhibited by students. A positive relation was found between seniors' intellectual achievement (GRE area tests)

and quality of institution attended (measured by level of ability of student body, degree of academic competitiveness, and level of institution's financial resources), but once student input--characteristics of the student at time of entrance to the institution--was controlled, the positive relation diminished below the significance level (Astin, 1968). Another Astin study (1963) examined the effects of different college environments on Ph.D. aspirations and found that student's initial level of aspiration, sex, and career choice (measured in the freshman year) were the best predictors of later Ph.D. aspiration, but college variables such as size, percent of males, and social or conventional orientation also had significant effects on Ph.D. aspiration.

Other writers have dealt specifically with college or university departments and classified them as to type of goal (Vreeland and Bidwell, 1966) or behavior of faculty (Gamson, 1967). Attitudes and behavior of students has then been examined in relation to these specific variables. A common way of looking at major area effects has been to measure attitude change from the freshman to senior years (Huntley, 1967). These studies usually indicate that students majoring in different fields do possess different attitudes and values, but they do not attempt to discover which aspects of the different fields are responsible for or contribute to these differences.

This paper is focusing on a number of structural aspects of university departments and attempting to determine if these structural attributes have an impact on attitudes or values. Weidman (1974) looked at differences in the normative structures of departments within universities and tried to ascertain whether differences in normative (opportunities for interaction among members of departments) structure had an influence on changing or reinforcing values. The results of this study showed that there was evidence of socializing processes in academic departments.

In his recent book, The Organization of Academic Work, Peter Blau (1973) was also concerned with structure of colleges and universities, but he does not focus on the effects of structure on attitudes. Blau's work stimulated much of the original thinking for this paper and many of the variables he examines at the college level will here be viewed from the departmental level.

Although there has been a certain amount of research in the area of structural effects on attitudes, very little of it deals with structural variables such as size, budget, number of units produced, etc. These are the types of variables at which this research is aimed. The basic assumption is that such structural variables of university departments will have an influence on the attitudes and values of those who are processed through the

departments (students). These are the types of variables Blau (1973) uses in his analysis, but he looks at the interactions among them and their effect on academic work rather than their impact on students' attitudes (although the attraction of students to a college or university was related to structural variables).

Because of the limited research on the relationship between organization structure (as determined by variables such as size, budget, etc.) and attitudes, most of the propositions for this paper will be derived from common-sense notions or ideas. The attitudes examined are not general values, but things which specifically relate to the college experience.

One of the departmental variables focused on was size. Skager, Holland, and Braskamp (1966) showed that large institution size, as measured by enrollments, was related to lower self-ratings of popularity among students. Astin (1963) also demonstrated that large institution size was positively associated with Ph.D. aspirations. It is a common conception that students are more satisfied and, in fact, learn more in small classes. Large class size is generally assumed to be associated with impersonality and the frequent supposition is that students learn better and are more satisfied under more intimate conditions--conditions which promote discussion and interaction. If this is true, it would seem that

students in large departments should be less satisfied with their college education than those whose departments are small. In a large department the student may be less likely to know most of the professors and perhaps less likely to feel a part of the department. This leads to the first proposition.

Proposition 1: Students whose major area is in a large department will, in general, be less satisfied with their college experience.

Proceeding on the assumption that most departments with large budgets are also the departments which encompass the most students, affluence would also seem to be related to size, and thus negatively related to student satisfaction. It is possible that affluent departments pay higher faculty salaries and thus attract better faculty which in turn may lead to more student satisfaction, but this assumes that most students are aware of the quality of the faculty within departments and there is no evidence to support this.

Proposition 2: Students whose major area is in an affluent department will, in general, be less satisfied with their college experience.

Productivity of college departments would also appear to be a variable which is negatively associated with student satisfaction. By productivity is meant output (number of student credit hours produced) per worker (faculty member). It can also refer to total output, not

per worker. A department with a high productivity rate probably has many large classes which again brings us back to the issue of size.

Proposition 3: Students whose major area is in a department with high teaching productivity will, in general, be less satisfied with their college experience.

Differentiation, or division of labor, is another organizational variable which might have an influence on student attitudes. Blau has shown (1973: 51) that size is highly correlated with division of labor. If this is the case, it is reasonable to assume that differentiation would have a similar effect on student attitudes.

Proposition 4: Students whose major area is in a highly differentiated department will, in general, be less satisfied with their college experience.

Faculty research is an issue which has generated much debate. A common supposition is that research tends to take faculty time away from students. Blau (1973: 140) has shown that research emphasis is negatively related to an institution's success in attracting the best students, but at the same time students are attracted to institutions with well-qualified faculty. Such institutions usually emphasize the obligation to publish and well-qualified faculty are also usually interested in carrying out and publishing research. Therefore, research emphasis tends to attract students as it relates to well-qualified

faculty and to repel as research emphasis is perceived by many students as diverting the professor's attention from teaching. Proposition 5 will reflect the attitude taken by many undergraduates--an emphasis on research will take time away from teaching.

Proposition 5: Students whose major area is in a department with high research productivity will, in general, be less satisfied with their college experience.

The proportion of graduate students in a department is another element which is commonly associated with student dissatisfaction. Undergraduates often express the opinion that professors are more willing to spend time with graduate students and if there is a large proportion of graduate students in a department the undergraduates may feel they are not getting their share of the professor's time. Undergraduates often think that many graduate students encourage faculty members in their research endeavors. Blau (1973: 221) noted that faculty members actually distribute their time between graduate and undergraduate students in proportion to their numbers and that a large number of graduate students furthers the education of undergraduates (as far as the rate of college completion is concerned) rather than hindering it. Still, it is the perception of students with which this study is involved and the opinion often expressed by them is that faculty members are more interested in the activities of

graduate students and are thus more willing to spend time with them rather than with undergraduates.

Proposition 6: Students whose major area is in a department which has a high proportion of graduate students will, in general, be less satisfied with their college experience.

Each of the above propositions will be tested through an analysis of different departments within one college of a university. The fact that the departments are all within one college may make them more homogenous and it may also be that student perceptions are generalized at the college rather than departmental level. But the fact that students also come from the same college may reduce some of the initial differences in their outlooks and attitudes. These are some of the considerations which must be taken into account as the results of this study are analyzed.

II. METHODS

Much of the data used to test the propositions in this paper was obtained in a study of graduates and seniors at a large midwestern university. The overall purpose of that study was to ascertain students' perceptions of their college experience and the relationship of this experience to their job-hunting endeavors and to their actual jobs or careers. The study began in the fall of 1973, but the instrument (a mail questionnaire) was not administered until the summer of 1974.

Sample

Two groups of students were included as part of the original sample--seniors from the College of Social Science and graduates of the Colleges of Social Science, Human Ecology, and Agriculture and Natural Resources from summer 1969 to spring 1973, a five-year span. Only part of this sample (graduates of the College of Social Science) is relevant for this paper. The reliability of the sample was checked by making comparisons between responses on identical items in the questionnaires administered to the Social Science seniors and the Social Science graduates, and it was found that there were no significant

differences between these two groups. Graduates did not appear to remember their perceptions of the college experience any differently than seniors enrolled at the time of the questionnaire.

The Alumni Association of this large midwestern university provided a print-out of all the graduates of the five years mentioned above. Letters were sent to all listed on the print-out asking for the return of a post-card on which the graduate was asked to write his current address. Seven thousand six hundred fifty-nine letters were sent out and 2,850 (37 percent) were returned. Another 6 percent were returned as undeliverable by the Post Office. Questionnaires were then sent to those who returned cards and 1,752 returned completed questionnaires for a response rate of 61 percent. This is approximately one-quarter of all Social Science graduates of the five years included. A small subsample of 100 alumni who did not complete the questionnaire was contacted by phone and asked to complete a questionnaire. Fifty-two returned the questionnaire and when compared with those in the regular study there was no significant bias on over 95 percent of the items. This small subsample tended to be slightly less positive on questions related to their current job (Marcus, 1975: 35).

Sixty percent of the 1,752 respondents were male and 40 percent were female while 97 percent of the total

was white. Eighty-eight percent went to high school in the east north central part of the country and 75 percent still live in this area. Forty-six percent came from suburban backgrounds and 21 percent from urban, while currently 42 percent live in suburban areas and 34 percent live in urban.

Although the Social Science graduate response was 1,752, 736 of these were dropped from this analysis because they were MDP (Multidisciplinary Program) majors. This is a department that has no faculty and offers no courses.

Departmental Data

Information was obtained from eight Social Science departments--Anthropology, Criminal Justice, Geography, Psychology, Political Science, Social Work, Sociology, and Urban Planning and Landscape Architecture. Most of the data was gathered through the cooperation of the Office of Institutional Research. Additional information was obtained from a list of publications which is compiled each year by the College of Social Science. Listed below are the primary dependent variables and how they were measured.

<u>Variable</u>	<u>Measure</u>
Size	Student credit hours produced-- Total of term end credit hours for the academic year, including summer term and off-campus classes
Size	Number of majors
Size	Full-Time Equivalent (FTE) Faculty--(Professors, Associate Professors, Instructors)
Output, productivity	Number of degrees granted
Output, productivity	Student credit hours produced per full-time equivalent faculty
Differentiation (Division of Labor)	Number of courses taught
Affluence	General fund budget
Affluence	General fund budget by student credit hours produced
Affluence	General fund budget by number of majors
Research productivity	Number of articles and book chap- ters plus five times the number of books and monographs published
Proportion of graduate students	Number of M.A. and Ph.D. candi- dates by total number of majors

All of the measures listed above were collected by year for the five-year span 1969-1976 (essentially the same period as the graduate sample). The only exceptions to this are number of courses taught and research productivity. These measures were only available for four years --1969-1972 for number of courses taught, and 1970-1973 for research productivity.

There are several different ways of measuring size and each way focuses on a different dimension. The first variable, student credit hours produced, refers to size of a department in terms of all the students it services while the second, number of majors, refers to size as a measure of those students actually considered to be part of the department. Number of faculty is the measure used by Blau (1973) to measure size in his study of universities and colleges. (Correlations among these different measures are shown in Tables 2 and 3, pages 30 and 31.) More than one measure of output or productivity is also used. These measures are based on two different functions which departments serve. One is to provide courses which students from all disciplines can enter to get a background about the subject area, measured by student credit hours produced per full-time equivalent faculty, and the other is to provide courses and facilities which are necessary for people (degree candidates) who want more in-depth knowledge in that area, measured by number of degrees granted. A third variable, affluence, has three different measures. The first, general fund budget, gives an indication of the relative standing of departments in absolute terms, while the second and third measures, student credit hours produced and number of majors, focus on affluence as it relates to the two functions of departments referred to above.

Analysis

The dependent variables (four scales) developed by cluster analysis, were formed from 19 items in a block question in the questionnaire administered to the graduates. The scales and the items which form them are listed below.

Scale 1--Educational Contribution to Development
Job Skills ($\alpha = .83$)*

- 1) Serve as a member of a team
- 2) Prepare for advancement on the job
- 3) Get ahead in the world
- 4) Acquire practical knowledge about finding and holding jobs
- 5) Be adequately prepared for my present job
- 6) Work in a supervisory position
- 7) Work within administrative policy and procedures
- 8) Work in direct one-to-one relationships

Scale 2--Educational Contribution to Development
Tolerance Skills ($\alpha = .74$)

- 9) Communicate with people who have much less education
- 10) Understand people with different cultural values from my own
- 11) Expand my tolerance for people and ideas
- 12) Learn how to get along with others

Scale 3--Educational Contribution to Development
Personal Development ($\alpha = .74$)

- 13) Learn how to make my own decisions
- 14) Develop my abilities to think and express myself
- 15) Clarify my values and goals

Scale 4--Educational Contribution to Development
Social Skills ($\alpha = .65$)

- 16) Acquire a broad knowledge of community life
- 17) Acquire practical and effective ways of helping people

*These alpha scores are for College of Social Science, College of Human Ecology, and College of Agriculture and Natural Resources.

- 18) Prepare me for marriage and family life
- 19) Form valuable and lasting friendships

The Appendix shows the correlations among the four scales and the items which make up the scale. From this it can be seen that the scale items correlate higher with other items in the same scale than with those not in the same scale.

Once the scales were constructed, the next step in analysis was to run them against the various departmental variables. In other words, the scale scores were broken down by department and by year and then run against the structural variables which were collected by department and by year. Although the data were collected for the entire five-year span, this initial analysis focuses on the overall trend and therefore only data from 1969 and 1973 (or 1972 when data was not available for 1973) will be examined.

Because of the small sample size (number of departments = 8) and because during analysis departments will be grouped into academic departments (those with a Ph.D. program, $n = 5$) and professional schools (a masters program, but no Ph.D. program, $n = 3$), it might be best to view the results as a case study. The interrelationships observed apply to one college within one university. The results should provide some directions for a similar study on a larger scale, but cannot be

generalized with much reliability to organizations in general.

The remainder of this paper will be devoted to an analysis of the interrelationships and trends among the independent variables (departmental structural attributes), and a discussion of the interrelationships among the dependent and independent variables.

III. FINDINGS

A discussion of the means and standard deviations of the variables will precede an examination of the major findings of this study. The general purpose of such a discussion is to determine the overall trends of the variables from 1969 to 1973, and it is expected that these trends will also be evident as the remainder of the results are examined. Table 1 is a listing of the means and standard deviations for all the variables used for all the departments, for the academic departments (those with a Ph.D. program), and for the professional departments (those with a masters program, but no Ph.D. program).

The first five variables are all different measures of size. For all the departments taken together there was very little change in total student credit hours produced, but when the departments are separated as to academic or professional departments it becomes clear that the academic departments produced fewer student credit hours in 1973 than in 1969 while for the professional departments the reverse was true. There was a 41 percent increase in the mean total student credit hours produced for professional departments and a 6 percent decline for

TABLE 1.--Variable Means and Standard Deviations.

Variable	All Depart- ments (n=8)		Academic Depart- ments (n=5)		Professional Depart. (n=3)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total Student Credit						
Hours Produced						
(x 100) 1969	323.5	251.0	442.8	250.0	124.7	23.5
1973	325.9	242.3	416.0	264.7	175.7	67.7
% change	+ .7		- 6.1		+40.9	
Grad. Student Credit						
Hours Produced						
(x 100) 1969	31.3	21.9	35.2	25.0	24.7	13.0
1973	31.0	24.8	33.0	29.8	27.7	12.1
% change	- 1.0		- 6.3		+12.1	
Number of Majors--						
Bachelors						
1969	331.0	240.8	329.4	299.3	333.7	72.7
1973	455.9	376.9	399.8	417.4	549.3	272.8
% change	+37.7		+21.4		+64.6	
Number of Majors--						
Masters						
1969	54.3	30.2	46.8	34.3	66.7	15.1
1973	67.5	41.9	54.6	40.8	89.0	34.2
% change	+24.3		+16.7		+33.4	
Full-time Equivalent						
Faculty						
1969	21.1	10.9	25.5	11.7	13.8	2.0
1973	20.4	8.8	23.5	9.9	15.1	1.0
% change	- 3.3		- 7.8		+ 9.4	
General Fund Budget						
(x \$100)						
1969	4090.6	2465.4	5006.4	2732.4	2564.3	195.1
1973	5290.9	2964.7	6300.4	3366.8	3608.3	131.8
% change	+29.3		+25.8		+40.7	
Budget per Total						
Student Credit Hours						
Produced (in \$)						
1969	15.2	5.2	11.6	1.2	21.2	3.4
1973	18.8	6.5	15.9	2.6	23.6	8.0
% change	+23.7		+37.1		+11.3	

TABLE 1.--Continued.

Variable	All Depart- ments (n=8)		Academic Depart- ments (n=5)		Professional Depart. (n=3)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Budget per Total Number of Majors (x \$10)						
1969	113.0	47.0	140.0	37.0	66.0	9.0
1973	127.0	61.0	162.0	48.0	67.0	25.0
% change	+12.4		+15.7		+ 1.5	
Number of Degrees Granted--Bachelors						
1969	97.8	73.8	94.8	88.5	102.7	37.7
1973	144.0	134.2	126.2	138.2	173.7	121.5
% change	+47.2		+33.1		+69.1	
Number of Degrees Granted--Masters						
1969	24.5	15.2	22.4	13.9	28.0	16.7
1973	24.1	17.5	17.6	13.5	35.0	18.1
% change	- 1.6		-21.4		+25.0	
Student Credit Hours Produced per Full- Time Equivalent Faculty						
1969	1005.8	231.7	1154.6	131.0	757.1	126.9
1973	926.0	240.3	983.4	181.1	830.3	291.0
% change	- 7.9		-14.8		+ 9.7	
Research Productivity 5 x No. of Books + No. of Articles Published						
1970	23.3	24.7	36.6	22.4	1.0	.8
1973	37.1	38.4	55.2	38.2	7.0	7.9
% change	+59.2		+50.8		+600.0	
Graduate Student Majors as Percent of Total Majors						
1969	.27	.13	.33	.13	.17	.01
1973	.23	.14	.29	.15	.15	.06
% change	-14.8		-37.0		-11.8	

TABLE 1.--Continued.

Variable	All Depart- ments (n=8)		Academic Depart- ments (n = 5)		Professional Depart. (n=3)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total Courses Taught						
1969	59.6	24.2	66.6	26.7	48.0	12.7
1972	67.1	24.6	76.2	26.7	52.0	7.9
% change	+12.6		+14.4		+ 8.3	
Undergraduate Courses Taught						
1969	35.1	14.3	37.6	13.9	31.0	14.2
1972	31.4	12.0	36.4	12.0	23.0	5.7
% change	-10.5		- 3.2		-25.8	
Graduate Courses Taught						
1969	24.5	14.9	29.0	17.0	17.0	4.5
1972	28.1	14.1	32.4	15.4	21.0	7.5
% change	+14.7		+11.7		+23.5	
Job Skills						
1969	2.77	.45	2.57	.44	3.11	.18
1973	2.65	.30	2.51	.27	2.89	.13
% change	- 4.3		- 2.3		- 7.1	
Tolerance Skills						
1969	3.42	.36	3.40	.45	3.47	.05
1973	3.58	.23	3.66	.18	3.43	.23
% change	+ 4.7		+ 7.6		- 1.2	
Personal Development						
1969	3.59	.74	3.53	.92	3.68	.17
1973	3.59	.18	3.63	.21	3.52	.07
% change	.0		+ 2.8		- 4.3	
Social Skills						
1969	2.93	.36	2.78	.36	3.18	.14
1973	3.14	.20	3.12	.24	3.17	.10
% change	+ 7.2		+12.2		- .3	

academic departments. This basic pattern persists as the other size variables are examined. Overall, graduate student credit hours produced remained stable, but there was a slight drop in the academic departments and a slight rise in the professional departments. For number of majors at the bachelor and masters levels there was an overall increase across all departments, but the increase was greater in the professional departments (64 and 33 percent, respectively) than in the academic departments (21 and 17 percent). Number of FTE faculty showed a slight drop from 1969 to 1973 for all departments, but again the major portion of the decline was experienced by the academic departments while professional departments showed a gain in number of FTE faculty. Note should also be made of the fact that although professional departments appear to have experienced the most growth the standard deviations also jumped tremendously (especially for total student credit hours produced and number of majors at the bachelor and masters levels) indicating that this growth may be taking place in only one of the three departments.

Departmental affluence was measured by the three variables, general fund budget, budget per student credit hours produced, and budget per total number of majors. For all the departments each of these variables showed an increase over the period measured. When considering general fund budget, the professional departments

experienced the greatest rise (about 41 percent) while the rise in the academic departments was 26 percent. This is compared with an increase of 29 percent for all the departments. But when budget per number of majors and budget per student credit hours produced are examined, it is apparent that the academic departments increased the most. It appears that although the professional departments experienced the greatest increase in general fund budget (41 percent), it barely kept pace with their dramatic increase in number of undergraduate majors (up 65 percent). The professional departments did experience a rise (11 percent) in budget per student credit hours produced, but again it was not as great as that in the academic departments (up 37 percent). The affluence measures used here are actually measuring different concepts --general fund budget gives a picture in absolute terms while the other two measures are indicators of relative affluence. In absolute terms, the professional departments have gained the most money but they actually have no more to spend per major. Professional departments also did not have as great an increase in budget per total student credit hours produced, but their overall mean was still higher (\$21 in 1969 and \$24 in 1973) than that of the academic departments (\$12 in 1969 and \$16 in 1973). This, along with the fact that professional departments have less money per major, indicates that

they have a lower service load than the academic departments; that is, they do not provide as many courses for students outside their departments.

The number of bachelor and masters degrees granted as well as total student credit hours produced per FTE faculty and research outputs are the variables used to measure output and productivity. Number of bachelor degrees granted rose for all departments, but the most significant rise was in the professional departments (up 69 percent compared with a rise of 33 percent for academic departments). This was expected since it was previously noted that number of majors in the professional departments jumped 65 percent. Again, the standard deviation for professional departments leaped by over 200 percent, implying that the jump in number of bachelor degrees granted may have occurred primarily in one department. Overall, number of masters degrees granted fell about 2 percent. This slight decline was the result of a 21 percent drop in the academic departments and a 25 percent increase in the professional departments. Student credit hours produced per FTE faculty also experienced an overall drop, all of which resulted from a decline in the academic departments. Once again, the professional departments increased (by 10 percent). An economy of scale seems to be operating within the professional departments. They are turning out many more majors and producing more

student credit hours without proportional increases in staff size.

The last productivity variable is number of books and articles published. Most professional departments are not engaged in this activity to the same extent as academic departments and this is illustrated by the data. Academic departments experienced a 51 percent jump in publishing (professional departments also experienced a large jump, but they only increased from 1 to 7 which means that almost no publishing was actually taking place within these departments) over the four-year span. This may be a result of the tightening of the job market in the academic area. Number of works published becomes more important in evaluating for tenure, promotion and salary considerations.

Proportion of graduate students is another variable under consideration. For all categories of departments this experienced a slight decline from 1969 to 1973. As noted earlier, number of majors at both the bachelor and masters level increased, but the increase was far greater at the bachelor level, resulting in the decline in proportion of graduate students. As expected, academic departments have a higher proportion, 33 percent in 1969 and 29 percent in 1973, of graduate students compared to the professional departments, 17 percent in 1969 and 15 percent in 1973.

The next set of variables measures differentiation or division of labor. Total courses taught and graduate courses taught both show a rise across all department categories while undergraduate courses taught shows a decline across all department categories. This is an unexpected result since number of majors at the bachelor level rose greatly while the increase at the graduate level was not nearly as great. This may be an indication of increasing efforts by departments to improve their quality and thus attract better faculty and abler students. It also supports the previous prediction that if we had a direct measure of class size it would be increasing (at least at the undergraduate level).

The last four variables are the dependent variables, and the scores here indicate how students perceived their college experience as preparing them or contributing to their development in four areas. Students in professional departments generally see their education as being more useful in the area of Job Skills although the mean score for both the academic and professional departments declined from 1969 to 1973. As far as Tolerance Skills are concerned, students in academic departments graduating in 1969 had lower perceptions of their education than those in professional departments, but by 1973 this had reversed. This is also true of Personal Development. Students in academic departments perceived their education

as contributing much more to their development of Social Skills in 1973 than in 1969 but for those in professional departments there was basically no change. Overall, Job Skills and Social Skills were the two areas where a college education appeared to be least effective as far as graduates were concerned.

Interrelationships Among Independent Variables

In order to determine if the independent variables being used in this study are independent of each other, it is necessary to examine them as they correlate together. It may be that one variable (e.g., affluence) is highly correlated with another independent variable (e.g., size). If such is the case, it is reasonable to assume that these same variables will have similar correlations with the dependent variables.

Tables 2 and 3 present the correlations among the different variables used to measure size for all the departments, for the academic departments (those with a Ph.D. program), and for the professional departments (those with a masters program, but no Ph.D. program). Student credit hours produced is actually two variables--total and graduate student credit hours produced--and the number of majors has also been divided into two categories--bachelors and masters candidates. Although data were collected for a five-year span, the results will include

TABLE 2.--Pearson Correlation Coefficients Among Different Measures of Size for All Social Science Departments.

	1		2		3		4	
	1969	1973	1969	1973	1969	1973	1969	1973
1. Total student credit hours produced								
2. Graduate student credit hours produced	.85	.85						
3. Number of majors-- Bachelors	.74	.72	.88	.74				
4. Number of majors-- Masters	.39	.45	.76	.80	.84	.73		
5. Number of full-time equivalent faculty	.96	.95	.84	.78	.82	.64	.46	.31

TABLE 3.--Pearson Correlation Coefficients Among Different Measures of Size for Academic and Professional Departments.*

	1		2		3		4		5	
	1969	1973	1969	1973	1969	1973	1969	1973	1969	1973
1. Total student credit hours produced			.97	.97	.95	.98	.81	.89	.96	.97
2. Graduate student credit hours produced	.57	.12			.92	.93	.89	.97	.89	.89
3. Number of majors-- Bachelors	.90	.98	.88	-.07			.89	.82	.97	.97
4. Number of majors-- Masters	.64	.52	1.00	.91	.92	.49			.78	.78
5. Number of full-time equivalent faculty	.13	-.81	.89	-.68	.56	-.79	.84	-.92		

*All tables with correlations for academic and professional departments combined will show the academic department (n = 5) correlations above the diagonal and the professional department (n = 3) correlations below the diagonal.

only the years 1969 and 1973 (or 1972 where 1973 data were not available). There are two primary reasons for this. First is the fact that there is such a large amount of data that it has not yet been practical to spend the amount of time necessary to examine it all in detail. The second reason has to do with the content of this particular paper; namely, we are interested in the overall trends which have occurred in the five years under consideration.

From a brief survey of Tables 2 and 3, it can be easily seen that the correlations are quite high among the different size measures for the academic departments and varied and inconsistent for the professional departments. There appears to be something about having a Ph.D. program which ties all the size variables together. It could be that better faculty are attracted to departments with doctoral programs (Blau, 1973: 83) which then attracts more students, as majors or just to take courses. Part of the inconsistency among the size correlations in the professional departments may merely be a result of the small sample size.

Looking only at Table 2 (for all departments), total student credit hours is strongly associated with graduate student credit hours produced and with number of FTE faculty while number of majors at the masters level is least associated with total student credit hours

produced. These findings are not surprising as it is to be expected that as total student credit hours rise so should the number of faculty who teach the courses. Graduate student credit hours produced shows a moderately strong correlation with all of the size variables, although it might be expected that this variable would be associated more with number of majors at the masters level than with the other size variables. But from the data here examined no such evidence exists. Number of masters level majors is weakly correlated with both total student credit hours produced and number of FTE faculty. This, too, is not surprising when one thinks that number of advanced degree candidates should be explained in terms of relationship to the quality of the department rather than number of faculty or total number of credit hours produced. If this is true, there should be a high correlation between number of masters level majors and research productivity (which is often used to measure a department's quality). Number of bachelor level majors exhibits a strong, but not outstanding, relationship with total student credit hours produced, indicating that total student credit hours produced is not entirely dependent on how many students are actually majoring in that department. As previously mentioned, many departments have few majors but provide courses (which are often required for graduation) to students whose majors are in other areas.

Such departments are often referred to as service departments.

Table 3 concentrates on the size correlations among the two different types of departments. Only number of FTE faculty is correlated below the .05 significance level with any of the other size variables in the academic departments and this is only when associated with number of masters level majors. For the nonacademic or professional departments there is a strong relationship between numbers of majors at the masters level and graduate student credit hours produced and between number of majors at the bachelor level and total student credit hours produced. One possible reason that these are stronger than the correlations in the academic departments is that the professional departments may service fewer students from outside their own departments. Therefore, those students who take graduate level courses are also probably graduate students within the department. This also applies at the lower level (bachelor). Interestingly, number of FTE faculty shows a positive correlation in the professional departments with every other size variable for 1969, but has become negative by 1973. Looking back to the discussion of the means, it will be remembered that the professional departments experienced a large jump in number of credit hours produced and number of majors. They also showed a gain in number of FTE

faculty, but this gain was much smaller than the rise in numbers of majors and credit hours produced.

The observant reader may have noticed that for all the departments the correlations between number of masters level majors and total student credit hours produced for 1969 and 1973 are .39 and .45, respectively. Yet, when looking at the two types of departments separately, it is apparent that these same correlations are .81 and .89 for the academic departments and .64 and .52 for the professional departments. The question should be asked as to how the correlations are higher for the departments taken separately than together. Figures 1 and 2 will provide some insight into this situation.

Overall, these two figures seem to represent no substantial pattern, but when the groups are aggregated (3,6,8 = professional departments and 1,2,4,5,7 = academic departments), a pattern does emerge. This situation occurs throughout this data. The academic departments and professional departments will aggregate among themselves, but when looked at as a whole it will appear that there is no relationship whatsoever. The rest of the analysis will concentrate on a discussion of the two types of departments separately with little mention of the results obtained when all eight departments are aggregated. This aggregation is primarily for the reader's convenience.

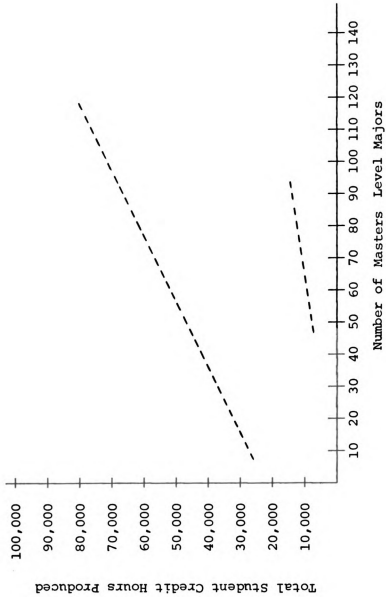


Figure 1.--Scattergram of Relationship Between Total Student Credit Hours Produced and Number of Masters Level Majors in 1969.

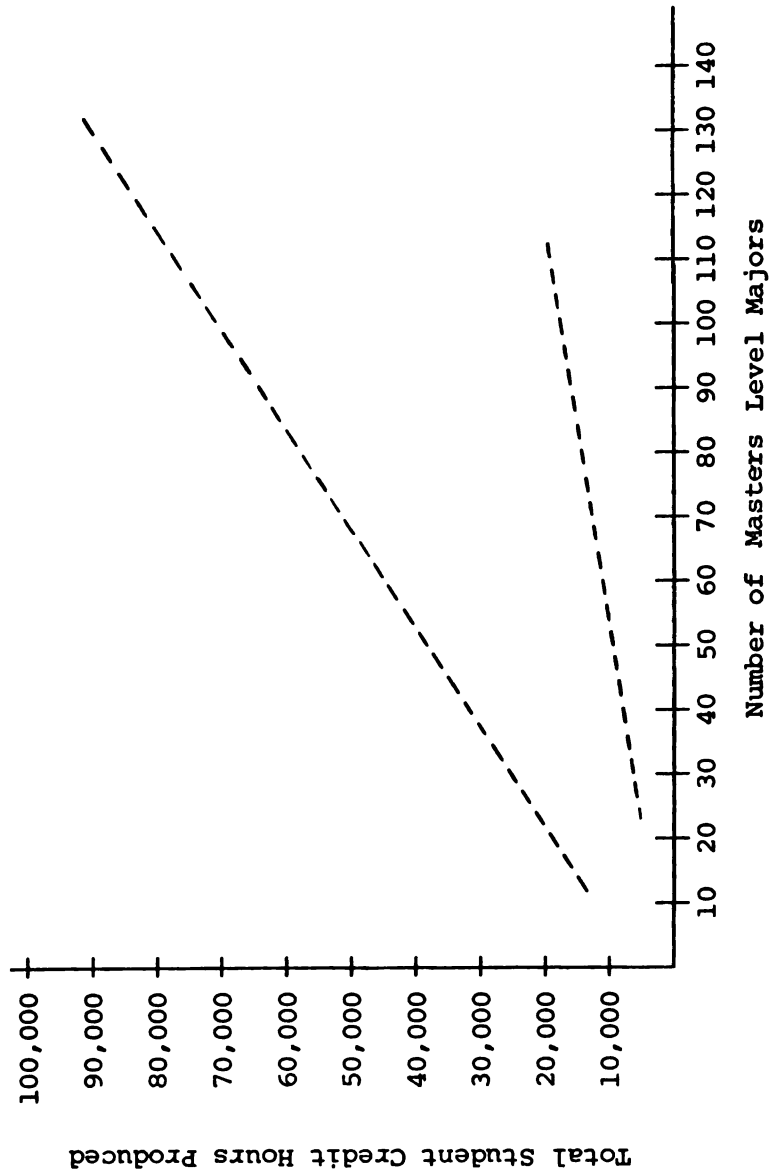


Figure 2.--Scattergram of Relationship Between Total Student Credit Hours Produced and Number of Masters Level Majors in 1973.

Tables 4 and 5 examine the correlations among the different affluence measures. Immediately apparent is the fact that budget per student credit hours produced and budget per number of majors are both negatively associated with general fund budget. As the absolute size of the budget increases, the allocation per major or per student credit hour decreases, suggesting an economy of scale. Departments may be experiencing enrollment increases without getting proportional budget increases. Another plausible explanation is that departments are becoming more efficient and are producing more majors and teaching more students without increasing the number of faculty. The end effect of these two explanations is the same--more students with proportionally less money. This trend is especially apparent in the professional departments, which are also the departments which had the largest percentage (41 percent) increase in total student credit hours produced yet only an 11 percent increase in budget per total student credit hours produced from 1969 to 1973. The academic departments exhibit an increased correlation between budget per number of majors and budget per number of student credit hours produced from 1969 to 1973 while for the professional departments the reverse is true. Again, this is a result of the fact that the professional departments had a 41 percent increase in student credit hours produced and a 41 percent

TABLE 4.--Pearson Correlation Coefficients Among Different Measures of Affluence for All Social Science Departments.

	1		2	
	1969	1973	1969	1973
1. General fund budget				
2. Budget per student credit hours produced	-.49	-.35		
3. Budget per number of majors	-.10	-.09	-.64	-.10

TABLE 5.--Pearson Correlation Coefficients Among Different Measures of Affluence for Academic and Professional Departments.

	1		2		3	
	1969	1973	1969	1973	1969	1973
1. General fund budget			-.31	-.29	-.86	-.74
2. Budget per student credit hours produced	-.53	-.69			.10	.71
3. Budget per number of majors	-.91	-.64	.83	.55		

increase in total budget, but a 64 percent increase in number of majors. The academic departments produced fewer total student credit hours in 1973 than in 1969 but their budget increased by 26 percent and their number of majors increased by 21 percent, thus resulting in the increased correlation in 1973 between budget per student credit hours produced and budget per number of majors.

The correlations between the productivity and output variables are shown in Tables 6 and 7. As stated previously, statistics for research productivity were not available for 1969 so 1970 data was used instead. In both of these tables there is a generally strong relationship between number of bachelor and number of masters degrees granted. Only the professional departments in 1973 show a significant drop and this can be related to the fact that the mean number of bachelor degrees granted rose by 69 percent from 1969 to 1973 while the mean number of masters degrees granted only rose by 25 percent. In the professional departments student credit hours produced per FTE faculty is highly correlated with number of bachelor and masters degrees granted as well as with research productivity (number of books and articles published). (The high correlation with research productivity may merely be an artifact as in 1969 there was a mean of 1 for research productivity which had jumped to 7 by 1973. These figures are so small it is extremely

TABLE 6.--Pearson Correlation Coefficients Among Different Measures of Productivity and Output for All Social Science Departments.

	1		2		3	
	1969	1973	1969	1973	1969	1973
1. Number of degrees granted--Bachelors						
2. Number of degrees granted--Masters	.85	.75				
3. Student credit hours produced per FTE faculty	-.13	.59	.00	.29		
4. Five x number of books + number of articles published (1970 & 1973)	.64	.59	.55	.21	.09	.47

TABLE 7.--Pearson Correlation Coefficients Among Different Measures of Productivity and Output for Academic and Professional Departments.

	1		2		3		4	
	1969	1973	1969	1973	1969	1973	1970	1973
1. Number of degrees granted--Bachelors			.93	.94	-.41	.49	.81	.98
2. Number of degrees granted--Masters	1.00	.58			-.15	.50	.94	.97
3. Student credit hours produced per FTE faculty	.84	1.00	.86	.56			-.20	.41
4. Five x number of books + number of articles published (1970 & 1973)	.71	.99	.73	.46	.98	.99		

difficult to attach much importance to them.) It appears that being a Ph.D.-granting (academic) department corresponds with having a smaller student credit hours produced per faculty ratio, perhaps because graduate classes are generally smaller and graduate students also enroll for fewer credits than undergraduates. But being a Ph.D.-granting department does increase the correlations between the number of articles and books published and degrees granted. This is confirmed by Blau: "Universities that concentrate on graduate education exhibit more emphasis on publishable research than colleges that do not" (1973: 107). In this case, it is the academic departments that are highly involved in graduate education and the professional schools which are not. Earlier in this paper, the prediction was made that there would be a high correlation between number of majors at the masters level and research productivity. For all departments taken together the correlation is relatively low, but quite high for the academic departments and relatively high for the professional departments. This makes sense as the professional departments do not place as much emphasis on graduate education. Because of the consistently high correlations between number of bachelor degrees granted and number of masters degrees granted, the number of bachelor degrees granted will be the basic measure used

for output along with student credit hours produced per FTE faculty.

The next set of tables, 8 and 9, in this section presents the interrelationships among the remaining independent variables--those measuring proportion of graduate students and division of labor or differentiation. Looking at the differentiation measures, number of total, undergraduate, and graduate courses taught, it can be seen that there is a consistently high correlation between total courses taught and undergraduate and graduate courses taught in the academic departments. Contrastingly, in the professional departments there is a high correlation between total courses taught and undergraduate courses taught for 1969 but by 1972 this had dropped considerably. This results from the fact that there was an 8 percent increase in total courses taught in the professional departments between 1969 and 1972 with a corresponding 26 percent decline in undergraduate courses taught during the same period. Undergraduate courses no longer seem to be making up the overwhelming majority of courses taught in the professional departments. In 1969 the number of total courses taught and number of undergraduate courses taught were very closely related (.95). It was to be expected that this trend would continue, especially with the tremendous increase in number of majors at the bachelor level. Instead, the correlation

TABLE 8.--Pearson Correlation Coefficients Among Different Measures of Differentiation for All Social Science Departments.

	1		2		3	
	1969	1973	1969	1972	1969	1972
1. Percent graduate students						
2. Total courses taught	-.29	.10				
3. Undergraduate courses taught	-.22	.31	.82	.84		
4. Graduate courses taught	-.26	.01	.84	.87	.37	.52

TABLE 9.--Pearson Correlation Coefficients Among Different Measures of Differentiation for Academic and Professional Departments.

	1		2		3		4	
	1969	1973	1969	1972	1969	1972	1969	1972
1. Percent graduate students			-.79	-.16	-.64	.17	-.72	-.32
2. Total courses taught	.76	.06			.83	.83	.89	.93
3. Undergraduate courses taught	.51	-.84	.95	.49			.48	.57
4. Graduate courses taught	.53	1.00	-.16	-.03	-.46	-.89		

between total and undergraduate courses taught declined, indicating that proportionally more graduate courses were being taught. Looking at the means in Table 1, it is obvious that number of graduate courses taught has increased proportionally more than number of undergraduate courses taught (which actually declined). This reversal of trends (rise in graduate courses taught and decline in number of undergraduate courses taught) also accounts for the low and negative correlations between undergraduate courses taught and graduate courses taught for the two types of departments. From now on the variable total number of courses taught will be eliminated and remaining analysis will concentrate on number of undergraduate and graduate courses taught since these variables better show what was actually happening during the four-year time period.

As has been noted before the proportion of graduate students actually declined even though number of graduate courses taught increased. This is a result of the dramatic increase in number of undergraduate majors, thus making the proportion of graduate students smaller although the number actually increased. The overall trend of relationships between percent graduate students and number of courses taught is for the correlation to be quite negative in 1969 and to become less negative or slightly positive by 1972. For academic departments, the

only relationship that is positive is between percent graduate students and number of undergraduate courses taught for 1972. This makes sense when one notes from the means that there was a decline in both of those variables.

Finally will be a set of tables, 10 and 11, which present the interrelationships among selected independent variables--this is a combination of several of the items in the previous sets of tables. All three departmental categories exhibit a negative relationship between affluence and size. When general fund budget is substituted as a measure for affluence the correlations between size and affluence for all three department groupings becomes high (.98 and .97 for all departments, .99 and .98 for academic departments, and .77 and .55 for professional departments). Affluence, in absolute terms, is related to size and if Propositions 1 and 4 are correct, student perceptions of their college experience should be negatively related to these two variables, But if budget per total student credit hours and budget per major are the measures selected, the relationship may well be the reverse. Blau's contention of a high positive correlation between size and division of labor, or differentiation, (1973) is supported when looking at all the departments and the academic departments, but the professional schools show a low positive and a negative

TABLE 10.--Pearson Correlation Coefficients Among Selected Independent Variables for All Social Science Departments.

	1		2		3		4		5	
	1969	1973	1969	1973	1969	1973	1969	1972	1970	1973
1. Total student credit hours (size)										
2. Budget per student credit hours produced (affluence)	-.63	-.52								
3. Number of degrees granted --Bachelors (output)	.66	.70	-.09	-.42						
4. Number of graduate courses taught (differentiation)	.95	.86	-.42	-.23	.77	.60				
5. Five x number of books + number of articles (research productivity)	.92	.96	-.64	-.52	.52	.59	.74	.87		
6. Percent graduate students	-.08	-.19	-.48	-.12	-.63	-.50	-.26	.01	.22	.00

TABLE 11.--Pearson Correlation Coefficients Among Selected Independent Variables for Academic and Professional Departments.

	1		2		3		4		5		6	
	1969	1973	1969	1973	1969	1973	1969	1973	1970	1973	1969	1973
1. Total student credit hours (size)			-.44	-.45	.91	.99	.99	.94	.86	.96	-.76	-.54
2. Budget per student credit hours produced (affluence)	-.95	-.98			-.10	-.43	-.46	-.21	-.07	-.34	.43	.42
3. Number of degrees granted --Bachelors (output)	1.00	1.00	-.92	-.98			.90	.90	.81	.98	-.80	-.54
4. Number of graduate courses taught (differentiation)	.33	-.42	-.01	.13	.40	-.35			.87	.95	-.72	-.32
5. Five x number of books + number of articles (research productivity)	.77	.98	-.93	-.94	.71	.99	-.28	-.68			-.38	-.38
6. Percent graduate students	-.63	-.31	.84	.14	-.57	-.35	.76	-.23	.53	1.00		

correlation between these two variables. Again, this may be a function of the small sample, but it may also relate to the fact that departments with Ph.D. programs provide many classes aimed at graduates and such classes are usually small (which necessitates more classes to handle all the students). In the professional departments, the number of graduate courses taught did increase, but not nearly to the same extent as total student credit hours produced, resulting in a negative correlation for 1972. Size is also shown to be highly correlated with research productivity while affluence and research productivity correlate negatively. The negative correlation between affluence and research productivity is greatly diminished when looking only at the academic departments. Again, if the absolute measure of budget were used, most of the correlation would be reversed. If we had a measure of budget per graduate student credit hours produced, we might find a high correlation with research productivity.

Output is another measure which correlates highly with size. In fact, for the professional departments this is a perfect positive relationship. This is easy to understand as one would expect there to be an increase in number of degrees granted when there is an increase in the total student credit hours produced. Any but a high positive correlation would indicate that there were many people taking classes from outside the department or

many people taking courses with no intention of receiving a degree.

Size is negatively associated with percent graduate students for professional and academic departments. In both of these departmental types the mean values for total student credit hours produced rose, while that for percent graduate students declined over the five years, resulting in a decline in intensity of the negative correlation. This relationship is hard to analyze clearly as total student credit hours produced also contains graduate student credit hours produced which we are then trying to correlate with percent graduate students.

For the academic departments there is a strong relationship between research productivity and number of degrees granted and number of graduate courses taught. When looking at the professional departments this is maintained for number of degrees granted, but the relationship becomes negative when examining number of graduate courses taught. Again it must be noted that professional departments are a small sample to begin with and that there is almost no research productivity in these departments.

The analysis of the relationships among the independent variables has shown that most of them are highly related either positively or negatively to one or more of the other independent variables. Those variables which

consistently vary together are expected to show the same results when analyzed in relation to the dependent variables. For example, both output (number of bachelor degrees granted) and size, though not identical, do vary in the same direction. Therefore it is reasonable to assume that both will affect a dependent variable, such as Job Skills, in a like manner. That is, if size is negatively correlated with students' perceptions of how well their college education prepared them for a job and provided various job skills, then number of bachelor degrees granted, as a measure of output, should also be negatively correlated with perceptions of adequacy of job training.

Interrelationships Among Independent
and Dependent Variables

Table 12 deals with the relationship between the dependent variable Job Skills and selected independent variables for the three department categories. The first generalization to be made is that there is very little correlation among departmental structural variables and student satisfaction with their college experience as it relates to job skills. This is especially true for the academic departments. Interestingly, number of graduate courses taught and percent graduate students both show a negative correlation with Job Skills for the professional departments. This is in support of Propositions 4 and 6

TABLE 12.--Pearson Correlation Coefficients Among Satisfaction With Job Skills and Selected Departmental Structural Variables.

	All Depart- ments (n=8)		Academic Depart. (n=5)		Professional Depart. (n=3)	
	1969	1973	1969	1973	1969	1973
Total student credit hours produced (size)	-.23	-.34	.21	-.07	.28	.09
Number of majors--Bachelor (size)	.20	.15	.27	-.01	-.18	.28
Number of FTE faculty (size)	-.17	-.32	.25	-.06	-.92	.51
General fund budget (affluence)	-.16	-.28	.19	.00	-.41	-.78
Budget per student credit hours produced (affluence)	.41	.53	-.40	.42	-.01	.02
Number of degrees granted --Bachelor (output)	.24	.14	.27	.02	.20	.13
Student credit hours pro- duced per FTE faculty (output)	-.38	.42	.15	-.60	.70	.16
Number of undergraduate courses taught (differentiation)	-.19	.06	.09	.53	-.44	.45
Number of graduate courses taught (differentiation)	-.09	-.20	.25	.20	-.82	-.91
5 x number of books + number of articles (research productivity)	-.54	-.27	-.24	.18	.83	.27
Percent graduate students	-.77	.01	-.64	.58	-.92	-.97

which predict that students in highly differentiated departments and in departments with a high proportion of graduate students will be less satisfied with their college experience. It appears that differentiation as measured by number of graduate courses taught has the predicted negative effect on job attitudes while differentiation at the undergraduate level does not. Affluence (as measured by general fund budget) is also negatively correlated with Job Skill satisfaction for the professional departments but not for the academic departments. Contrastingly, affluence as measured by budget per student credit hours produced shows no association with Job Skills. Total student credit hours produced and number of FTE faculty (both measures of size) are negatively correlated with Job Skills for all departments taken together, but this correlation disappears when looking at academic and professional departments separately. Propositions 2, 4, and 6 are somewhat supported by this data, but only for the professional departments and only when specific measures are used.

The next table, Table 13, looks at student perceptions of Tolerance Skills correlated with structural variables. There is little evidence from this table to support the proposition that students in large departments are less satisfied with their college experience. In fact, for professional departments there is a trend in the

TABLE 13.--Pearson Correlation Coefficients Among Satisfaction With
Tolerance Skills and Selected Departmental Structural
Variables.

	All Depart- ments (n=8)		Academic Depart. (n=5)		Professional Depart. (n=3)	
	1969	1973	1969	1973	1969	1973
Total student credit hours produced (size)	-.07	-.12	-.02	-.73	.98	.33
Number of majors--Bachelor (size)	.01	-.48	-.01	.81	.80	.15
Number of FTE faculty (size)	-.08	-.29	-.03	-.87	-.05	-.82
General fund budget (affluence)	-.10	-.23	-.07	-.82	.64	.97
Budget per student credit hours produced (affluence)	-.04	-.52	-.50	-.07	-.99	-.49
Number of degrees granted --Bachelor (output)	.01	-.36	-.02	-.74	.97	.29
Student credit hours produced per FTE faculty (output)	.10	.29	.34	.04	.95	.27
Number of undergraduate courses taught (differentiation)	-.38	-.16	-.41	-.52	-.95	-.93
Number of graduate courses taught (differentiation)	.00	-.09	.04	-.76	.16	.65
5 x number of books + number of articles (research productivity)	-.38	-.03	-.44	-.68	.87	.16
Percent graduate students	-.36	.73	-.39	.73	-.76	.79

other direction. Total student credit hours produced and number of majors at the bachelor level are both highly correlated with satisfaction with Tolerance Skills in 1969 and drop, but are still positive, in 1973. When number of FTE faculty is used as a measure of size there is a high negative correlation in 1973 for both the academic and professional departments. Going back to Table 1, it can be seen that there was a decrease in the academic departments in the number of FTE faculty from 1969 to 1973 and an increase in satisfaction with Tolerance Skills. For the professional departments the situation is reversed--an increase in number of FTE faculty and a slight decrease in satisfaction with Tolerance Skills. Both of these conditions resulted in a negative correlation between size (as measured by number of FTE faculty) and satisfaction with college experience.

Proposition 2 predicts a negative correlation between affluence and satisfaction. When budget per student credit hours produced is used to measure affluence there is indeed a negative association between student satisfaction with Tolerance Skills and affluence for all departments, and especially for the professional departments. Using general fund budget produces a strong positive correlation only for the professional departments. Interestingly, it was general fund budget which correlated negatively with student satisfaction with Job

Skills in the professional departments. Output or teaching productivity was also predicted to correlate negatively with student satisfaction. The actual trend is in the other direction. In 1969 students in professional departments with high output were very satisfied with their college experience as contributing to Tolerance Skills, but by 1973 this correlation had fallen off considerably, although it was still positive.

Division of labor, as measured by number of undergraduate courses taught, exhibits a strong negative relationship to satisfaction with Tolerance Skills for the professional departments and a negative relationship for the academic departments. This is in strong support of Proposition 4 which states that students in highly differentiated departments will be less satisfied with their college experience. However, if the number of graduate courses taught is used as the indicator of division of labor the relationship becomes reversed for the professional departments and mixed for the academic departments. Again, if we look back to Table 12 it can be seen that the number of graduate courses taught is negatively related to satisfaction with Job Skills. This situation is similar to that which occurred with the affluence variables. A variable will relate negatively to one aspect of student satisfaction and positively with another.

Research productivity shows a negative association with satisfaction with Tolerance Skills for the academic departments, but becomes positive for the professional departments. A curious trend is apparent in Table 13 when examining percent graduate students. In 1969 the relationship is negative for all three department categories, but becomes strongly positive by 1973. Something has occurred to positively change the perceptions of students in departments with a large percentage of graduate students between 1969 and 1973. Why this change has occurred is beyond the scope of this study but does deserve further investigation.

Table 14 examines student satisfaction with college experience as related to Personal Development Skills. This table provides more support for the propositions. Two of the three size variables are negatively related to student satisfaction with Personal Development for all departments. Only the size measure number of FTE faculty differs and that is only for 1973. The negative relationship is strongest for the professional departments and not significant, but in the predicted direction, for the academic departments. Affluence is negatively associated with satisfaction for the academic departments. Budget per student credit hours produced is positively related for the professional departments but the other affluence variable does not show this relationship. The two output

TABLE 14.--Pearson Correlation Coefficients Among Satisfaction With
Personal Development Skills and Selected Departmental
Structural Variables.

	All Depart- ments (n=8)		Academic Depart. (n=5)		Professional Depart. (n=3)	
	1969	1973	1969	1973	1969	1973
Total student credit hours produced (size)	-.15	.00	-.11	-.15	-.98	-.81
Number of majors--Bachelor (size)	-.08	-.23	-.05	-.08	-.96	-.91
Number of FTE faculty (size)	-.16	-.02	-.12	-.21	-.30	.31
General fund budget (affluence)	-.17	-.09	-.14	-.28	-.87	.04
Budget per student credit hours produced (affluence)	.08	-.25	-.34	-.71	.88	.70
Number of degrees granted-- Bachelor (output)	-.08	-.25	-.05	-.11	-.99	-.83
Student credit hours pro- duced per FTE faculty (output)	-.01	.32	.25	.70	-.79	-.85
Number of undergraduate courses taught (differentiation)	-.33	-.51	-.52	-.88	1.00	-.62
Number of graduate courses taught (differentiation)	-.08	-.19	-.04	-.49	-.49	.91
5 x number of books + number of articles (research productivity)	-.39	.00	-.46	-.23	-.64	-.90
Percent graduate students	-.27	-.14	-.28	-.42	.48	.81

variables are negatively correlated with satisfaction with Personal Development for the professional departments, the opposite of what occurred in Table 14. For the academic departments there is no strong relationship between output and student satisfaction with Personal Development Skills.

Proposition 4, which states that students in highly differentiated departments will be less satisfied with their college experience, receives some support when examining satisfaction with Personal Development for students from academic departments. The correlations are not too high, but all are in the predicted direction. The professional departments exhibit mixed results for this same variable. Personal Development is the first scale with which research productivity has correlated negatively for both department types. The last structural variable, percent graduate students, is negatively associated with satisfaction for academic departments, but positively for professional departments. For the three types of satisfaction examined so far, percent graduate students has correlated quite distinctively with each--so far no consistent pattern has occurred for this or any of the other structural variables.

The last table, Table 15, examines the inter-relationships among satisfaction with Social Skills and organization structure. There is nothing among the

TABLE 15.--Pearson Correlation Coefficients Among Satisfaction With Social Skills and Selected Departmental Structural Variables.

	All Depart- ments (n=8)		Academic Depart. (n=5)		Professional Depart. (n=3)	
	1969	1973	1969	1973	1969	1973
Total student credit hours produced (size)	-.24	-.44	.16	-.41	.07	-.85
Number of majors--Bachelor (size)	.17	-.50	.18	-.56	.51	-.74
Number of FTE faculty (size)	-.10	-.52	.23	-.58	1.00	1.00
General fund budget (affluence)	-.17	-.46	.12	-.47	.70	-.90
Budget per student credit hours produced (affluence)	.32	.30	-.53	.06	.24	.93
Number of degrees granted --Bachelor (output)	.17	-.47	.18	-.46	.15	-.83
Student credit hours pro- duced per FTE faculty (output)	-.43	-.27	.16	-.08	-.40	-.82
Number of undergraduate courses taught (differentiation)	-.14	-.10	.02	-.10	-.22	.48
Number of graduate courses taught (differentiation)	-.05	-.30	.16	-.31	.97	-.03
5 x number of books + number of articles (research productivity)	-.58	-.35	-.35	-.34	-.59	-.75
Percent graduate students	-.76	.66	-.68	.91	.73	-.23

correlations of the size variables and satisfaction with Social Skills which clearly supports Proposition 1, but when using total student credit hours produced and number of majors at the bachelor level as size measures the relationship is always negative in 1973. The variable number of FTE faculty shows this same trend for the academic departments. Curiously, there is a perfect positive correlation between student satisfaction with college education as it contributed to Social Skills and number of FTE faculty for the professional departments. There is no readily apparent explanation for this.

The results from Table 15 using affluence indicators also do not support the propositions. There is a slight positive trend in the professional departments when budget per student credit hours is used to measure affluence, but it is only significant for 1973. Other than that the rest of the correlations between satisfaction with Social Skills and affluence appear to be random and do not indicate any particular pattern. The relationship between research productivity and student satisfaction with Social Skills provides the strongest support for any of the propositions. In this case there is a negative correlation for all types of departments. For the academic departments the relationship is not high, but it is consistently in the predicted direction. One of the output measures, student credit hours produced per FTE

faculty, provides some support for Proposition 3 but, as has been the case with many of the previous correlations, support is achieved only when examining the professional departments.

IV. SUMMARY AND CONCLUSION

Summary

Needless to say, it is not possible to make the statement that all of the propositions in this study were strongly supported by the data. At the same time, it would be just as incorrect to imply that there are absolutely no relationships between organization structure and attitudes of those involved with organizations. The following summary will look at what relationships were found in support of each proposition.

Proposition 1 predicted that students in large departments would be less satisfied with their college experience. Three size measures were ultimately used to examine this prediction. Satisfaction with the college experience as related to Personal Development was the only area in which size was negatively associated with satisfaction and this was for two of the three size measures. The relationship was strongest in the professional departments and in the predicted direction for the academic departments. In the other three satisfaction areas, the correlations were quite mixed and in some cases were the opposite of what had been predicted.

Affluence is another structural variable which was predicted to relate negatively with satisfaction.

Here the results are mixed depending on which affluence measure and which type of department is being examined. General fund budget is negatively correlated to satisfaction with Job Skills only for the professional departments. By contrast, it is also negatively correlated to satisfaction with Tolerance Skills and Personal Development for students from academic but not professional departments. The other affluence measure, budget per student credit hours produced, supports Proposition 2 when looking at Tolerance Skills for both departmental types. The strongest relationship is in the professional departments. Personal Development satisfaction and the second affluence measure are also negatively related for academic departments. Both affluence measures weakly support Proposition 2 in the Tolerance Skills and Personal Development areas for students in academic departments. The other two satisfaction areas show no overall consistent relationships.

The suggestion that students in departments with high teaching productivity would be less satisfied with their college experience was made in Proposition 3. There are some interesting results on this subject--all applying to the professional departments. Both output measures are positively related to satisfaction with Job and Tolerance Skills and negatively related to satisfaction with Personal Development Skills for the professional departments. One of the output indicators, student credit hours

per FTE faculty, is also negatively correlated with satisfaction for students from professional departments--this in the area of satisfaction with Social Skills. Satisfaction of students from academic departments with college experience appears to have no relationship to the structural variables labeled output.

The results of correlating structural variables measuring differentiation and satisfaction measures also produced mixed trends. The number of undergraduate courses taught (differentiation) correlated negatively with Tolerance Skills for the academic departments. The professional departments also showed negative correlations between number of undergraduate courses taught and Tolerance Skills--in this instance the correlation was very high. Similar to previous trends these two structural measures correlated positively, though weakly, with one dependent variable, satisfaction with Job Skills for academic departments, and negatively with another, Personal Development Skills. The only other area in which correlations for the professional departments were in the predicted direction was Job Skills. Number of graduate courses taught correlated negatively with Job Skills for students from professional departments.

Research productivity was the one variable which most consistently supported a proposition. Proposition 5 states that students in departments with high research

productivity will be less satisfied with their college experience. The results show that this is the case for satisfaction with Personal Development and Social Skills for both department types. Looking at Tolerance Skills, only the academic departments are in the predicted direction. In both this area and Job Skills, the professional departments exhibit a positive correlation between research productivity and satisfaction with student achieved skills.

The correlations between the variables percent graduate students and satisfaction provide little support for Proposition 6. Tolerance Skills is negatively correlated with percent graduate students in 1969 and positively related in 1973 for all department types. Satisfaction with Job Skills is negatively associated with percent graduate student, but only for the professional departments. When looking at Personal Development Skills the academic and professional department results were in opposite directions--academic departments in the predicted direction.

Conclusion

This paper has set forth some of the results of a study of a university within an organizational framework. The main intent was to determine if any relationships exist between organizational structural variables

and student attitudes about and perceptions of their college experience. A great deal of data has been presented with a somewhat cursory examination. Several areas obviously need more study. Why do two measures of the same variable react differently? What is each indicator actually measuring? Interrelationships among the independent variables especially need more study.

The present sample is very small, a total sample size of 8 which was then divided into groups of 5 and 3. Because of this small size, the results should be examined in terms of a case study with implications for further research. One of the areas which needs to be looked into further is that concerning the observed differences between the academic and professional departments. It was obvious from all the data presented that these departmental types were different not only in terms of structural variables but also in terms of the way students perceived their education.

The overall finding of this study is that there is no simple consistent relationship between organization structure and attitudes or perceptions. Partial support for the propositions was obtained from the results. Personal Development is the area of satisfaction which most often reacted as predicted by the six propositions. For the other three satisfaction areas the results were mixed --in several instances relationships which were predicted

as negative were actually positive. This indicates that there is no simple "satisfaction" variable. Structure does have an effect on attitude, but the effect is different depending on which attitude is being examined. The same structural variable can, for example, be negatively related to satisfaction with Personal Development Skills and positively related to satisfaction with Tolerance Skills or Job Skills.

An examination of variables which may be intervening in this structure-attitude relationship would also be worthwhile. The student unrest of the late 1960s could have had an effect on some of the attitudes in this study, independent of structure. Other aspects of the student environment may also be operating to minimize the effects of structure. Another area which may also be worth examining is that of student perceptions of structure. It is probable that some aspects of structure are more easily perceivable by students than others. Possibly those that can be perceived easier will have a greater impact on student attitudes. If a student does not realize that a department has a high proportion of graduate students he may not feel that his professors are more willing to spend time with graduate students than with undergraduates. Departmental policies have also not been discussed or examined in this paper. If professors are required to have a certain amount of time set aside for

office hours this may also affect attitudes as he may appear more accessible regardless of other structural attributes of the department.

This research has indicated the presence of some structural effects on student perceptions. The extent and exact direction of these effects is yet to be determined. It is not a simple relationship--further research with different structural variables and possible intervening variables is indicated.

APPENDIX

APPENDIX

Scale Correlations.*

Item	Job Skills	Tolerance Skills	Personal Devel.	Social Skills
1. Serve as a member of a team	.69	.42	.46	.45
2. Prepare for advancement on the job	.77	.25	.37	.36
3. Get ahead in the world	.66	.25	.37	.40
4. Acquire practical knowledge about finding & holding jobs	.65	.26	.35	.33
5. Be adequately prepared for my present job	.65	.19	.32	.39
6. Work in a supervisory position	.70	.30	.33	.30
7. Work within administrative policy and procedures	.67	.29	.31	.27
8. Work in direct one-to-one relationships	.60	.51	.42	.43
9. Communicate with people who have much less education	.40	.71	.32	.43
10. Understand people with different cultural values from my own	.24	.75	.36	.45
11. Expand my tolerance for people and ideas	.30	.80	.48	.49
12. Learn how to get along with others	.43	.74	.54	.54
13. Learn how to make my own decisions	.50	.48	.79	.45
14. Develop my abilities to think and express myself	.44	.47	.84	.42
15. Clarify my values and goals	.38	.44	.81	.45
16. Acquire a broad knowledge of community life	.33	.47	.36	.74
17. Acquire practical and effective ways of helping people	.46	.50	.42	.76
18. Prepare me for marriage and family life	.32	.42	.32	.69
19. Form valuable and lasting friendships	.34	.37	.40	.60

*This table is based on the Colleges of Social Science, Human Ecology and Agriculture and Natural Resources.

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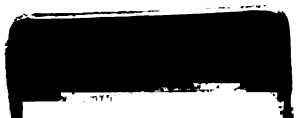
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