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IN EXPERIMENTAL CLUSTER COLLEGES.

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**A FINANCIAL ANALYSIS OF INSTRUCTIONAL COSTS
IN EXPERIMENTAL CLUSTER COLLEGES**

**by
Edward Archer Dougherty**

**A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Education)
in The University of Michigan
1972**

Doctoral Committee:

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CHAPTER I

THE PROBLEM

Statement of the Problem

In the current attempt of colleges and universities to adopt better modes of undergraduate education, a form of innovation that has gained increasing popularity is the cluster college. The idea of having a semi-autonomous unit in the midst of a large university is not new, but in the last ten years it has been used by an increasing number of universities to help deal with the problems of rapid growth and the sense of depersonalization that comes with mass education. The basic idea behind one type of cluster college is to group students with faculty into relatively small numbers within the larger university, exploiting the advantages of both a small college and a multiversity. These small colleges develop their own curriculum and supportive services with the hope that faculty and students will mutually stimulate each other to further learning. In some cluster colleges the emphasis is on providing students with a general education, giving them the basic knowledge needed by every well-educated man. In other colleges the emphasis is more on developing student-faculty relationships that build a supportive environment in which to learn. In both cases,

the colleges are developed out of a felt need to improve the quality of undergraduate education.

For many educators the cluster college concept is one of the most promising and exciting innovations in undergraduate education, and, yet, as many of these innovators face the '70's, they are aware of a growing financial crisis in higher education that makes the prospects for experimental programs seem very limited. Earl F. Cheit has documented the extent of financial trouble in 41 colleges and universities representing nearly every type of institution in the United States, and William Jellema has shown the severe plight of private institutions of higher education. Both men point out the effect financial trouble has on new programs. Jellema points out that one response used by private college administrators, after they have borrowed, raised tuition and deferred maintenance, is to "retrench expenditures", which usually means eliminating plans for new programs.¹ Cheit is more specific in pointing out the effect of financial crisis. He says that a university's concern for maintaining diversity will be overshadowed by a new concern for paying the bills in the '70's. He predicts that "planning and decisions about reform, role, and direction of the academy will in the

¹William W. Jellema, "The Red and the Black": Special Preliminary Report on the Financial Status, Present and Projected, of Private Institutions of Higher Learning (Washington, D.C.: Association of American Colleges, 1970), p. 10.

next decade be influenced more by its financial situation than by any other."²

In spite of the warnings of these and other authorities in higher education about the importance of finance, few cluster college administrators or researchers have taken time to examine the costs of their programs. No one has looked at what factors influence costs in experimental programs, and, although everyone in experimental education complains about not having enough money, no one has put on paper how these programs might save money without sacrificing quality.

This study is an intensive study of several cluster colleges and how they have manipulated various factors affecting costs. It focuses on the identification of elements that influence cost and on the special problems of experimental cluster colleges attempting to control costs. By examining several experimental programs, data can be integrated in order to evoke new insights into the particular problems of cost control in experimental colleges.

The identification of elements that influence costs relies primarily on the review of the literature in Chapter II. Here, six elements are singled out as being especially important--faculty productivity, salary expenditures, class size, the scope of the curriculum, size of enrollment, and student-faculty ratio.

²Earl F. Cheit, The New Depression in Higher Education: A Study of Financial Conditions at 41 Colleges and Universities (New York: McGraw-Hill, 1971), p. 18.

Chapter III presents an intensive description of each of the colleges in this study. Included in the descriptions are sections on the purposes, curriculum, faculty, students and economics of each college.

Chapter IV identifies the special problems of cost control in cluster colleges and integrates the data in order to locate common trends in financing the five colleges studied. Chapter V summarizes the findings and gives some insight into the peculiar problems of cluster college control.

Definitions

The Experimental Cluster College. The term, cluster college, has been used to describe at least three institutional patterns. First, the term is used to describe an arrangement of independent colleges cooperating in the development of common services and programs, such as the Claremont Colleges. Second, it is used to describe institutions made up entirely of small groups of students and faculty, such as the University of California at Santa Cruz. Finally, it is used to describe experimental colleges located within a larger university setting, such as Johnston College at Redlands University. This study is concerned only with the last type of cluster college, the cluster college within the larger university, which tends to be experimental in nature.

The cluster colleges in this study were found to have several common characteristics. First, they all had relatively small student enrollments, ranging between 200 and 450 full-time equivalent students. Second, these experimental colleges all have their own faculty, with varying degrees of self-identity and separation from other faculty groups. In most of the colleges studied there was some attempt, initially, to use faculty with appointments both in the experimental college and in the faculty member's own department. The current trend in all the schools, however, is toward the development of an autonomous faculty appointed only in the experimental college. The third factor held in common by colleges in this study is that each college seeks to maintain its own autonomy from its parent unit, both in the area of faculty recruitment and in curriculum development. Fourth, each college studied has some kind of interdisciplinary curriculum, some emphasizing general or liberal education and others emphasizing a specific discipline, such as the natural or social sciences. Finally, the fifth defining characteristic of these cluster colleges is that they attempt to link the living and learning environments of students by providing classroom facilities in residential units. College A is located in a commuter school without residence halls and is the one exception to this rule, but it qualifies as a cluster college on all other grounds.

Instructional Costs. This study is concerned only with instructional costs derived from faculty salaries attributable to teaching. These costs are given in dollar amounts for a nine-month period, unless otherwise noted. They are based on the proportion of time the faculty member teaches in the experimental unit. A professor teaching full-time has all his salary included as part of the instructional cost of a college. A professor teaching part-time has his salary included as part of the instructional cost in proportion to the time he spends teaching.³

A faculty member paid by an instructional unit other than the experimental college is counted as a member of the experimental college, and a portion of his salary commensurate with the proportion of time he spends teaching in the college is attributed to instructional costs. This procedure allows for more accurate comparison of programs. It assumes that all instructional services are paid for by the unit receiving the services. However, it tends to hide any savings made by a college through soliciting of voluntary faculty.

Instructional costs as used in this study include the salaries of certain administrative people who hold academic

³For a discussion of techniques used in calculating instructional costs see John Dale Russell and James Doi, "Analysis of Institutional Expenditures," College and University Business, beginning September, 1955, concluding August, 1965; and James I. Doi, "Analysis of Class Size, Teaching Load, and Instructional Salary Costs," in Richard Axt and Hall T. Sprague (eds.), Institute on College Self-Study: Lectures on Institutional Research, Stanford University, 1959 (Boulder, Colo.: Western Interstate Commission for Higher Education, 1960).

appointments and whose services are seen as essential to the instructional process. The salaries of the Dean, an academic counsellor or other administrative staff on academic appointments are included. Costs that are not included are salaries of non-academic personnel and expenses for such things as equipment, supplies, fringe benefits, or use of special facilities such as a computer or library even though these items might be charged back to the individual teaching unit.

One important reason for using salary costs attributable to teaching as the basic instructional cost is that these expenditures provide a relatively "pure" figure that is comparable from one institution to the next. These figures are relatively free from contamination arising from differences in accounting procedures found in calculating other costs such as overhead or library expenditures. Often, institutions use different types of formulas for allocating non-instructional costs to teaching units.

A second reason for using salary costs attributable to teaching as a basis for calculating instructional costs is that salary expenditures are generally the largest single item in the budget of an instructional unit, usually constituting about fifty per cent of the total operating budget.⁴ This means that variations in salary expenditures

⁴The National Federation of College and University Business Officers Associations, The Sixty-College Study: A Second Look (Washington, D.C.: American Council on Education, 1960), Table K, p. 35.

have a direct effect on unit costs in the educational and general budget.

Credit Hours and Student Credit Hours. The procedure for calculating credit hours and student credit hours will be discussed in the next section of this chapter, but it is necessary at this point to give a basic definition of a credit hour and student credit hour. Virtually every college and university ascribes a credit hour value to its courses. This procedure is an attempt to indicate the amount and quality of work expected in a course. A course offered for five credit hours is thought to be more demanding than a course offered for one credit hour. The credit hour value of a course may reflect the number of hours it meets each week, but this is not always so, especially in science or fine arts courses requiring substantial laboratory or studio work. The credit hour value of a course is essentially an attempt to quantify the work demanded for each course. It is usually based on subjective judgments of faculty members or deans and, consequently, builds a margin of error into any calculations using credit hour values.

A student credit hour (S.C.H.) is a measure of the amount of effort it takes to educate one student earning one credit hour. The number of student credit hours produced by a faculty member (that is, the number of students he has in a given set of courses offered for a prescribed number of credit hours) is most often used as a measure of

faculty productivity, much in the same way as the number of widgets produced by a worker is used as a measure of the productivity of a widget maker. The difference between these measures of productivity is that the one used for a faculty member deals with an educational process and not simply with a product turned out on an assembly line.

Courses and Classes. In describing the curriculum of any instructional program a distinction often is made between courses and classes. A course is an area of subject-matter, usually identified by a distinctive course number and title, such as Freshman English-101 or American History-204. A course is always defined by a given number and title, indicating a subject area. A class, on the other hand, is defined as a group of students, meeting with a given faculty member or teaching fellow. A course, such as Freshman English, may be divided into a number of sections, each of which constitutes a class. Another course, such as American History, might meet as one group with a single faculty member in which case "course" and "class" are synonymous.

Faculty and Students. Although most people know that a faculty member is one who is paid to teach and a student is one who pays to learn, many may not be aware that there are different ways of counting students and faculty. One way to count is simply to count the number of individuals in each group (a headcount). The one problem with this method is that it does not take into account the fact that

some individual faculty may only be teaching part-time, and that some students may be signed up for only a fraction of a full-time course load. Another method of counting that takes into account the differences in work loads counts full-time equivalent (F.T.E.) faculty and students. For faculty this means that any professor who is devoting all his time to teaching in a given program is counted as one full-time equivalent faculty member (F.T.E.F.). A faculty member who is teaching part-time in a program is counted in proportion to his fractional appointment.

The method for calculating F.T.E. students is different. To count the number of full-time equivalent students (F.T.E.S.) in a program, the total number of student credit hours produced is divided by the number of credits constituting a full-time load. For example, a program producing 7,000 student credit hours has 215.6 F.T.E. students, if a full-time student takes 32 credits each year. counting faculty and students on an F.T.E. basis is particularly important for cluster colleges, because many students are not taking a full-time load in the college and many faculty members are on joint appointments with other departments.

Procedures

The procedures used in this study are primarily those associated with a case-study methodology. A detailed description of each cluster college is included, describing the college purposes, curriculum, faculty, students and costs. It is necessary to include the background material as well as cost data in order to understand why one college may exercise one set of options while another college does something completely different. For example, the exercise of various options may be largely determined by educational or philosophical principles, the type of student attracted, or the availability of faculty. The focus of this study is on unit costs, but it is necessary to include data on the purposes, curriculum, faculty, and students in order to understand what makes these unit-costs vary. The analysis focuses on the special problems of cluster college cost control and an integration of data for the five colleges studied.

The Population. Five experimental colleges were examined in this study. All the colleges are sub-units of larger state universities in Michigan. All the colleges studied have student populations (F.T.E.S.) between 200 and 450. As noted in the section defining an experimental cluster college, the schools all have autonomous faculties, interdisciplinary programs, and most attempt to relate

living and learning experiences. Yet, the colleges vary in their philosophical assumptions and educational methodologies to a considerable degree.

Collection of Data. Data was collected for the academic year '69-'70 for each of the five colleges involved in this study.⁵ All data was obtained from the administration of the college or its parent university during personal visits to the campus. At least two visits were made to each campus during the spring and summer of 1971. One visit was made to collect the basic data needed and a second or third visit was made to discuss and verify the data. Background material was also collected in either written or verbal form during these visits. Financial data for the parent university was also collected.

Type of Data Collected. The following are some of the procedures used for collecting specific kinds of data:

(1) Full-time equivalent faculty. The number of full-time equivalent faculty is determined from course schedules and faculty rosters for the academic year '69-'70.

⁵In three of the colleges the number of student credit-hours produced and instructional salary expenditures for the summer term were included in the data for the academic year. At College A the number of S.C.H.'s produced in the summer term amounted to 1.5 per cent of the total number of S.C.H.'s produced; at College C the summer term produced 3.3 per cent of the total number of student credit hours; and at College E the summer term accounted for 1.8 per cent of the total number of student credit-hours produced. In Colleges B and D there were no student credit hours produced in the summer and no additional instructional salary expenditures.

Every full-time appointment in the experimental college studied is counted as one F.T.E.F. and all part-time appointments are counted in proportion to their appointment in the college. In some situations where faculty members have no appointment in the college but contribute their time above and beyond their normal teaching load, the proportion of time they spend teaching in the experimental college is counted as a fraction of a F.T.E.F., based on the judgment of the investigator looking at the total work load for each individual.

(2) Full-time equivalent students. The number of full-time equivalent students is determined by dividing the number of student credit hours produced by a program by the number of credit hours constituting a full-time load. This latter figure is obtained from the college administration or catalogue and usually is thirty-two credit hours for students on semester schedules and forty-eight credit hours for students on quarter term schedules. All figures are calculated from '69-'70 class rosters.

(3) The ratio of F.T.E. students to F.T.E. faculty. The ratio of students to faculty is based on full-time equivalent figures for both groups in order to gain the greatest accuracy and consistency from one school to the next. The figure is obtained by dividing the number of F.T.E. faculty into the number of F.T.E. students.

(4) Course credit hours. Every course in the colleges studied is offered for a given number of credits.

The total number of course credit hours is determined by adding together all the credits for each course offered. When a new course appears, the number of credit hours for which the course is offered is added to the total number of course credit hours. If a course is offered for a variable number of credit hours, then the average number of credits for which the course is taken is used to determine the course credit hour value. All calculations are based on courses actually offered for the '69-'70 academic year. This figure is used to help assess the scope of the curriculum.

(5) The number of course credit hours per number of F.T.E. students. This figure is obtained by dividing the number of course credit hours by the number of F.T.E. students. The figure is used as a measure of the scope of the curriculum in relation to the size of the student enrollment. The figure shows a fractional number of course credit hours offered for each student. If the figure is used to compare one curriculum with another, either among different schools or over a period of years, it shows whether one curriculum is offering substantially more courses per student than another curriculum. This method of comparing curriculum has not been used in other studies, but has a rational validity.

(6) Class credit hours. Class credit hours are determined by summing the number of credits for which classes are offered. The procedure used for determining

credit hours of variable credit classes is the same as the procedure described above which is used to determine the credit hour value of courses offered for a variable number of credits.

If a course is divided into a lecture and several sections or labs with all students attending the lecture and splitting up for section meetings, then the course credit hours must be proportionately distributed between the lecture and each section meeting. For example, a course in history is offered for three credit hours, and each week students attend one lecture and divide into sections which meet twice a week. The lecture can be counted as one class for one credit, and each section listed in the class schedule can be counted as one class of two credits. This procedure avoids the problem of double-counting students who attend both the lecture and the section meetings, yet it counts fully each separate section or discussion class listed for the course.

(7) Student credit hours. The number of student credit hours for each of the colleges studied is determined by multiplying the number of students in each class by the number of credit hours for which the class is offered, giving the number of S.C.H.'s for each class. These figures are added together to give the total number of student credit hours for the entire term or year. Again, all figures in this study are from the '69-'70 academic year and are based on actual class rosters for that year in each of the schools studied.

(8) Average class size. One method of determining the average class size is to divide the number of student credit hours produced by the number of class credit hours produced in a program. This method was used in this study for all colleges.

(9) The percentage of classes with ten or less students. This figure is taken from class records for the '69-'70 academic year in each of the experimental colleges studied. It is given as a percentage of the total number of classes offered.

(10) Credit hours of independent study. This figure is also taken from class records of independent study classes, listing each student and the number of credits of independent study for which he had signed up. The total figure is the sum of all credit hours offered under independent study titles.

(11) Student credit hours per F.T.E. faculty. This figure is obtained by dividing the number of F.T.E. faculty into the number of student credit hours produced by each program studied for the '69-'70 academic year. It is used as the primary measure of faculty productivity.

(12) Total salary expenditure. In this study two methods were used to determine total salary expenditures attributable to instruction. In Colleges A and B actual salary figures were used to arrive at a total figure of salary expenditures. In the section on "Instructional

Costs"⁶ the method for allocating salary to instruction was described and need not be reported here. In Colleges C, D, and E, however, individual faculty salaries were not available and had to be determined on the basis of average compensation paid faculty in each rank for each of these three colleges. In these colleges, the number of full-time equivalent faculty in each rank was determined from faculty and class rosters and the average salary paid for that rank in each of the colleges was multiplied by the F.T.E.F. figure for that rank. The total salary expenditure for each college was the sum of these.

(13) Salary cost per student. This figure is obtained by dividing the number of F.T.E. students into the total salary expenditure for each of the colleges studied. It is used to give an indication of salary expenditure in relation to student body size.

(14) Cost per student credit hour. This figure is the basic measure of efficiency for an instructional program. It is derived by dividing the salary expenditure attributable to teaching by the number of student credit hours produced by the instructional unit.

(15) Percentage distribution of faculty by rank. The number or percentage of faculty in each professional rank is important in determining the total salary expenditure for a college. Data was collected from each of the colleges in

⁶See page 6 of this study.

this study indicating how many faculty were in each rank and percentages were figured from this data.

Analysis of Data. Because of the case study methodology used in this study and the limited number of colleges sampled, little in the way of statistical analysis could be done. However, the content of this study was analyzed in terms of the special problems that cluster colleges face in attempting to control costs. For example, cluster colleges have a special problem controlling costs because a great deal of the activity faculty undertake in these colleges does not produce student credit hours. The colleges also have difficulty determining their actual instructional salary expenditures because of the use of volunteer or loaned faculty. The types of problems are discussed and examples illustrating the problem are given for one or more of the colleges studied.

In addition to the analysis of content in terms of problems encountered, data was analyzed comparing and contrasting colleges. For example, a contrast is made between high cost control and low cost control colleges. The highest cost and lowest cost colleges are also compared.

Finally, data is compared from two sets of colleges with different educational aims. One set of colleges is concerned about teaching the content of a discipline, while the other set is concerned about student and community development.

Limitations. The primary limitation of this study is that only five cluster colleges are sampled. Because of the small size of the sample very little statistical manipulation of data is possible, and any generalizations made from the findings must be made with great caution.

A second limitation of this study is that it deals only with salary costs attributable to instruction and not the entire set of expenditures for each cluster college. Excluded are such items as any salary expenditures not attributable to instruction or its direct support.

Finally, this study does not take into account any differences in quality of programs offered at the various cluster colleges studied. This study looks only at quantified data about programs and costs without making judgments about whether program X is better than program Y. Other researchers have been working on the problems of measuring the quality of experimental programs,⁷ but few have addressed the problem of costs. It is hoped that this study will encourage others to include cost evaluation along with other evaluative measures so that a more balanced judgment can be reached about the overall value of the cluster college concept.

Organization of the Study. The material presented in this study is organized into four major sections. These

⁷Paul L. Dressel, The New Colleges: Toward an Appraisal (Iowa City, Iowa: The American College Testing Program and the American Association of Higher Education, 1971).

are: (1) background material and a review of the literature, (2) a description of the five cluster colleges studied, including their financial status, (3) an analysis of data, and (4) summary and conclusion.

The background material and review of the literature is presented in Chapter II. Much of the material is drawn from financial analyses of small liberal arts colleges. These institutions most directly correspond in size and program to the experimental cluster colleges, with the exception, of course, that the liberal arts colleges are fully autonomous and the cluster colleges are all semi-autonomous units within a larger university. From this literature six major factors affecting unit costs are noted and special attention is paid to these factors in the experimental colleges studied.

The descriptive section of this study is found in Chapter III. It describes not only the financial situation of each of the schools studied, but it goes into some detail about the purposes, curriculum, faculty and students of each program.

The analysis of the cost data for all five cluster colleges is presented in Chapter IV. It includes an analysis of special problems facing cluster colleges in trying to control costs and an analysis of some extreme contrasts found in the colleges.

Chapter V, the concluding chapter, presents a summary of the study and conclusions about the factors affecting

costs in experimental cluster colleges. Some suggestions about how these programs might economize are also included. Charts of much of the financial and curricular data for the five colleges studied are found in the first appendix for easy reference.

CHAPTER II

FACTORS THAT AFFECT INSTRUCTIONAL COSTS

In the past few years college and university administrators have become increasingly concerned about the costs of higher education. Because of an ever-tightening squeeze of rising expenditures and increased demands for services, these administrators have looked for new ways to economize without sacrificing the quality of the programs that they are conducting. Too often, however, economizing means borrowing funds from outside sources or transferring funds from one account (e.g., unrestricted endowment) to another (e.g., operating education and general budgets). Economizing can also mean deferring maintenance, increasing tuitions, or cutting out new programs.¹ Rarely does economizing mean more than short-term covering of an immediate crisis, resulting in long-term indebtedness, worn-out facilities, or decreased student populations.

One can make real moves toward economizing that will not have deleterious long-run effects, if he knows what factors actually affect costs and how these factors can be

¹Cf. William Jellema, "The Red and the Black" and Earl Cheit, The New Depression in Higher Education, op. cit., for a description of responses to the current financial crisis in higher education.

controlled. If there is slack in the instructional program of an institution, then a knowledge of how to control factors affecting instructional costs and the relative importance of each factor can enable one to make real economies that amount to actual dollar savings over the long run.

This chapter is an attempt to identify and weigh the importance of several factors that can be manipulated to produce long-term economies. Obviously, every situation is not the same, and an option that works in one setting may not be appropriate for a different setting. Over the years, however, enough research has been done to permit identification of several important factors affecting unit costs and the assessment of their effect in a variety of settings. The following sections discuss some of these factors.

The Benefits and Limitations of Cost Studies

In order to answer questions about the costs of any program, experimental or traditional, one can look at the expenditures of the program (either actual or projected) in terms of some quantitative measure of productivity. Although most faculty members do not like to think in quantitative terms about education, those who provide funds, nonetheless, be it the parent university or an outside foundation, want to know what they are getting for their money. By casting the expenditures of a program in

terms of a cost per unit of productivity, the administrator of a program can respond to those who provide the funds and satisfy himself that he is using the funds in the most responsible way possible.

The unit measure of productivity that is most often used is the student credit hour (S.C.H.). To determine the number of student credit hours produced in a class the number of hours of credit for which the class is offered is multiplied by the number of students in that class. The sum of all the student credit hours produced by all classes is the total student credit hour production for a given program.

The cost per student credit hour is the number of dollars it takes to produce one S.C.H. The number of student credit hours produced in a given year for a given program is divided into the number of salary dollars attributed to instruction in that program, resulting in a dollar amount spent to produce one S.C.H.

Although the calculation of unit costs may be essential to the understanding of how one can run an efficient educational program, there are limits to its usefulness. There are inevitable differences in the calculation of unit costs because of variations in tabulating S.C.H.'s and salary allocations. One institution may distribute a professor's salary on the basis of his appointment in a program, while another institution may distribute the same salary on the basis of the time attributed to teaching in

a program. For example, a person may be appointed one-quarter time in a program but devote one-half of his time teaching there. Unless there are similar procedures used to determine how a faculty member's salary is distributed to various activities, data from separate institutions can not be compared.

The only assurance against such variations in procedures is to use the same procedures in all the schools studied. Care was taken in this study to use exactly the same criteria for computing unit costs and comparing curricular data.

Cost analysis is only a tool and is not a substitute for good decision-making. A school run solely on the basis of principles of economy is not likely to attract many faculty or students. When an administrator is faced with the necessity of economizing, however, cost analysis is the one essential tool he needs to help him make the right decisions. Hopefully, the decisions he makes can be informed by sound educational principles, as well as by sound knowledge of the factors that influence costs.

Factors Affecting Unit Costs

Data on the cost per student credit hour, by itself, is not very useful. What does it mean if cost per S.C.H. is \$15 or \$30? Planners and administrators may want to know what factors make these costs go up or down. Enough research has been done to give fairly accurate knowledge

about the factors which influence unit costs. There are six major variables: faculty productivity, faculty salaries, average class size, the scope of the curriculum, overall enrollment, and the number of students per faculty member.

Faculty productivity. Faculty productivity can be measured by the number of student credit hours each faculty member produces. Several studies have found that instructional costs vary more because of the level of faculty productivity than any other factor. One study of small colleges found a correlation of $-.96$ between faculty productivity and costs. That is, the more S.C.H.'s produced per faculty member the lower the costs.² Another study, involving a group of institutions, most of which were large universities, found that 92% of the variance in instructional costs was explained by variance in "teaching assignment," which was a measure of student class hours per full-time faculty member.³ In a third study, without giving the percentage of variation, Thad L. Hungate, Richard L. Meeth, and William R. O'Connell show that as

²Earl J. McGrath, Memo to a College Faculty Member (New York: Institute of Higher Education, Teachers College, Columbia University, 1961), p. 30.

³California and Western Conference Cost and Statistical Study: For the Year 1954-55, [ed. by Donovan E. Smith] (Berkeley: University of California, [probable date of publication, 1962]), p. 16.

the number of S.C.H. per faculty member goes down, costs go up, based on figures from 25 liberal arts colleges.⁴

If one thinks of students as a source of income and faculty as a source of expense, then increasing faculty productivity can have two effects: either more students are taught by the same number of faculty, increasing the source of income, or the same number of students are taught by fewer faculty, decreasing the source of expense. Whichever alternative is chosen, increasing faculty productivity can lower the cost per S.C.H. The saving can help keep the institution in the black, or the increased income can be passed on to faculty members through salary increases.

The fact that faculty productivity is the major source of variation in unit costs may cause some consternation among cluster college faculty, especially those who feel that the quality of their program rests on close contact between faculty and students. For example, many experimental programs keep classes small in order to allow for more informal interaction in the classroom between faculty and students, or they limit faculty teaching loads in order to allow for more student-faculty contact outside the

⁴Thad Hungate, Richard Meeth, and William O'Connell, "The Quality and Cost of Liberal Arts College Programs: A Study of 25 Colleges," in Earl J. McGrath and Richard L. Meeth (eds.), Cooperative Long-Range Planning in Liberal Arts Colleges (New York: Institute of Higher Education, Teachers College, Columbia University, 1964), p. 25.

classroom. Both alternatives have the effect of lowering faculty productivity. If the program administrators can convince the donor of funds that low productivity as measured by student credit hours does not adequately represent the work load of its faculty, then funds may be forthcoming. In a period of scarce resources, such as we appear to be entering now, it may be much harder to convince the central administration or a foundation that low productivity is justified.

Faculty salaries. McGrath found that there was a high correlation between faculty salaries and the cost per S.C.H. in the 14 colleges he studied, $r = .91$, but this correlation was still not as high as the correlation between faculty productivity and costs, $r = -.96$.⁵ It is naturally assumed that high salaries will produce high unit costs, but such is not always the case. If faculty productivity is also high, then high salaries can be offered without increasing the cost per S.C.H. The California and Western Conference Cost Study found that there was no significant relationship between salary expenditure and cost per student class hour.⁶ Another study done in community colleges in Iowa found a low correlation,

⁵McGrath, Memo, p. 30.

⁶California and Western Conference Study, p. 21.

$r = .41$, between faculty salaries and cost per student.⁷

Part of the difference in the findings of these studies may be explained by the fact that the California and Western Conference Schools and the Iowa community colleges may have had higher levels of faculty productivity than the liberal arts colleges in McGrath's study, thereby offsetting the influence of salaries upon unit costs. In the liberal arts colleges studied by McGrath, the productivity of faculty may have been lower than in the other schools and, therefore, faculty salaries had a more significant effect on unit costs. The lack of comparability between the studies, however, leaves this hypothesis only in the conjectural realm at this point.

Experimental colleges are apt to reflect the patterns of costs found in liberal arts colleges more closely than those of the larger universities and community colleges. Therefore, faculty salaries are likely to have strong influence on cost per S.C.H., like the relationship found by McGrath in his study of liberal arts colleges. However, faculty salaries can be competitive enough to attract top faculty members without resulting in high unit costs, if the level of faculty productivity is high.

One way in which colleges have controlled the level of salary expenditure is by limiting the number of high-priced

⁷B. N. Cage and Richard P. Manatt, "Cost Analysis of Selected Educational Programs in the Community Colleges of Iowa," Journal of Educational Research, LXIII (October, 1969), pp. 66-70.

senior faculty. Some cluster colleges were planned with the idea of attracting a few high-paid "master" faculty members supported by a number of younger faculty members who are less experienced and expect lower salaries. Another way of keeping salary expenditures down is by making extensive use of teaching fellows and undergraduate aides to help with teaching. College B in this study has employed yet a third way of controlling costs. It has been able to use faculty from other colleges within the parent university to teach on a short-term basis, with the faculty member's own department picking up his salary. This arrangement does not actually cut down on the university's costs, but the use of these faculty members does lower the budget costs for College B.

Average class size. The most important factor in controlling unit costs is the maintenance of a high level of faculty productivity. Even with high faculty salaries costs can be kept low if the level of faculty productivity can be kept up. One way to increase the level of faculty productivity is by giving every teacher another class. However, the size of those classes is as important in the determination of faculty productivity as the number of classes taught by an individual faculty member. A faculty member teaching five courses of thirteen students each is producing fewer student credit hours (195) than a faculty member who is teaching four courses of twenty students each

(240), assuming that all courses are offered for the same number of credits (three each, in this example).

When considering average size of classes, special attention can be given to the extremely small classes that lower the average class size. The number of classes with ten or less enrollees, for example, can be examined to determine whether they are skewing the distribution of class size. The number of small classes that are repeated from semester to semester deserves close examination, as they could be boosting costs unnecessarily.⁸

In spite of the fact that increasing class size is an effective way of raising faculty productivity, the California and Western study found that the size of classes accounted for less than 20% of the variance in unit costs.⁹ A partial explanation of the low correlation between class size and costs may be found in the fact that when teachers have small classes they tend also to have larger teaching loads, at least according to the findings of McGrath. He found a high correlation between small class size and high levels of faculty productivity, $r = .85$. McGrath concludes:

Within limits these figures can be interpreted to mean that institutions with comparatively small average class size had comparatively large average

⁸Thomas C. Holy, Hubert H. Semans, and Theodore R. McConnell, A Restudy of the Needs of California in Higher Education (Sacramento: California State Department of Education, 1955), p. 457.

⁹California and Western Conference Study, p. 21.

teaching loads. To a degree, therefore, the faculty pays the bill for small classes by working more hours per week.⁽¹⁰⁾

The fact that a program has a small average class size, then, does not necessarily mean that unit costs are going to be high, but, unless faculty members are teaching more classes than the average, low class size may affect unit costs adversely.

The problem of semi-autonomous experimental colleges, as well as many liberal arts colleges, is that small class size is often equated with quality education. Some writers who are primarily concerned with economies in higher education point out that there is no conclusive evidence that small class size improves learning. They argue, generally, for an increase of class size to help internal efficiency of operation, saying that small classes are suitable only under special circumstances.

However, the most recent research on teaching seems to place some qualification upon the general assumption that class size makes little or no difference to educational outcomes. If one is concerned with traditional outcomes of recall of factual material, then, indeed, class size seems to make no difference, or, in some situations, large classes seem to be better in achieving this goal. When one considers such outcomes as retention, problem-solving, and attitude differentiation, however, "the weight of the

¹⁰ McGrath, Memo, p. 30.

evidence clearly favors small classes."¹¹ There are, however, many intervening variables that seem to affect the academic outcomes in addition to the factor of class size, according to McKeachie. He says that the effect of class size depends upon the methods used and the type of student in the classroom. He concludes, "our analysis of research suggests that the importance of size depends upon educational goals."¹² Large classes may be as good or better for conveying factual knowledge, but small classes are clearly preferable if one wishes to improve the student's retention, critical thinking, and attitude change.

The goals of most experimental cluster colleges tend more toward the development of the powers of retention, critical thinking, and attitude change, hence cluster colleges are likely to prefer small classes. Unless some balance is maintained between small and large classes in these programs, the predominance of small classes may raise their unit costs.

Scope of the curriculum. In the previous section it was pointed out that two things affect faculty productivity--class size and the number of classes taught by each faculty member. Although it is economically desirable to maintain a high level of faculty productivity, most teachers

¹¹Wilbert J. McKeachie, Research on College Teaching: A Review, Report No. 6 (Washington, D.C.: ERIC Clearinghouse on Higher Education, 1970), p. 1.

¹²Ibid., p. 2.

agree that adding another course to their load is considerably more burdensome than adding a few more students to an existing class. When a new course is added to a program, a new faculty member may be brought in to teach it, rather than giving the course to an already overworked faculty member. If the process of adding courses goes on indiscriminately, without bringing in new students or new sources of funds, the effect of these new additions is to increase the amount of money needed to teach the same number of students. In order to pay the additional faculty members, more funds are required and unit costs go up.

Several studies have found wide variation in the number of courses taught by similar instructional programs. Although one would expect more courses to be offered in the larger programs, McGrath found no relationship between the number of students enrolled and the number of courses offered in the 14 liberal arts colleges studied, $r = .05$.¹³ The small colleges offered the same number of courses as large colleges two and one-half times their size. The same kinds of findings were reported by Hungate, Meeth, and O'Connell.¹⁴ Suggesting that course proliferation has an effect on costs, McGrath found that there was a positive but not significant correlation between the number of credit

¹³ McGrath, Memo, pp. 9-10.

¹⁴ Hungate, Meeth, and O'Connell, "Quality and Cost," pp. 12-13.

hours offered in a program and the unit costs, $r = .30$.¹⁵ If enrollment is held constant the correlation is somewhat higher, $r = .50$, but it still does not reach a significant level.

Course proliferation may not be too serious unless it is associated with a light teaching load and small classes, as noted by Holy, Semans, and McConnell.¹⁶ Such a relationship has been established by McGrath, who found a positive but not significant correlation between the number of courses offered and the number of classes of ten or less, $r = .414$.¹⁷ If the scope of the offerings is too large, classes tend to be small and faculty productivity low, all other factors being equal.

A recent study by Bowen and Douglass dramatizes the effect of proliferation of curriculum on unit costs.¹⁸ Although these authors did not use data from actual colleges and universities, they assumed the existence of a liberal arts college with 1,200 students and 100 faculty members. Through a detailed process of cost accounting they assigned costs to a variety of curricular organizations, including a conventional plan, Ruml's plan of several large lectures mixed with small discussion groups, three plans of

¹⁵McGrath, Memo, p. 30.

¹⁶Holy, Semans, and McConnell, Restudy, p. 454.

¹⁷McGrath, Memo, p. 16.

¹⁸Howard R. Bowen and Gordon K. Douglass, Efficiency in Liberal Education (New York: McGraw-Hill, 1971).

independent study, and, finally, an eclectic plan embodying aspects of all the other modes of instruction discussed. Within all of these curricular plans the crucial variable affecting unit costs was the degree of proliferation of course offerings. Bowen and Douglass estimated that a standard education conducted by conventional means costs \$60 per S.C.H. (They use a unit of average cost per student enrollment in one class, but for the sake of comparison with other data in this study, that figure was converted to cost per S.C.H. by dividing their unit cost by four--the number of credits for which each course is offered). If the number of courses offered is reduced to represent a low level of proliferation, holding all other factors constant, then the cost per S.C.H. is reduced to \$42.50, the lowest cost under any of the plans (except the plan in which every cost is cut to the bare minimum). The proliferation of courses in this theoretical model affects unit costs more than any other single variable.

The proliferation of courses can be controlled in the semi-autonomous experimental colleges, because they are relatively new institutions and have not had time to add new courses at an undesirable rate. Also, the fact that some cluster colleges have a conscious philosophy of education ought to provide a unifying direction for the curriculum. On the other hand, a new, experimental program may expand its course offerings rapidly in an attempt to "cover the field" adequately. Nor is a unified philosophy

any guarantee that the scope of the curriculum will be kept in bounds. With the increased emphasis on "do your own thing" curricula, it may be more difficult to control the scope of offerings in experimental colleges than it is in conventional programs.

One of the greatest economic dangers for the experimental colleges could be the proliferation of courses through increased demands for independent study-type courses. If such independent study courses are truly independent of faculty, then they cause no problem, but in most cases the student asking for an independent study program expects direct and often constant attention from his favorite faculty member. If the faculty member counts his independent study arrangements as part of his teaching load, desiring to devote adequate time to preparation and discussion with his students, then all of his time may be used to teach a dozen students. The majority of faculty members, however, take on independent study assignments as "overload" work, and, consequently, they may be substantially overburdened and inadequately prepared for both their regular courses and their independent study sessions.

Size of enrollment. In planning an experimental college one of the first questions that may arise is the question of overall size. One desires a program that is small enough to allow a sense of community to develop, but large enough to allow for sufficient diversity of course offerings. Enough research has been done on the effect of

enrollment size in autonomous colleges to give a fairly good idea about the relationship between size and unit costs, but the application of these findings to semi-autonomous cluster colleges must be done cautiously.

One of the earliest studies of the costs of higher education showed that there was a steady decline in efficiency of operation as the size of an institution fell below 1,050 students.¹⁹ Above the 1,050 mark there was little difference in unit cost. Other studies since then have shown essentially the same relationship between size and costs. McGrath found a negative correlation of $r = -.49$, which was not statistically significant. The correlation increased to a statistically significant level of $-.61$ when salary level was held constant, clearly establishing the relationship of higher unit costs and small enrollment size.²⁰

Small enrollment is often accompanied by other variables that have a direct bearing on costs, such as class size, a large number of small classes, and high administrative costs.²¹ Russell explains the effect of small enrollment on costs by pointing out that smaller institutions of higher education must spend proportionately more on administrative functions, which must be performed

¹⁹John Dale Russell and Floyd W. Reeves, The Evaluation of Higher Education, Vol. VII, Finance (Chicago: University of Chicago Press, 1935), Table 3, pp. 26-27.

²⁰McGrath, Memo, p. 30 and 32.

²¹Aaron J. Brumbaugh, Establishing New Senior Colleges (Atlanta, Ga.: Southern Regional Educational Board, 1966), p. 71.

regardless of size.²² Russell says that these administrative functions begin to operate efficiently when the student body exceeds 1,000.

In an experimental cluster college within a large university, many of the administrative functions that Russell discusses may be handled by the central administration, resulting in a certain "savings" to the semi-autonomous unit. Stewart and Hartley have shown that real savings can come from inter-institutional cooperation as demonstrated at the Claremont Colleges.²³ They do not show, however, what happens to costs when an experimental curriculum is part of the cooperative arrangement. One suspects that the semi-autonomous experimental units benefit from their semi-attached status, avoiding not only some administrative expenses, but also expenditures for such items as large libraries and laboratory facilities that are borrowed from the parent unit at less cost than would be expected if such facilities were built from scratch.

The size of the enrollment of an experimental college attached to a parent institution is important insofar as it is accompanied by other high cost factors, such as small

²²John Dale Russell, The Finance of Higher Education, revised edition (Chicago: University of Chicago Press, 1954), pp. 135-136.

²³"Financial Aspects of Interinstitutional Cooperation: Unit Cost in Cluster and Non-Cluster Colleges," in C. Fincher (ed.), Institutional Research and Academic Outcomes: Proceedings of the 8th Annual Forum of the Association for Institutional Research (San Francisco: The Association, 1968), pp. 171-180.

classes and low faculty productivity. However, size may not be as important a factor in semi-autonomous programs as it is in a fully autonomous liberal arts college.

Student-faculty ratio. The average number of students taught by each faculty member, the student-faculty ratio, is sometimes used as an assessment of faculty productivity. Although the student-faculty ratio can be misleading if large numbers of faculty members are involved in non-teaching activities, nonetheless, changes in this figure can have a direct effect on unit costs.²⁴ For the nation as a whole Seymour Harris estimated that an increase in student-faculty ratio from 13:1 to 20:1 would result in an annual saving of \$2 billion.²⁵ More recently, Chester Alter, former chancellor of the University of Denver, pointed out that a change in the national average student-faculty ratio from 15:1 to 20:1 would save colleges and universities some \$4 billion by 1980.²⁶

Moon has shown that by increasing the student-faculty ratio in one institution from 9:1 to 16:1 a reduction of faculty from 166 to 93 was possible. This reduction saved the institution considerable money in salary expenditures and allowed some savings to be passed on to remaining

²⁴Hungate, Meeth, and O'Connell, "The Quality and Costs," p. 12.

²⁵Seymour Harris, Higher Education: Resources and Finance (New York: McGraw-Hill, 1962), p. 522.

²⁶John A. Crowl, "Private Colleges Mapping Drive for More Funds," Chronicle of Higher Education, Jan. 18, 1971, p. 3.

faculty members. Moon showed how this increase in the number of students per faculty was achieved with minimal increase in class size and actual reduction in teaching load.²⁷

John Dale Russell showed that a program with a \$350,000 budget for faculty salaries could have a student-faculty ratio of 10:1 requiring 100 teachers for 1,000 students and yielding an average faculty salary of \$3,500. Or, this same program could have a ratio of 20:1 requiring only 50 faculty members for 1,000 students. Under this last arrangement the average faculty salary could be raised to \$7,000 without increasing tuition.²⁸

The student-faculty ratio can be an important element to watch in cluster colleges desiring to control costs. Such colleges have a high proportion of their faculty directly involved with students, and only a few doing research or other non-teaching functions. Thus, the student-faculty ratio gives a fairly accurate picture of the number of students involved with each faculty member. Faculty salaries determine the cost element in the cost per student credit hour, and student-faculty ratios determine the number of faculty needed in a program. Therefore, the student-faculty ratio has a direct relationship to the unit cost of a program and is one factor

²⁷Rexford G. Moon, "Beating the High Cost of Low Ratios," Liberal Education, LVII (May, 1971), pp. 160-166.

²⁸John Dale Russell, The Finance of Higher Education, rev. ed. (Chicago: University of Chicago Press, 1954), p. 165.

that can be manipulated to control costs in a cluster college.

Other factors influencing cost. Other factors that will not be covered in detail in this study should be mentioned at this point, although they will have less influence on costs in experimental cluster colleges than other factors. The level of course offerings (lower, upper, and graduate levels) will be important in some cases; however, the significant cost differential comes between the upper and graduate levels, a factor which does not affect experimental colleges involved only in undergraduate programs.

Another factor that can be expensive to a program is a high dropout rate. Holy, Semans, and McConnell pointed out that the high turnover of students in the California State Colleges had a detrimental effect on institutional expenses.²⁹ In experimental colleges many students return to programs in the parent college, but the dropout rate of those who leave the university completely is not any higher than the parent institution's rate.³⁰

There are also differences among various disciplines that could make a difference in cost in some programs. The sciences and languages are often cited as being more

²⁹Holy, Semans, and McConnell, Restudy, p. 121.

³⁰For a full discussion of dropout rates in individual colleges see Chapter III (sections on "students").

expensive programs. In reality, it is not the discipline that causes costs to vary, but the teaching methods and class sizes associated with certain disciplines that are the determining factors. One discipline costs about the same as the next if one holds constant equipment and library costs, class sizes, faculty salaries and teaching load.

Perhaps the most significant undiscussed factor of all in determining unit costs is the degree of planning and forethought that goes into a program. Unplanned proliferation of courses, uncontrolled class size and teaching loads, inequitable salaries or lack of consideration of overall size can cause costs to skyrocket to a threatening degree. Planning can be done not only in the area of educational goals but also in the area of cost analysis, for the responsible implementation of educational goals depends upon thoughtful consideration of the factors affecting costs.

In many institutions offices of institutional research and long-range planning have been set up to consider such cost factors,³¹ but often such projects are designed to meet the needs of the central administration and do not provide the information needed by the heads of instructional units. Thus, when information is made available to individual units, it may be in a form that makes little sense to

³¹Paul Dressel and Associates, Institutional Research in the University (San Francisco: Jossey-Bass, 1971).

the department chairman who is unfamiliar with the procedures used.

State and regional planning boards are making progress in developing information systems and budget formulas that can aid planning,³² but, again, the usefulness of this material to individual departments and programs may be limited. Often the information collected on the state or regional levels summarizes a great deal of information from individual colleges and universities without giving enough detail to aid the individual department. Colorado and Oklahoma are two exceptions to the rule, providing detailed information to all schools and departments, but they are relatively small systems compared to the other 48 states.³³

Some interesting programs are being developed for small colleges in the area of planning, with the help of

³²For example, The Resource Requirement Prediction Model of the Western Interstate Commission for Higher Education. cf. also James L. Miller, Jr., State Budgeting for Higher Education: The use of Formulas and Cost Analysis (Ann Arbor: Institute of Public Administration, University of Michigan, 1964).

³³Colorado Commission of Higher Education, Analysis of Operating Expenditures for Public Higher Education in Colorado: 1960-1 to 1966-7 (Boulder, Colorado: The Commission, 1967); and State Regents for Higher Education, Faculty Teaching Loads and Student-Credit-Hour Costs in the Oklahoma State System of Higher Education: 1964-65 Academic Year, by John J. Coffett (Oklahoma City, Oklahoma: State Regents, 1966).

computer simulation models.³⁴ With a computer ten-year projections can be made, using a large number of factors which influence costs. These programs are able to give accurate and detailed projections about future costs, based on previous experience. If the experimental cluster college can do accurate planning and accounting of its costs, then it should have less difficulty securing funds, once the parent body has agreed to accept the principles behind the experiment. If these programs are to survive the experimental stage and make a lasting contribution to higher education, responsible planning and accounting will help achieve that end.

Conclusions

As much as faculty members dislike thinking of themselves as being responsible for a product costing money, nonetheless, the computation of costs in an educational program is essential to the control of costs. Such money-oriented language is used only to facilitate the responsible accounting of instructional costs and should not be allowed to determine educational considerations. It is important for faculty and administrators alike to

³⁴Robert G. Cope, "Simulation Models Should Replace Formulas for State Budget Requests," College and University Business, March, 1969, pp. 30-34; and Edwin Etherington and Richard F. Vancil, "Systems and Simulations: New Technology Goes to Work on Decision Making," College and University Business, March, 1969, pp. 55-62.

account for funds: for the faculty member because responsible use of funds affects his salary, for the administrator because it is his job. Such responsible accounting becomes increasingly important to the semi-autonomous experimental college as the financial crisis in higher education continues into the 70's. The charm of newness eventually wears off the experimental unit, and those outside its community begin to ask where the money is going. Therefore, this is a crucial period in which to begin thinking about controlling costs.

The essential factor that affects costs more than any other is the level of faculty productivity, which is determined by class size and the number of classes taught by each faculty member. The more student credit hours produced by the faculty, the lower the unit cost. Another important factor in setting unit costs is the level of faculty salaries. Although not as important as level of productivity, average salary for a program determines the dollar element in the cost per S.C.H. formula and has a direct influence on cost, all other factors being equal. However, low salaries can be raised without increasing unit costs, if faculty productivity is also raised. Factors such as class size, the scope of the curriculum, overall enrollment, and student-faculty ratios are also important. Each of these factors can be manipulated in an effort to control costs, and the variety of options open to experimental colleges will be discussed in the following chapters.

CHAPTER III

AN ANALYTICAL DESCRIPTION OF FIVE CLUSTER COLLEGES

In this chapter a description of each of the five cluster colleges represented in this study is given. Every description is preceded by a summary of the major characteristics of the school for quick reference. In order to maintain anonymity of the colleges and universities they are referred to only by their alphabetical names. Where necessary, the footnotes are also adjusted to hide identities. The identities of the schools will be released by the author only with the consent of the schools involved.

College A

Summary. College A is the oldest of the cluster colleges studied. It exists in an urban university, and, unlike the other colleges, the students of College A are commuter students. The curriculum of the College places a strong emphasis on General Education, providing students with a broad background in the liberal arts. The scope of the curriculum is relatively limited, consisting mostly of a small set of core courses and a few electives. Independent study is encouraged only after the faculty feels that the student has properly prepared himself. Students have

tended to drop out of the program at a high rate, but this may be more a function of the kind of student attracted to the University than anything else.

Financially, College A spends \$38 to produce one S.C.H. This is nearly twice the cost in the liberal arts college of the University, which spends \$19.76 to produce one S.C.H. One of the reasons for high unit costs in College A is the fact that it has a high proportion of its faculty in high-paying senior ranks, making the salary cost per student the second highest of all the experimental colleges studied. Other factors, such as relatively high faculty productivity and small scope of curriculum work to reduce unit costs, but College A remains the second most expensive of the cluster colleges studied.

Purposes. College A, the oldest of the sub-colleges under study, began in 1958 as an experimental unit of a large urban university (AA University). The College received support not only from the University but also from the Ford Foundation, which was interested in encouraging a program of General Education in a commuter school. In addition, the Ford Fund was interested in examining an economic question; "Could a college lower its costs through the development of independent studies among advanced students, making it possible to have small classes at the

freshman and sophomore levels?"¹ Unfortunately, the economic question was never answered, forgotten, perhaps, in the pressure to build a new curriculum, hire faculty, and recruit students.

The part of the contract with Ford that was not forgotten was the emphasis on General Education. In the founding documents and in every publication of the College since its beginning, one finds phrases reminiscent of the Yale report of 1828. The founders said that the purpose of the College is ". . .to impart to undergraduates, particularly those in training for the professions, that common body of ideas and knowledge that every educated man should possess."² In spite of the fact that many students in the College reflect typical commuter student values oriented toward vocational and professional preparation, they seem to accept the "classical notion of general education". In a student publication attempting to bridge the gap between the official college catalogue and students' experiences, student writers said that the idea of general education was an "integral part" of College A's curriculum, and that the imparting of essential knowledge was important to the

¹A published study of College A by three scholars in the field, 1970. Source and page numbers available upon request, with permission of College A.

²Ibid.

development of a "competent, creative, aware, wise and cultivated individual."³

The development of the individual and a sense of intellectual community represents another side of College A's purpose. In the College Bulletin, it is stated that:

[College A] represents the fusion of two aims of higher education. Its curriculum is designed to provide the essential general, liberal education which every educated man should possess. Its organization is that of the small college which fosters the development of a sense of intellectual community.⁽⁴⁾

The Bulletin goes on to emphasize the values of smallness in building a close relationship between students, faculty, and courses, heightening the student's motivation in acquiring knowledge.

Begun at a time when the country was still feeling the pressure from Sputnik to improve its educational quality, College A attempted to provide a rigorous curriculum informed by the principles of General Education. At the same time, the founders wanted to exploit the benefits inherent in a small college and provide an alternative to impersonal specialization typical of many graduate-research oriented universities. Yet, they wanted to maintain a high standard of academic excellence, which is not usually found in a large urban university.

³"[College A] Collage" (Mimeographed essays on College A by faculty and students, 1967-68), p. 2

⁴[College A; AA University] Bulletin; 1969-1970
(AA University, 1969), p. 5.

The curriculum. The desired product of the union between General Education and personalized education is a student who has intellectual independence and initiative. Because of this desire for developing self-starting students, the curriculum of College A places heavy emphasis on independent study, especially in the junior and senior years. The College Bulletin says that "[the College A] student's progress through college should be marked by increasing ability to work independently, so that by the time he graduates he will have developed those habits of reading, study, and reflection which enrich life."⁵ One might question whether or not every student leaving College A has an enriched life, but if there are a few who slip into doltish habits after graduation, it certainly would not be because the curriculum failed to provide opportunities to develop independence.

Each student in the College must take the last quarter of one of the three basic courses without significant instruction. Before he works independently, however, he must have had at least four quarters of training in the area in which he wishes to work. Knowing at the onset of his college career that he must eventually work independently helps orient the student's work and thinking toward greater independence, and, coupled with some structure and faculty guidance during the independent period of work,

⁵Ibid., p. 5.

this program has met with considerable success, according to its promoters.⁶

In addition to taking the last term of one of the core courses independently, students in College A are encouraged to work independently with faculty in areas of special interest. Also, a program of group independent study has been developed to allow students to develop their own courses that they can teach to other interested students. With the approval of a divisional chairman and a faculty sponsor, the student can develop his interests with others, sharing what knowledge he has and finding new stimulation in the process of discussing his ideas with his peers.⁷ Finally, any student wishing to receive a degree with a College A major must write a senior essay which requires three or more terms of independent research, writing and/or creative effort. With this combination of independent study opportunities, College A has more credit hours of independent study offerings than any of the colleges in this study.⁸

Independent study for College A does not mean that the student is shown the library and told to go to work. The Dean of the school has emphasized the importance of

⁶Article by the Dean of College A in North Central Association Quarterly.

⁷Unpublished report of independent study program, issued at College A, 1964.

⁸Appendix A, Figure 10.

structure and proper preparation of students for independent study, and one faculty member emphasizes the same point in discussing the development of the independent study program. He says that in the first term of operation they let students be completely independent. During the second term they made independent study more structured, because students put off their work until the last minute. The third term students were required to give feedback throughout the term, so they were not left to pace themselves.⁹

This progression from complete independence to some structure, to more structure, illustrates one of the ironies of the economic question raised by the Ford Foundation. In the words of one scholar, "independent study is rarely independent and not inexpensive."¹⁰ Only a few highly motivated students can be shown the library and turned loose. Most students need to spend time with faculty members for guidance and encouragement. Furthermore, insofar as independent study places increased demands upon faculty time, the faculty member is either going to find himself overworked, or allowances will have to be made for the time he spends with individual students, cutting down on his student credit hour production. In fact, at College A, after a few terms of operation, faculty

⁹A published study of College A.

¹⁰Ibid.

members complained so much about the time they had devoted to individual student projects that a downward adjustment was made in their teaching loads.¹¹ When a college encourages close student-faculty relations, close loyalties between students and their favorite faculty member will develop in such a way that even highly independent students will want to discuss their projects and ideas at length with their faculty friends. The end result will cost the college money, unless other options, such as increasing class size, are taken to compensate for reduced faculty work loads.

In spite of the fact that College A offers a large number of independent study opportunities, they also require a large portion of basic, core courses. About half of the student's time in his freshman, sophomore, and senior years is taken meeting the school's requirements, while a quarter of his junior year is spent fulfilling such requirements. The required courses are in the three basic areas of Humanities, Natural Science, and Social Science. Other required courses are a freshman seminar and a senior seminar.

The required courses not only provide the student with the "knowledge that every educated man should possess," but they are also viewed as providing a unifying experience for all students. The faculty members hope that by having

¹¹ Interview with the Executive Secretary of College A, July, 1971.

students take the same courses at the same time, there will be an additional stimulation to talk with others about the course outside the classroom. In a large urban university in which most students work part time and live at home, there is minimal opportunity for one student to know another student who is taking the same class, under normal circumstances. College A hopes that by providing a common curriculum and a center in which students from the College can meet between and after classes, students will discuss topics of interest that have been raised in the classroom. Not being able to offer a residential setting in which students can live and learn together, College A has provided a strong, unifying curriculum to help stimulate positive peer interaction.

The desire to provide a unifying experience for students through the curriculum was written into the original founding documents of College A. The founders proposed that each of the three core courses simultaneously teach a common epoch, such as 5th Century Athens or 20th Century America. Thus, one course would be discussing science of the period, another the philosophy, art and literature, and the third course the political, economic and social structures of the age.¹² The courses in the Humanities and Natural Sciences have generally followed the historical sequence suggested by the founders, although they are not consciously

¹²A published study of College A.

coordinated. The Social Science Division rejected the historical and philosophical role they were assigned originally, preferring to deal with contemporary problems of wide appeal.

College A is divided into three divisions instead of several departments providing an additional impetus for unification. Within the Humanities Division, for example, all forms of art are treated, from painting and sculpture to drama and literature. Instead of breaking the curriculum into small, independent departments, the faculty at College A make special effort to show the interrelations of form and content in historical periods under study. The Natural Science Division also emphasizes the relationship between the historical development of scientific theory and their social context. Not meant for science majors or the future scientist, the sequence of courses in this division does provide basic background in the sciences appropriate to the well-educated man.

The Social Science Division largely rejected the historical approach, feeling that the essential knowledge of the well-educated man comes more from studying contemporary problems and less from reading historical documents of great economists or sociologists. The curriculum of this division moves from the study of the simple to the more complex levels of social organization, beginning with discussions about small group behavior and going through discussions of socialization, differentiation, complex

organizations and social movements, and ending with a discussion of the social make-up of the entire civilization.

Faculty and Students. Although this study is more concerned with the financial implications of various curricular alternatives developed in experimental colleges, there is still a need to understand student and faculty characteristics for two reasons. First, the type of curriculum that is developed in a college will have a strong effect on the kinds of students and faculty that are attracted to the program. Second, the students and faculty that come will have a decisive role to play in making future decisions about educational alternatives which may influence economic factors. The faculty has an especially important voice in how the college program will be implemented, and, in fact, it may make major shifts in direction away from the original plans of the founding fathers. Some scholars have pointed out the importance of careful faculty recruitment in colleges they studied:

(No college studied) had enough lead-time to consider carefully what sort of faculty might contribute to filling out plans that were still vague. Yet it was this hastily acquired faculty, once arrived on the scene, who would take the control out of the hands of the founding fathers.(13)

One has already seen, for example, how the Social Science faculty changed the plans for the founders in their division.

In the recruiting of faculty at College A, the original recruiters did not focus on getting faculty who had attended

¹³Ibid.

innovative institutions during their undergraduate years. The faculty tended to come from highly selective undergraduate colleges and top graduate schools. At the same time 58% (11 out of 24) of the original faculty did not have Ph.D.'s, indicating a willingness on the part of recruiters to take a chance with those not yet holding the acceptable union card.¹⁴

Because the curriculum called for the teaching of non-specialized and novel interdisciplinary courses, the the faculty recruited tended to be closely tied to their disciplines and eager to establish themselves in their fields. They rejected, often with some misgiving, the purposes and rules of a specialized discipline, particularly that discipline's standards of defining a career.¹⁵ In spite of their lack of loyalty to departmentalism, the college has been able to promote faculty members to tenured positions on the basis of teaching ability as well as scholarly contribution.¹⁶

Although the faculty tended to reject the career patterns of departmental teachers, nonetheless, they had an important influence on students, motivating them to choose graduate school as the next step in their training. In the first graduating class 80% of the students went on to

¹⁴Ibid. As of 1969-70, 63% held Ph.D.'s.

¹⁵Ibid.

¹⁶Ibid.

graduate or professional schools. Subsequent years have shown a decline in that figure, but College A still sends a higher proportion of students to graduate schools than other commuter universities.¹⁷

Despite its high record of attainment in sending students to graduate school, a large proportion of students never reached the point of graduation from College A. After four years of operation only 19% of the entering class graduated. The average stay at AA University, however, is about seven years, because students spread out their work to accomodate part and full-time jobs. After six years College A had graduated 33 per cent, which is only slightly below the proportion graduating from AA University (38 per cent).¹⁸ Nationally, for the class of 1961 (the year prior to College A's first graduation), 50% graduated in four years from all institutions of higher education.¹⁹

From an economic point of view high attrition rates can be a problem, although they need not be so if proper planning is done. One has difficulty measuring the cost of dropping out to individual students, but from an institutional point of view the cost of high attrition

¹⁷Ibid.

¹⁸Ibid.

¹⁹U.S. Department of Health, Education, and Welfare, National Center for Educational Statistics, Digest of Educational Statistics, 1970 Edition, by Keneth A. Simon and W. Vance Grant (Washington, D.C.: Government Printing Office, 1970), p. 8.

rates can be directly measured when the college suddenly discovers that 50% of its freshman class does not return for a second year, thereby reducing sophomore classes by one-half. Although some of the loss in enrollment can be made up in transfer students, many of the experimental colleges, including College A, take few transfer students because of the highly structured nature of their programs. If the attrition continues beyond the first year, as it does at College A, the total enrollment may drop below the point of economic viability.

The problem associated with attrition can be avoided, however, with proper planning. If one can anticipate high attrition rates, enough freshmen can be accepted to assure sufficient numbers at upper division levels, and faculty work loads and curriculum can be arranged so as to assure maintenance of adequate class size. On the other hand, high attrition rates may call into question the value of the program for the students it is supposed to be serving and more serious evaluation may be necessary.

In spite of the high attrition, scholars in the field feel that College A has an impact on its students similar to the impact found at other colleges, particularly the elite colleges.²⁰ Before one can judge the impact that College A has on its students, however, one must look at the kind of student with which the College started. From

²⁰A published study of College A.

the College Bulletin one reads that "[College A] is designed to serve two kinds of students; those who wish to take a degree in general education, and those who, while desiring to acquire a good basic general education, wish to specialize in a subject or to prepare themselves for a profession."²¹ Because of the urban-commuter nature of AA University, the students attracted to the University and subsequently to College A tend to have their emotional center of gravity at home with neighborhood friends and outside jobs. Unlike an honors program or elite independent college, the students of College A do not see themselves as privileged youth searching for knowledge or identity, and, yet, the implicit assumption of the founders of College A was that these students would be interested in material of high intellectual quality.²²

Undoubtedly, the emphasis placed on General Education and high intellectual quality served to screen out certain, vocationally oriented students, just as it served to screen out highly professional faculty. Upon testing, the first students entering College A reflected characteristics not unlike most cluster college students.²³ They were somewhat more academically oriented, better prepared and more

²¹[College A] Bulletin, 1969-70, p. 13.

²²A published study of College A.

²³Paul Heist and John Bilorusky, "A Special Breed of Student," in Jerry G. Gaff and Associates, The Cluster College (San Francisco: Jossey-Bass, 1970), pp. 71-104.

adventurous than the average student in the liberal arts college of AA University.²⁴

In later years College A has not become an elite school. There have been fewer students from the top two-fifths of their high school class, although their average test performance has improved. The proportion of students from college-educated families has not increased dramatically, and, although there has been an increase in the number of students from professional families, there has been a similar increase in students from blue collar families.²⁵

After four years of operation College A students showed changes in certain characteristics similar to students in the liberal arts college of AA University. Seniors in both colleges showed increased reflectiveness, intellectual orientation and greater maturity and flexibility. In contrast to the liberal arts students, College A students were more restrained, indicating that students who lacked self-discipline and control did not last at the College, unable, perhaps, to handle the academic demands and unstructured nature of the program.²⁶ Again, one is struck by the fact that the College not only attracted certain kinds of students initially, but it also continued

²⁴A published study of College A.

²⁵Ibid.

²⁶Ibid.

to select those who could best handle the work and atmosphere it had to offer.

Economics. College A has taken certain options about running its program, and the decisions of administrators and faculty have affected the control of costs in the school. Some of the decisions have been made consciously, such as the decision to have small classes and a large number of independent study offerings, while other decisions may have been made less consciously, seemingly forced on the College because of the length of time it had been in operation. In the latter category of decisions one might include the College's policy on tenure and the high number of administrative positions in the College, which have resulted in higher cost per student credit hour. The unbalanced distribution of faculty by rank and the high number of administrative positions give College A the highest total instructional salary costs of any experimental college in this study and the second highest cost per student credit hour.

Before comparing the figures for College A and the other experimental colleges in this study it is necessary to look at some descriptive facts about College A. Table 1 shows that the College has about 31 full-time equivalent faculty and 412 full-time students, giving a student-faculty ratio of 13.20:1, which is the highest ratio of all the colleges studied. The size of the staff and

TABLE 1.
DATA ON CURRICULUM AND COSTS FOR COLLEGE A
ACADEMIC YEAR '69-'70

Faculty and Students

1. Full-time equivalent faculty.	31.20
2. Full-time equivalent students	412.50
3. Student-faculty ratio	13.2:1

Curriculum

4. Number of course credit hours	123
5. Course credit hours per F.T.E. student.	0.298
6. Number of class credit hours.	1045
7. Number of student credit hours.	12,994
8. Average class size.	12.80
9. Per cent of small classes (10 or less students)	35.0%
10. S.C.H.'s of independent study	1853

Cost Efficiency

11. S.C.H. per F.T.E. faculty member. . . .	418
12. Total salary attributable to instruction	\$497,000
13. Salary per F.T.E. student	\$1,200
14. Cost per S.C.H.	\$38.23

student enrollment are both the second largest of the experimental colleges studied.²⁷

The number of course credit hours offered by the College, rather than being among the largest, as might be expected by the size of the enrollment, is actually the smallest.²⁸ The low number of course credit hours indicates that the curriculum of College A has been set up with a limited number of courses because of the highly structured core program of the general education curriculum. While offering the fewest courses, College A does have the second highest number of class credit hours of the five experimental colleges,²⁹ indicating that the courses are divided into a large number of sections. Furthermore, these sections tend to be small, with College A having an average class size of 12.8.

Looking at some of the measures of productivity, one sees that College A produces 12,994 student credit hours, the second highest number of S.C.H.'s produced by any of the experimental schools studied,³⁰ as might be expected from the fact that the school has the second highest enrollment. In addition, the level of faculty productivity is the highest of all the cluster colleges in this study,

²⁷Cf. Appendix A, Figures 1-3.

²⁸Cf. Appendix A, Figure 4.

²⁹Cf. Appendix A, Figure 6.

³⁰Cf. Appendix A, Figure 7.

with each faculty member producing an average of 418.5 A.C.H.'s.³¹ Although class size is small, faculty productivity is the highest of all the colleges studied. Faculty are meeting a large number of students outside normal classroom hours. College A produces 1,853 student credit hours of independent study, more than any other cluster college studied.³²

Turning to the measures of cost efficiency for College A, one might expect to see a fairly low cost per A.C.H., given the fact that the curriculum is not proliferated and the faculty are highly productive. Such is not the case, however. College A spends \$38.23 to produce one student credit hour, the second highest of all the colleges studied.³³ The major variable that causes costs to be so high is the fact that College A spends a great deal of money on academic salaries. The total amount is nearly \$200,000 or \$1,200 per student, the second highest amount spent for salaries on a per student basis.³⁴

There are several reasons for this high salary expenditure, not the least of which is the distribution of faculty among the ranks, mentioned previously. The Associate and Full Professor positions account for over

³¹Cf. Appendix A, Figure 11.

³²Cf. Appendix A, Figure 10.

³³Cf. Appendix A, Figure 14.

³⁴Cf. Appendix A, Figure 13.

60 per cent of the total number of faculty positions.³⁵

Within AA University, College A has the highest proportion of tenured faculty of any unit.³⁶ It takes more money to pay the same number of well-paid tenured faculty than a faculty which is equally distributed among the ranks with differing salary scales.

There are other reasons for the high salary expenditures in College A. Over its eleven years of operation a substantial number of non-teaching administrative positions have been developed to handle the needs of the collegiate community for fund raising, research, and academic counseling. Although administrative titles are used, they are nonetheless academic positions, including a Dean, an Associate Dean, an Executive Secretary, a Chief Advisor, an Assistant Advisor, and a Research Assistant. These positions are not found in most departments but are believed to be necessary for the operation of a semi-autonomous experimental college.

Comparing the credit hour cost of College A with the costs in other departments in the liberal arts college of AA University, Table 2 shows that College A costs \$38.23, nearly twice as much as the average cost of \$19.76 for the liberal arts departments. However, College A is not the most expensive program among those for which figures are

³⁵Cf. Appendix A, Figure 15.

³⁶Reported by the Executive Secretary of College A in a private conversation, July, 1971.

TABLE 2

COST PER S.C.H. FOR DEPARTMENTS
IN THE LIBERAL ARTS COLLEGE OF
AA UNIVERSITY*

Humanities Dept.	A	16.86
	B	17.86
	C	8.41
	D	33.54
	E	10.93
	F	22.33
Science Dept.	A	14.98
	B	21.54
	C	15.12
	D	18.32
	E	17.66
	F	11.43
Soc. Sci. Dept.	A	16.66
	B	9.67
	C	12.10
	D	14.42
	E	6.45
	F	21.83
Language Dept.	A	12.90
	B	60.52
	C	25.18
	D	39.70
College Average		19.76
College A		38.23

*Note: These figures in dollars are based on undergraduate, semester student credit hours, and academic salary expenditures, from the Office of the Dean, College of Liberal Arts.

available. There are two other departments with higher costs, both of which are language programs. Although it is clear that the credit hour cost for College A is high when compared with the costs in other liberal arts departments, there are two important factors which should be kept in mind when making these comparisons.

First, College A is not operating simply as another department, but as a college which has assumed some additional burdens not normally found in a department, such as fund raising, internal research, and academic counseling. Although other administrative costs are assumed by the parent university, some expenses have been assumed as necessary to the teaching function of the College. Second, it is important to note that College A is virtually the only unit that devotes all of its time and resources to undergraduate education. For those departments in the liberal arts college of AA University for which figures are available, an average of 69% of their salary expenditures go to undergraduate education, but they produce 91% of their student credit hours in undergraduate courses.³⁷ If a college or university is interested in increasing its commitment to undergraduate education, then possibly the

³⁷ Figures based on Michigan Council of State College Presidents, Unit Cost Study, Instructions and Departmental Research, 1968-69: A Study for the Public Colleges and Universities in Michigan (Lansing, Mich., The Council, 1970).

increased expenditure in one unit devoted solely to undergraduate teaching is justified.

The higher cost per student credit hour in College A can, to some extent, be attributed to the number of years it has been operating. The high number of faculty members with tenure and the number of administrative positions needed to keep the College operating can be viewed as a function of the number of years the College has been operating. The faculty members have liked their experiences in College A and have wanted to remain in the College and be promoted like any other faculty member. By rewarding the faculty with tenured positions and higher pay, the administration of the College has raised its total salary expenditures and unit costs. In the same way, the administration has felt that it was necessary to add to its administrative positions over a period of years to make its operation viable, but the economic effect of this decision has been to drive costs up.

It may seem to the administration of the College that certain choices, such as the promotion of faculty members, were necessitated by circumstances beyond its control. But, by pushing for tenure of a large number of faculty members the administration was making a decision that scholarly community, supported by well-paid faculty, was more important than any margin of profit measured in economic

terms alone. Had control of costs been more important, control over economic factors could then have been exerted.

In summary, College A has chosen to offer a core program of courses with some electives and a large number of independent study offerings, resulting in a small number of course credit hours and a high number of class and student credit hours. The faculty has the highest level of productivity of any group in the five colleges under study. At the same time, salary costs and cost per student credit hour are both second highest of the cluster colleges studied.

In terms of the six factors influencing cost per unit mentioned in Chapter II (faculty productivity, salary level, class size, scope of curriculum, enrollment, and student-faculty ratio) three of these factors operate to bring unit costs down and two to push costs up, while one seems to have no measurable influence, although it could still prove to be important. The high level of faculty productivity, limited scope of the curriculum, and the high number of students per faculty member work to bring down cost per student credit hour, while the high level of salary expenditures and small class size work to boost costs. The enrollment size could be a crucial variable if the administration wanted to use it as an option. None of the experimental schools in this study are operating with an enrollment of sufficient size to achieve an economy of scale. The average full-time equivalent enrollment for the

five schools is 331.4, ranging from 453 to 205. Most estimates of the "ideal" size, economically speaking, range from 1,000 to 1,500 and possibly up to 2,000.³⁸ Of course, most estimates of economy of scale are calculated on the basis of assuming an autonomous college in need of full support services. Many of the support services in the experimental sub-colleges under study are paid for by the parent institution, so that the estimates of enrollment size may not be comparable. One option that College A has is to expand, increasing both its student body and its faculty, but at a slower rate. This expansion could allow for more positions to be opened up at the lower ranks, equalizing the distribution of faculty among ranks. The unanswerable question is whether or not the increased size would destroy the sense of community desired by the founders and participants in the College.

There are still options available to College A, if they care to exercise them. Although it may seem that they are bound by their longevity to a position of ever-increasing costs as more faculty seek higher ranking positions, the administration can change its stance on promotion and tenure, or increase its enrollment size to gain a better balance of rank distribution of faculty. The decision will ultimately be made by weighing the gains and losses from choosing the various alternatives. Hopefully,

³⁸Cf. Chapter II, pp. 37-40.

the decision will be made by the College and University administration taking into account both academic and economic factors, and not by outside agencies concerned only with balanced budgets.

College B

Summary. College B had been in existence three years when data was collected for this study. It was founded on the notion that smallness amidst largeness would help to combat student alienation. The concerns of the founders were for personal development of students in all realms-- psychological, as well as intellectual. They designed the college programs to foster close student-faculty relationships and assumed that students could accept responsibility for their own education if they were given the proper encouragement.

The curriculum of College B began as a core program of interdisciplinary courses, but student pressure forced the College to expand its offerings considerably. The College also has a strong language program. All grading is done on a pass-fail basis with written evaluations of each student for each course he takes.

The faculty members are all jointly appointed in the College and in a regular university department. The faculty tends to be young and over 70 per cent of the appointments are in the bottom two ranks. Students are chosen so as to represent a cross section of liberal arts college students in terms of sex, geographic origin and aptitude.

Financially, College B is the least expensive of the five colleges studied and had unit costs closest to, but still slightly above, comparable costs for undergraduate education in the parent liberal arts college of the larger university. One of the reasons for their low unit costs is the bottom-heavy distribution of faculty and the low salary expenditure per student. In other areas, such as faculty productivity, class size, scope of curriculum, and size of enrollment, the College is about average for the cluster colleges studied.

Purposes. Comparing College A and College B, using traditional, departmentally-oriented bench marks as the standard for comparison, both colleges look very much alike. They are both experimental sub-colleges within larger state universities. They both have a core curriculum of interdisciplinary courses. Students at both colleges tend to be liberal to radical in the political spectrum, slightly more intellectually oriented than students in the liberal arts units of the parent universities, and generally more interested in discussing the nature of their own educational experience. The faculty at both colleges is interested in innovation in education, as opposed to being interested in departmental advancement.

On the surface both colleges seem to be alike in their experimental concern, but below the surface the nature of their experimentation is very different. College A is interested in developing the notion of General Education,

while College B explicitly rejects the idea that there is a body of knowledge which every well-educated person should possess. College B is much more concerned with the notion of the development of the individual student through the encouragement of a warm, supportive community. Although the concern for the whole student includes an interest in his intellectual life, the planning, implementation, and development of the curriculum of College B all point to the dominance of concern for development of the psychological and communal life of the students. Concern for their preparation as professional scholars plays a less important role than concern for student development in other areas. The College Bulletin points out the concern for the personal development of the student by saying:

College B 's curriculum is not a string of courses to finish the education of the young gentleman or lady, no irreducible body of information minimally necessary to the 'educated' man. Rather the courses invite attention to intellectual practices and traditions that are likely to give a student perspective on himself and his world so that discovering the potentials given him, he can enter this world in some way satisfying to him.(39)

The emphasis on developing personal perspective, discovering one's potential, and finding personal satisfaction distinguishes College B from College A, with its emphasis on General Education. College B has not forgotten the preparation of the scholar completely, but the emphasis is

³⁹ College B , 1970-71: A Supplement to the Announcement of the Liberal Arts College (BB University, 1970), p. 16,
italics mine.

simply not as strong there as it is in other departmentally-oriented colleges or universities.

The emphasis on personal well-being and a supportive community is clear, even in the beginning stages of planning for College B. The planners conceived of the underlying problems facing higher education as a growing sense of impersonality and dehumanization within the university community. In stating the problems facing higher education in 1965, the planners of College B said:

The University suffers from a growing impersonality in student-faculty relationships; a loss of cohesiveness among the members of the student body; an increasing dependence upon instruction by graduate student teaching fellows; overcrowding of residence halls; a general increase in mechanization and the natural frustration that accompanies it.⁽⁴⁰⁾

If one begins planning an institution with the assumption that the greatest needs are impersonality, loss of cohesiveness, overcrowding and frustration due to mechanization, then the institutional solutions that are devised to respond to those needs will look very different from the solutions of an institution that assumes that the greatest need is to provide students with a General Education. No value judgment needs to be placed on one set of assumptions or the other. Both can be valid responses to current trends at the time the schools were started, but both sets of

⁴⁰"[College B, BB University], Oct. 20, 1965" (Unpublished planning document, 1965), p. 4.

assumptions must be distinguished and their institutional consequences should not be confused nor judged as if they were the same.

Once the planners of College B defined the problem of the University in terms of the growing impersonality of the college experience, they then went on to outline in some detail the six needs of the University. The University needed to deal with expanding enrollments; there was a need to reemphasize undergraduate education; a need for improving the quality of undergraduate education; a need to provide a "more humane environment for learning"; a need to provide institutional support for education outside the classroom; and a need to provide "a microcosm in which deliberate experimentation will be effective".

In developing an institutional model to respond to the six basic needs, the planners of College B recognized that they could not provide a "miracle-cure" for all the current problems of higher education, but they did hope to provide "excellent education at the going rate".⁴¹ In extolling the benefits inherent in their planned college, the writers, at times, did seem to project the idea that they could provide a miracle-cure for some, if not all, of the problems of higher education, saying at one point, "[College B] Can Combat Dehumanization".⁴² They argued that dehumanization

⁴¹Ibid., p. 5.

⁴²Ibid., Italics and capitalization in original.

is largely a function of size; College B would be small; therefore, College B will combat dehumanization.

The one thing that comes through as more than passing excitement for the planners of College B is their emphasis on building a strong, supportive community that will deal with problems like dehumanization. The planners had as their ideal, "an educational environment of warmth and intimacy" where there will be:

direct faculty-student interaction. . .very small classes, informal relations, personal guidance and counselling, both formal and informal, and a general concern for the moral and intellectual well-being of each student as a special person. . . .(43)

The planners originally projected a building apart from the central campus of BB University but close enough for easy access. The site was "sixteen acres of partly wooded land along the river shore". It was to have a gymnasium, art center, theatre, music rooms, studios, and a library, as well as classrooms, faculty offices, and dormitory space. To promote even greater community cohesiveness, the college would be divided into four internal units of 300 students with each unit having its own identity, fostered by separate housing and dining facilities, and its own common intellectual interests.⁴⁴ These plans for separate facilities never materialized because of the

⁴³Ibid., p. 4.

⁴⁴Ibid., pp. 28-29.

lack of funds, but the plans for these facilities are important in showing the great concern for providing an "environment of warmth and intimacy" on the part of the planners. In many ways the administration and faculty now see that there was great benefit in their failure to secure separate facilities. Their remodeled dormitory is close to central campus and the students of College B are full participants in the ongoing life of the rest of the university.

In spite of their failure to secure separate facilities, the planners of College B have been able to develop a sense of supportive community in their existing facilities. The College bulletin points out that College B "attempts to overcome size and impersonality of multiversity," while at the same time using its diverse resources.⁴⁵ The emphasis on the human side of the College is seen again in a passage from the same bulletin:

This world of people, individually caught up and caught up together is [College B] in its uncap-
 turable essence. This human hubbub, with all its
 vitality, energy, movement, and change is the
 everyday world of simply being in the college. . .
 In [College B] the line between people being people
 and getting or giving an education is no line.(46)

The sense of community and personal concern for a student's well-being goes beyond the prose of the College bulletin. In a survey of student attitudes about the curriculum, one researcher found that students tended to

⁴⁵ [College B] Supplement, p. 5.

⁴⁶ Ibid.

characterize their collegiate experience, not in terms of traditional academic goals, but in terms of a "more general concern with personality growth and development." They were concerned with interpersonal relationships and emotional development, as well as with development in the purely intellectual sphere.⁴⁷ Another study of students in College B has pointed out that its students, although more intellectual in orientation than a control group in the parent liberal arts college, chose to come to College B on the promise of its psychological intimacy. These researchers conclude, "Thus, a sense of community and campus morale --a goal of [College B] planners--has apparently developed,"⁴⁸ and this fact has become well known among students.

The students see the greatest strength of College B in terms of the closeness of student-faculty relations, the individual attention, the de-emphasis of grades, and the sense of community oneness. The courses are generally characterized as more personal, more flexible in regard to the direction of the course, and less grade conscious than other courses in the parent liberal arts college. The students see faculty as genuinely interested in students on a personal as well as an intellectual level.⁴⁹

⁴⁷"Student Comments on the Core Curriculum and [College B] ; 1969-70" (unpublished mimeo by a researcher in the field, 1970), p. 1.

⁴⁸"[BB University's College B] " (unpublished mimeo by a researcher in the field, 1971), p. 6.

⁴⁹"Comments", pp. 5-6.

And yet, students are critical of College B for its "lack of structure or specific content within courses." Students see lax academic standards and the "tendency of students to take advantage of the freedom allowed them" as weaknesses of the College.⁵⁰

The curriculum. The planners of College B set up a curriculum that is built around a core program of courses, a limited number of fields of concentration, and an independent study program. In addition, the curriculum was to be bolstered by comprehensive exams at the end of the sophomore and senior years, and of course, grades. The core program was designed to take from one-half to three-quarters of the freshman and sophomore years, depending on how much language the student needed. Junior and senior year students would take proportionately fewer courses in College B, filling in their programs with electives or concentration courses taken outside the College. There was a strong emphasis in the curriculum on language competence. Each student was expected to take a reading course in one of five languages offered in the College before he graduates.

In four years of operation each of the elements in the original curriculum, the core requirements, comprehensive exams, the grading system, and the language requirements have been either substantially changed or severely challenged by students and faculty alike. The most severe

⁵⁰Ibid., p. 3.

challenge to the curriculum was directed at the core program itself. The founders believed that the core program could "provide a common and solid foundation in the natural sciences, the social sciences, and the humanities." The courses would be balanced between lectures and seminars, with the lectures providing a common intellectual background for all students and a greater efficiency in teaching and overall economy. The seminars would be "devoted to the thorough study of selected works and themes in the world of arts and letters" as well as providing a basic orientation in a freshman seminar and a capstone course for seniors. In addition, the seminars were meant to assure that the relations between students and faculty would not remain distant and formal.⁵¹

The challenge to the core program came not so much from disagreement with the aims of the core but with its poor execution and its required nature. In discussing the results of his study of the core program, one researcher said:

While satisfaction with their [College B] experience in general is relatively high, satisfaction among students with the core curriculum is strikingly low. The source of this dissatisfaction seems not to rest with the basic rationale of the core curriculum or with the faculty available to present it but rather with the specific implementation of the concept in a set of required courses. The required nature of the curriculum together with the

⁵¹"[College B, BB University], Oct. 20, 1965", pp. 22-23.

experienced inadequacy of many of the courses themselves led to student discontent. . . .(52)

Dissatisfaction, then, comes, in part, from poor execution of courses and, in part, from the required nature of the core curriculum which seems to engender rebellious attitudes. Most students preferred to have a selection of courses from which to choose within designated areas of study.⁵³

The Governing Assembly of the College, made up of students, faculty, and administrators, passed a resolution recommending that the courses in the core no longer be required but instead that distribution requirements be established. The action of the parent college of liberal arts is needed to put such a recommendation into effect.

The second challenge to the original curriculum was against the idea of comprehensive exams. The original planning committee felt that comprehensive exams would "serve not only to guarantee that experimental work is being kept up to high standards," but they added, the exams would also serve "as stimulants to independent reading and study."⁵⁴ Despite arguments for comprehensives made by the planners, the General Assembly of the College did away with comprehensive exams, first at the end of the sophomore year, and later, at the end of the senior year. They felt that students would be responsible in maintaining their own

⁵²"Comments," p. 2.

⁵³Ibid., p. 1.

⁵⁴"College B, BB University , Oct. 20, 1965," p. 26.

standards and that adequate stimulus to do independent work already existed.

Another challenge to the ideas of the original planners came in the form of increasing the use of pass-fail grading. The original planners indicated a willingness to experiment with the grading system.⁵⁵ However, students have encouraged the use of a pass-fail grading system in all areas. A compromise was reached, whereby small seminars give a pass-fail grade with professors writing an evaluation of the work of each student at the end of the term. In lecture courses, where size prohibits personal evaluation, letter grades are used.⁵⁶ The courses taken outside the College feature letter grades. At the end of four years students have from one-quarter to one-half letter grades, depending on the proportion of work they take outside the College.

Finally, the language requirement has been a source of friction for students in College B. They have sought to either do away with the requirement completely or to make it an optional requirement. Because the College must operate under the rules of the parent liberal arts college, which requires two years of a language, the students have not been able to do away with this requirement in College B.

The net results of the changes made in the original curriculum are not yet clear. The College still operates

⁵⁵" [College B, BB University], Oct. 20, 1965", pp. 26-27.

⁵⁶[College E] Supplement, p. 9.

with a core curriculum, but action on making this requirement optional is still pending. No comprehensive exams have been given in the College. Grades are a mixture between pass-fail and letter grades. Foreign language comprehension is still an important part of the curriculum.

One area of the original curriculum that has not been challenged is the independent study program. The original planners foresaw the need to have independent study projects as an integral part of the curriculum, so long as it was integrated into the formal work of the student.⁵⁷ The fact that College B offers slightly fewer than the average number of credit hours of independent study for the five colleges studied⁵⁸ is more a function of the fact that the College had only been operating for three years when the figures were compiled. The College assumes a large number of such programs will be used and even sees the possibility that within courses certain students will take off on their own direction, depending less and less on formal assignments or class meetings as they gain a sense of self-direction.⁵⁹

College B has begun to move away from a required set of core courses, comprehensive exams have been eliminated, and grades in the College are mostly on a pass-fail basis. In addition, independent study is widely used. The direction of the college is toward the development of greater

⁵⁷"[College B, BB University], Oct. 20, 1965," p. 11.

⁵⁸Cf. Appendix A, Figure 10.

⁵⁹"[College B, BB University], Oct. 20, 1965," p. 25.

freedom and a more personalized education allowing the student to set his own direction as much as possible. For some educators, this form of education is provided at the expense of academic standards, but others, who assume that students are capable of maintaining their own standards, see this form of education as the only way to maintain academic quality because students are motivated out of their own interests to pursue knowledge.

Faculty and students. The planners of College B proposed that all faculty members teaching in the College should be members of the parent liberal arts colleges and their coordinate departments. In attempting to combine the advantages of a small college with those of a large university, the planners envisioned a faculty that could operate in both worlds, working for a period in College B, and then returning to do research and teaching in their home departments. The planners wanted a faculty serving under a variety of contractual arrangements, some teaching part-time in the College, others teaching full-time but returning to their departments after a limited number of years, and still others serving as permanent faculty of the College, thus providing some continuity.⁶⁰

Although the College has been able to maintain a variety of types of appointments in the College, there has been increasing pressure to move to more full-time,

⁶⁰"[College B, BB University], Oct. 20, 1965," p. 31.

permanent faculty for the College. Once a faculty member is brought into College B on a part-time or temporary basis, he tends to devote more time to the College than is contractually expected. Faculty members report that the personal contact with students is important to them, and the chance to experiment with innovative teaching methods excites them.⁶¹ The faculty like what they experienced at College B, and, like their counterparts at College A, they want to stay in the small college setting and not return to the larger university and its departmental orientation.

One significant characteristic of the faculty of College B is their youth. Largely because of budgetary constraints, the College has hired a sizable proportion of young faculty, relying heavily upon teaching fellows and instructors who, together, account for over 70 per cent of the appointments in the College.⁶² The College is fortunate to be situated in a major graduate university that is able to provide the number of young graduate assistants and instructors needed. Because of the dominance of young faculty, however, some administrators feel that the atmosphere of the College is oriented, for better or worse, toward the Youth Culture of the day.⁶³

⁶¹"[BB University's College B]," p. 43.

⁶²Cf. Appendix A, Figure 15.

⁶³Personal conversation with an Associate Director of College E, September, 1971.

When students were asked what kind of faculty members they most desired in a study of the College, they said that they preferred, not youth-oriented faculty members, but instructors who were competent and knowledgeable in their fields. At the same time, they wanted faculty members who were enthusiastic for their subject and could stimulate student interest in the field.⁶⁴

What kind of students are these who want competent and enthusiastic faculty? The ideal student in the eyes of the author of the College bulletin is one who has been "able to be independent" and who uses his independence "with consideration for others."⁶⁵ The aim of the founders was not one of educating the elite, brightest student, but "to develop a student community" with students of diverse backgrounds similar to those admitted to the liberal arts college of the parent University.⁶⁶ The freshmen admitted to the College are, in fact, a cross section of the University's liberal arts college students in terms of sex-composition, in-state residence, and scholastic aptitude. Yet, because of certain self-selection factors occurring after letters of admission were sent out to the carefully chosen cross section, students of College B tend to have slightly higher verbal scores on SAT's than those in the

⁶⁴"Comments," p. 13.

⁶⁵[College B], Supplement, p. 6.

⁶⁶"[College B, BB University], Oct. 20, 1965," p. 21.

liberal arts college,⁶⁷ giving a more intellectual orientation to the student body of College B.

This intellectual orientation was seen in College B's entering freshman class when compared with a matched sample of liberal arts college students. The College B group most often chose the "Academic" philosophy (from Clark and Trow's typology) to describe their educational orientation, with the "Non-conformist" philosophy being the second most popular, chosen by College B students at least twice as often as by the students of the liberal arts college.

Over a four year period there has been some decline in the percentage of College B students choosing the "Academic" philosophy, but adherents to the "Non-conformist" philosophy have steadily grown in number, becoming the dominant educational orientation. Nearly forty per cent of the entering students in 1970 chose this philosophy as descriptive of their own. This number represents nearly ten times the proportion choosing this philosophy nationally.⁶⁸

Other variables distinguish the College B student from the student in the liberal arts college at BB University. The College B students scored significantly higher on scales measuring peer independence, liberalism, and cultural sophistication. The College B group tended to be more introverted, more theoretically oriented, more esthetic,

⁶⁷"[BB University's College B]," p. 8.

⁶⁸Ibid., pp. 6-10.

complex, and autonomous than other students. Using a cluster analysis, researchers concluded that College B students to be the same as liberal arts students on sociability and adjustment scales, but they were higher on interpersonal independence and intellectual openness scales.⁶⁹

When students were asked prior to entrance to College B what they expected from the College, they responded by saying that they expected congeniality and fairness in social and academic relations. Even though they were distinctive from other liberal arts students on intellectual variables, they seemed to choose the College not for its intellectual promise, but on the basis of its potential as a supportive and warm community.⁷⁰

The degree to which College B students have shown academic responsibility is difficult to establish. However, one thing that is clear is that College B students like what they are doing. Testing has shown that students in College B for two terms were much more satisfied with the faculty, administration, and other students than the students in the University's liberal arts college. College B students showed significant positive changes on scales measuring liberalism, anxiety control, and decreased authoritarianism.

⁶⁹Ibid., p. 7.

⁷⁰Ibid., p. 15.

These changes remained significant even when the scores were controlled for intellectual differences separating the two groups.⁷¹

On the negative side, the attrition of students from College B has been relatively high. After two years, 25 per cent of the first entering class had dropped out and 30 per cent of the second class had left. Of those who dropped out, 56 per cent remained at BB University. After two and one-half years, 20 per cent of all entrants had left the University completely.⁷²

Unlike College A, College B does not feel that it must convey a body of knowledge which every well-educated man must possess. The concept of education at College B is much more private or personal in its orientation. Education is seen as a tool for helping the individual uncover his hidden potential, allowing for exploration in fields that interest him rather than imposing an exploration of fields that someone else has thought important.

Economics. At the beginning of the discussion of College B it was pointed out that on the surface, College B appeared to be similar to College A, but that below certain surface similarities were underlying differences in philosophy and operation. In comparing the cost per student credit hour of each college, Table 3 shows that there is

⁷¹Ibid., pp. 21 ff.

⁷²Ibid., p. 31.

TABLE 3
COMPARATIVE CURRICULAR AND COST DATA
FOR COLLEGE A AND COLLEGE B
ACADEMIC YEAR '69-'70

	COLLEGE A	COLLEGE B
Faculty and Students		
1. Number of F.T.E. faculty	31.20	31.04
2. Number of F.T.E. students	412.50	367.70
3. Student-faculty ratio	13.2:1	11.9:1
Curriculum		
4. Number of course credit hours	123	224
5. Course C.H. per F.T.E. student	0.298	0.608
6. Number of class credit hours	1045	750
7. Number of student credit hours	12,994	11,767
8. Average class size	12.80	15.70
9. Per cent of small classes (10 or less students)	35.0%	23.0%
10. S.C.H.'s of independent study	1853	860
Cost Efficiency		
11. S.C.H.'s per F.T.E. faculty	418	379
12. Total Salary attributable to instruction	\$497,000	\$296,145
13. Salary per F.T.E. student	\$1,200	\$804
14. Cost per S.C.H.	\$38.23	\$25.17

also a difference in unit cost. College A spends \$38.23 per S.C.H. and College B spends only \$25.17.

There are other interesting similarities and differences between College A and College B. By comparing the figures on Colleges A and B in Table 3 one sees that both schools are similar in size. Each school has approximately 31 on its teaching staff, and they have nearly the same number of full-time equivalent students, 412 in College A and 368 in College B. These figures give rounded student-faculty ratios of 13:1 for A and 12:1 for B.

Differences between the two schools begin to occur when one looks at measures relating to curriculum. In spite of the fact that College A has only 44 more students than College B, College A offers almost twice the number of credit hours of courses. Taking the number of students into account, College A offers .298 credit hours per student and College B offers .608 credit hours per student, indicating that College B has a much more proliferated curriculum than College A. College B does have proportionately fewer sections for its courses, as indicated by the smaller number of class credit hours, and, as a consequence, the average class size in B is slightly larger. College A has an average class size of 12.8, while College B has an average of 15.7. As might be expected, the proportion of classes with ten or fewer students is higher in A than in

B, and the number of student credit hours produced in independent study projects is also higher in A than in B.

Turning to the measures of cost efficiency, Table 3 shows that the level of faculty productivity is higher in A than in B. Faculty members in College A produce, on the average, 418.5 S.C.H.'s, while those in College B produce 379.09 S.C.H.'s. This difference may be accounted for by the slightly larger F.T.E. student population in A.

One might expect College A to have lower unit costs than College B, given the fact that they have a low proliferation of courses and higher faculty productivity. However, just the opposite happens to be the case because of the differences in salary expenditures attributable to teaching. In terms of total amounts spent on salaries, College A outspends College B by \$200,000, with A spending nearly \$500,000 and B spending nearly \$300,000. In terms of the amount of salary attributable to teaching per student, College A spends \$1,200 per student and College B spends only \$804. In the final tabulations College A spends \$38.23 per S.C.H. and College B spends \$25.17 per S.C.H.

One can see that the difference in unit costs between A and B is largely accounted for by the different amounts each college assigns to salary expenditures attributable to teaching. The only other factor working to boost costs in College A is a slightly lower average class size, but that factor alone is not enough to raise unit cost--class size becomes important only insofar as it affects faculty

productivity. All the other factors, including faculty productivity, scope of the curriculum, and enrollment size indicate that there should be lower costs in College A as compared to College B. The most important factor, then, becomes the salary expenditure.

The difference in salary expenditure attributable to teaching can largely be accounted for by the difference in faculty distribution among the various ranks. College A has a faculty with higher salaried, tenured faculty members, while College B has a faculty heavily weighted with the less expensive graduate assistants and instructors.⁷³ Over 70 per cent of College B's faculty is made up of these two ranks, compared to 20 per cent for College A. On the other hand, College B has 23 per cent of its faculty at Associate and Full Professor ranks, while College A has over 63 per cent of its faculty in those ranks.

With the high proportion of faculty at lower paying ranks, College B has been able to keep its unit costs below those of all other experimental colleges in this study. The cost per student credit hour at College B is \$25.17, while the five experimental colleges together average a cost per S.C.H. of \$36.75. It must be kept in mind, however, that the average cost per S.C.H. at the liberal arts college of BB University is \$22.55, based on salary expenditures for undergraduate courses only. Although

⁷³Cf. Appendix A, Figure 15.

College B is the least expensive of the five experimental colleges studied, it is still more expensive than comparable units run by conventional methods.

The unit cost data for the liberal arts college at BB University is broken down in Table 4 by department. It shows that the experimental College B is not the most expensive of the academic units. Seven other departments are more expensive; one in the humanities, two in the social sciences, and four in the language area. These unit costs are based on salary expenditures and credit hours for undergraduate courses only. If the cost of graduate education had been included, then the cost per S.C.H. in the liberal arts college would have averaged nearly 60 per cent higher. The combined credit hour cost for that college would be \$35.20 for all levels of study. For every dollar spent on undergraduate education at the liberal arts college of BB University, between \$7 and \$8 goes for graduate education. While undergraduate courses produce about 85 per cent of the total number of student credit hours for the college, it spends only 53 per cent of its salary resources on these courses.

The financial status of College B is summarized in the six variables identified as having the most effect on cost per student credit hour (faculty productivity, salary levels, class size, scope of curriculum, enrollment size, and student-faculty ratio). The productivity of faculty at College B, as measured by the number of student credit hours

TABLE 4

COST PER S.C.H. FOR DEPARTMENTS IN THE
LIBERAL ARTS COLLEGE OF BB UNIVERSITY:
ACADEMIC YEAR '69-'70*

Natural Science Depts.

R	\$37.32
G	31.51
D	24.31
A	23.75
S	22.77
V	21.95
E	21.11
N	15.58

Humanities Depts.

EE.	\$27.27
X	20.60
I	15.78
Z	14.06
H	13.85
O	12.51

Social Science Depts.

L	\$19.93
Y	17.67
C	15.60
K	15.26
T	14.65
B	12.02
Q	8.11

Language Depts.

P	\$55.64
W	39.68
J	33.68
F	31.43
U	24.59
M	18.35

All Depts. \$22.55

College B \$25.16

*Figures based on undergraduate S.C.H. only and General Fund salary expenditures for all academic appointments including graduate assistants, administrative staff, and professional categories.

produced per full-time equivalent faculty member is the second highest of the five experimental colleges in this study.⁷⁴ College B's faculty produces 379 S.C.H.'s, while the five college average is 307. The level of productivity for the experimental college is still not as high as the level for the liberal arts college of BB University, however, where the faculty produces, on the average, 391 S.C.H.'s.

The total amount spent on salaries attributable to teaching at College B is the second lowest of all the experimental colleges studied.⁷⁵ By taking into account student body size, the number of salary dollars spent per student is strikingly low, \$804. The five college average amount spent per student is \$1,170.⁷⁶ The reason for this low figure is the fact that over 70 per cent of the faculty in College B are in the two lowest paying ranks of graduate assistants and instructors.

Class size in College B is about average for the five cluster colleges studied. Classes in College B average 15.7 students, while classes for all the five colleges studied average 16.14 students.⁷⁷ The scope of the curriculum is also about average for the five colleges, with

⁷⁴Cf. Appendix A, Figure 11.

⁷⁵Cf. Appendix A, Figure 12.

⁷⁶Cf. Appendix A, Figure 13.

⁷⁷Cf. Appendix A, Figure 8.

224 credit hours being offered by College B and 202 being the five college average number of credit hours.⁷⁸ The enrollment size of College B is only slightly above the five college average, with 368 F.T.E. students at College B and 331.6 F.T.E. students being the average number in the five colleges studied.⁷⁹ Finally, the student-faculty ratio in College B is above the average for the five colleges studied. College B has 11.9 students per faculty member, while the average for the five colleges is 9.86 students per faculty member.⁸⁰

One can see, then, that class size, scope of the curriculum, and enrollment size are all close to the average for the experimental colleges studied. The crucial variable that allows College B to have the lowest unit costs is the amount that it spends on salaries attributable to instruction.

⁷⁸Cf. Appendix A, Figure 4.

⁷⁹Cf. Appendix A, Figure 2.

⁸⁰Cf. Appendix A, Figure 3.

College C

Summary. College C is one of three cluster colleges at CDE University. It began in 1965 and is the oldest of the three colleges on the campus. The emphasis in College C is on the liberal arts education with a focus on cross-cultural exchange, giving the College a strong program in language study. One of the most striking things about College C is the fact that it has an open option system of course content, allowing the faculty to determine the nature of the material to be studied under broad topical titles such as "history" or "English literature". While faculty members determine their own course content, they are also asked to serve the ends of General Education by discussing how each discipline organizes knowledge. The common element in all the courses, then, is not oriented toward content or problem areas but toward a common process, focusing on how one learns in various disciplines. In addition, every course in the humanities and social sciences has a built-in unit of independent study, allowing the student to pursue his own special interests.

Financially, College C has a cost per student credit hour of \$36.39, which is only pennies below the average for the five experimental colleges studied. The curriculum focuses primarily on lower-level courses, with no major

courses being offered in the College. They have the smallest average class size and the second highest number of course credit hours offered on a per student basis. They also have the second highest number of student credit hours produced on the average by their faculty. Their salary expenditures are about average for the colleges in this study, all of which leads to a cost per student credit hour that is average for the five colleges studied.

CDE University. Before beginning the description and analysis of College C, it is important to look at its development in the historical context of its parent institution--CDE University. This University has developed three experimental cluster colleges over the last seven years, primarily under the dynamic leadership of its former President and its Provost. Both men were alarmed by the rapid rate of growth experienced by the University in the '60's. In 1942 the University had slightly more than 6,000 students, by 1972, it had over 40,000.

The administration of CDE University understood the impact such a growth has on the morale and satisfaction of both faculty and students. In the early '60's they began to decentralize parts of the undergraduate program through the development of living-learning units in which some sections of the larger undergraduate courses were taught in the dormitories. These units were not, strictly speaking, experimental colleges, but they were attempts to integrate classroom and dormitory activity. In many ways,

this attempt at decentralization was the precursor to the development of the first autonomous experimental cluster college in 1965, which was followed by two more cluster colleges in 1967.

Like the autonomous cluster colleges, the living-learning units were meant to provide closer relations between students and faculty members.⁸¹ In addition, they eliminated wasted time and energy for students who had to walk or ride long distances from the dormitory to the classroom. The living-learning units seemed to strengthen the quality of both living situation and the academic experience by mutual reinforcement. According to the Provost at the time these living-learning units developed in students an increasing sense of responsibility for their own education, and students and faculty came together on common grounds, sharing mutual concerns and interests.⁸² It was only logical that the next step be taken to increase these benefits by offering a semi-autonomous group of faculty and students the chance to develop their own curriculum and living-learning arrangements.

Three semi-autonomous experimental colleges were begun between 1965 and 1967. Each cluster college has a unique teaching responsibility, with one college (College C) teaching primarily liberal arts with a cross-cultural

⁸¹A published study of CDE University.

⁸²A second published study of CDE University.

emphasis; another (College D) teaching natural science, and the third (College E) emphasizing the social sciences. Each college is administered independently of any other academic unit with the Deans of the colleges reporting directly to the Provost. In addition, each college is free to develop its own curriculum and appoint its own faculty.

Because there are now three experimental cluster colleges at CDE University, the Deans and faculty of the colleges form a power base that gives some assurance that their views will be heard by the central administration. Although this group of Deans has never organized for any one cause, the Deans often meet and discuss how best to present their case to the central administration. In the words of one of these Deans, "This power is the single most important fact of our existence within the University."⁸³

If it were not for the fact that a coalition backing experimental education exists, the life of any one experimental college, standing alone, might be jeopardized. There is some resentment toward these experimental programs, partly because they were established by administrative fiat without much faculty deliberation. There is also a philosophical question raised by faculty members about whether or not the University should run small colleges at all, and there is resentment over the fact that the

⁸³"[College C]: Four Years into a Mission" (Unpublished mimeo by the Dean of College C, 1969), p. 5.

experimental colleges are taking money out of the hands of department chairmen trying to run their own programs. There is also resentment over the kinds of students attracted to these experimental colleges--students who tend to be both smarter and more radical in their orientation.⁸⁴ The existence of three experimental colleges, with a diversity of philosophies, different levels of efficiency, and a wide mix of students, helps diversify the opposition to any one experimental college.

Purposes of College C. The existence of living-learning programs at CDE University meant that combining academic and dormitory life was not new to the faculty. College C was able to begin operation quite rapidly. In November of 1964, the Provost of CDE University appointed a committee to study the prospects of an experimental college. In February the committee gave a favorable assessment of the idea and by the end of April, 1965, the trustees had approved the idea. Between April and September, a five month period, a curriculum was developed, faculty recruited, and 400 students admitted. By way of contrast, College B at BB University was developed and debated by faculty and administrators over a three year period. It is difficult to judge the effects of short vs. long periods of planning, but one suspects that College C does not have the support of university faculty to the same extent as College B. This hypothesis is given further support by the fact that all the

⁸⁴Ibid., p. 6.

experimental colleges at CDE University have moved more rapidly away from joint appointments of faculty, while College B at BB University has been able to continue to get faculty members jointly appointed in the College and in their home departments, although there is pressure there to allow the College to develop its own faculty.

In spite of the short time taken to plan and initiate College C the planners did develop a coherent set of goals around which to focus their curriculum. These goals were developed in response to the problems of size and the gaps that exist in a student's life because of the largeness of the University. Specifically, the College was conceived as a means to fill the psychological gap between teacher and student, and between student and student in large classes. In addition, the College was planned to fill the physical gap between students and classrooms, as well as the intellectual gap between disparate disciplines.⁸⁵

In order to fill these perceived gaps in a student's life in a large university, College C developed guidelines for its operation. The psychological gaps between faculty and student and between student and student were to be overcome by placing students and faculty in a living-learning situation where faculty and students could meet on informal grounds outside the classroom. The physical gap was to be overcome by housing students in rooms interspersed

⁸⁵"Smallness within Bigness at [CDE University]" (Unpublished mimeo by the Dean of College C, 1966), p. 1.

with faculty offices and classroom space. The intellectual gap was to be filled by having the College "provide a rigorous liberal education in the humanities, social sciences and natural sciences with the integrating theme of international understanding and service."⁸⁶ This international theme became a "cross-cultural" emphasis with an intensive language program, summer travel and both foreign and domestic field study opportunities.

Like College A, the emphasis of College C at the present time includes a concern for student growth and freedom. The student's time in the College is given over to a sampling of a variety of courses and fields, while his time in the University is devoted to a sampling of more specialized courses in one field. The College draws heavily on Whitehead's educational philosophy. The Dean of the College said:

Too often, Whitehead lamented, we confine education to what he called the stage of precision or analysis when students stop exploring in order to master their several knowledges by disciplines. We wanted to precede and surround that with something of what Whitehead called the stage of romance--the first apprehension of a subject when it exists in all the vividness of its novelty.(87)

In encouraging students to develop an enthusiasm for knowledge coming from the romantic stage of learning, the College Administration allows students to take a large spread of courses. They also permit students to exercise

⁸⁶Ibid., p. 1.

⁸⁷Ibid., p. 3.

the necessary freedom to choose among the variety of offerings. Out of a feeling that students who are allowed to choose their own curriculum will perform better, the Dean says, "The more frequently you involve a student in fashioning his own education, the more often he may actually enlist in the cause of his own self-culture."⁸⁸

In addition to developing the stage of romance and freedom in students, the College also permits its faculty the necessary freedom to explore their own interests. The faculty in the Humanities and Social Sciences is given freedom to pursue special interests and competences in each class taught. Under one general title, for example, "History", one finds classes in Modern European History, Contemporary China, Utopia, and Modern Egypt. Under "Literature", classes are offered in the Pornographic Novel, Models of Excellence in Ancient and Modern Literature, and Radical Literature.⁸⁹ Each faculty member offers a class in his own special area of interest. The freedom offered to faculty members serves not only as an attractive drawing card for faculty, but also allows the faculty member to teach in areas where he has the greatest competence and interest, presumably giving more energy and enthusiasm to his teaching than he would have in a course prescribed for him by others. This free option system, according to the

⁸⁸Ibid., p. 3.

⁸⁹"[College C] Course Description: Fall, 1970" (Unpublished Mimeo, 1970), pp. 1-5.

Dean, was the best thing the planners did in that hectic summer of 1965, before the College opened.⁹⁰

In exchange for permitting the faculty in the Humanities and Social Science Divisions the freedom to teach classes in which they determine their own content, the administration asks them to serve the ends of General Education by presenting their classes as examples of the way their disciplines organize knowledge. Thus, a historian will explain and give examples of historical organization of knowledge, and the psychologist will seek to explain and give examples of how psychology conceives of reality and puts it together in an organized fashion. Rather than giving students a general education based on common content, they are given a general education based on common epistemological themes. The focus on the problem of knowing rather than on the problem of remembering known facts is one of the distinctive characteristics of College C.

The freedom given students to choose their own courses and the freedom of faculty members to teach areas of special interest provides a great flexibility to the operation of College C, but it is also a source of confusion to some. The administration recognizes this danger but feels that the benefits of such a system outweigh its defects. They say that what they have created is not so much a curriculum as a style of learning. In the words of the Dean:

⁹⁰"Four Years into a Mission," p. 2.

It is always hard to define style, but I would say that ours is characterized by great flexibility, openness to alternative futures, change, involvement of everyone in everything, emphasis upon learning, directed in a non-directed way to 'becoming'. On the dark side of this same moon this often means a greater amount of confusion in our daily administration, frequent mind changing, inconsistency, an anarchy of alternatives, acres of ambiguity.(91)

Despite the potential dangers of confusion, inconsistency, anarchy, and ambiguity, College C clearly sets as one of its primary goals, the utilization of personal freedom. Like College B, discussed previously, the planners and faculty of College C assume that once a student is given the freedom to choose he will use that freedom responsibly and educate himself, provided that he is given the right kind of environment. In College C, however, this concept of freedom and responsibility is carried one step further and applied to faculty as well, allowing the faculty to be responsible for their own course content. This principle may be used de facto in many departments for senior faculty, but it is not usually a publicized policy of a school. It is conventionally understood that younger faculty, especially graduate assistants and instructors, are assigned courses with specific topics to be covered, but in College C the freedom of choice is not limited only to senior faculty. The consequences of this procedure will be explored in the next three sections.

⁹¹Ibid., p. 7.

The curriculum. With the emphasis on freedom of choice it is not surprising that College C has a strong independent study program. They have 1,071 S.C.H.'s of independent study, the second highest number of student credit hours of independent study of all the experimental colleges in this study. In addition to the normal independent study projects counted in the above figure, College C builds into each course in the humanities and social sciences a one-credit requirement for individual study. This arrangement prepares the student for a later option where he may take up to a full term of independent work, either on or off campus.⁹² Each course is offered for four credits, but one of those credits is utilized for independent study and is graded on a pass-no grade basis, while the other three credits are graded numerically.

The bulk of the curriculum in College C is designed to satisfy the distribution requirements of CDE University. Each student must take twenty hours in the humanities, twenty hours in the social sciences, and twenty hours in the natural sciences. In addition, the student must show two years of competency in a foreign language and take one year in a problem-oriented writing course. Each student must complete twelve hours of field or foreign study, or a single twelve hour block of independent study. Finally, every senior takes a senior seminar.

⁹²"Smallness," p. 4.

Within the Humanities and Social Sciences Divisions, as described in the previous section, each instructor develops his own class using topics of his own choice, emphasizing the way his discipline organizes concepts and develops a framework for knowledge. Within the Natural Science Division, the faculty member has a similar freedom to develop his own class topics, but the initial courses in the sciences are adaptations of the University courses offered in the departments of natural science. The curriculum in the natural sciences is rounded out by two open-ended courses that are defined by the instructors who teach them. This program is designed to give the liberal arts student, who does not wish to specialize in the natural sciences, an appreciation for the methodology of science, as well as for its historical and philosophical foundations. For the person who is strong in the sciences, the College allows substitution of courses in the departments of natural science to fulfill the requirements in this area.⁹³

The problem-oriented writing course is a year long sequence that meets three times weekly, once in a lecture session, which may be used for an actual lecture, a film, or other form of expression. The second weekly session is with a writing teacher with whom twenty-five to thirty students discuss the topic of the lecture or film and possible writing assignments that might grow out of it.

⁹³Ibid., p. 4.

Later in the week, students meet in groups of seven with a writing coach to go over the written work they have done. In this session each student paper is duplicated and the writing coach and other students correct and comment on the theme in class.⁹⁴

The language requirement of College C has come to be the "trademark" of the College with a large number of students (especially women) being attracted to College C for the opportunity to develop their language skills. Of those graduates of College C attending a graduate school, the largest proportion of them in any one area have gone into language study (20.9 per cent of those who responded to an alumni follow-up questionnaire). In addition, out of seventeen graduates who are teaching after graduation, five are teaching French.⁹⁵ Originally, College C required all students to take one of three languages in an intensive program, compressing two years of work into one. By 1969 students were allowed to substitute any University language program for the intensive language program. On the one hand, the reason for this change was to open up more options, especially for students who cannot profit from intensive language work. On the other hand, the change was made to help break the image of College C as a language college. The College faculty and administration did not want to

⁹⁴Ibid.

⁹⁵"Memo to [College C] faculty interested in the fortunes of [College C] alumni" (Unpublished mimeo, 1971), pp. 2-3.

attract only those students interested in language study, excluding those interested in other areas.⁹⁶

College C conceives of itself as providing an alternative means by which students can satisfy the University distribution requirements. In addition, they provide opportunity for students to do field or foreign study, independent study and participate in a capstone senior seminar. The rest of the student's time is taken in the larger University, either in developing a field of concentration or a series of electives. The overall consequence of this arrangement is that College C offers primarily lower level courses for freshmen and sophomores. In contrast, College E at CDE University has a heavy concentration of upper level courses for majors in the Social Sciences. College C offers no majors of its own and only a few upper level electives. The offering of courses primarily in the lower level not only has economic consequences that will be discussed later, but it could allow for slightly larger classes. Also, the scope of the curriculum might be less proliferated than in the experimental college offering primarily upper level courses. College C has not chosen to exercise these options, however. Class size is the smallest of all the experimental colleges studied, and the scope of the curriculum is the second most proliferated,

⁹⁶"Four Years into a Mission," p. 1.

based on the number of credit hours offered per student.⁹⁷

Faculty and students. One will recall from the first section of this chapter that College A at AA University began recruiting its own faculty from the very beginning of its operation with few, if any, joint appointments arranged with other departments. In contrast to this system of faculty hiring, College B followed a system of joint appointments, hiring all its faculty through the existing departments of BB University. All three of the experimental colleges at CDE University began by using a system of joint appointments, like College B, but all three have moved away from that system to one that resembles College A, appointing their own senior faculty on a full-time basis without consulting other departments.

In College C faculty were originally appointed jointly, but now there are three categories of appointments. Approximately one-third of the faculty are full-time senior staff with tenure, one-third are full-time staff without tenure, and one-third remain jointly appointed part-time faculty from the University at large. The move toward full-time faculty was necessitated, in part, by the need for full-time people in the language courses and in the large writing course. Also, the large turnover of faculty in College C during the first two years was demoralizing to the

⁹⁷Cf. Appendix A, Figures 8 and 5.

staff and students and detrimental to the continuity of the program. Within those first two years there were over 80 different faculty members, representing a great diversity of talent and temperament. Finally, under the system of joint appointments, the administration of College C felt that although a portion of a man's teaching time was given to the College, they did not receive an equal portion of his research, office, or service time.⁹⁸ Nor did the administration of the College feel that they were getting the necessary commitment to the ideals of their programs from those on joint appointments. Commenting on the move away from joint appointments, the Dean said:

In the first place, the system was just too complicated, taking too much time negotiating temporary contracts. In the second place, recruitment was uneven; some departments could and would supply us with faculty, others couldn't or wouldn't. We were forced either to tolerate holes in our staffing or appoint our own men. But more than this, an entirely temporary jointly-appointed faculty means you never command the time or the attention--or the loyalty--of a 'home team' to attend to the flood of things needing attention in a developing college.(99)

Those who come in on a full-time basis seem to work well in the College. In fact, says the Dean, "The intoxication of innovation unlocks floods of energy and insight. Our problem is not so much to turn the faculty on as it is to turn them off before they burn themselves

⁹⁸"Residential College Costs" (Unpublished mimeo by staff member at CDE University, 1971), p. 3.

⁹⁹"Four Years into a Mission," p. 2.

out."¹⁰⁰ The University has been sympathetic to the problems of joint appointments and has provided salaries for full-time staff at College C comparable to those in the rest of the University, and the College has gotten nearly all the promotions requested.¹⁰¹ In other words, the University has given concrete support to the development of autonomous faculty at College C as well as the other experimental colleges at CDE University.

Research on students has not been as extensive at College C as it has been either at Colleges A or B. There are, however, some statistics on the students and graduates of College C that indicate that they share with other students in experimental cluster colleges inquiring minds and intellectual ability. For example, out of 157 graduates from College C, 33 were Phi Beta Kappas. Four of the 11 Woodrow Wilson Scholarships awarded in the entire state went to College C students in 1969; 41 students were in the Honors College; one was a Marshall fellow and another a Danforth fellow. The College had the highest grade-point average of any college in the University (which may say more about grading policies there than about student ability), and seniors scored "superior" in the social science, natural science, and humanities area exams of the Graduate Record Exams. Nearly 80 per cent of the first year graduates were

¹⁰⁰Ibid., p. 3.

¹⁰¹Ibid.

enrolled or were intending to enroll in graduate school by the Fall following their graduation.¹⁰²

Perhaps one reason there has not been more research done in College C is a feeling on the part of the administration that one cannot really measure the most important elements of student achievement. The Dean said, "I would like to know how much our students have become more human beings, and not just blue ribboneers in the academic footrace."¹⁰³ Tests are available for measuring changes in attitudes of students, or how they perceive their environment, but so far they have not been used.

Lacking concrete measures of the impact of College C on its students, the Dean estimates that perhaps a third of the students have really caught on to the possibilities of utilizing the kind of education offered by the College. Another third, he says, are interested bystanders, and the remaining third might as well be in a traditional dormitory or classroom situation.¹⁰⁴

Economics. The data on curriculum and costs in College C is in Table 5. By comparing it with data from other colleges, one sees that College C is the largest of the experimental cluster colleges in this study. It has the largest number of faculty (52.96 F.T.E.), the largest

¹⁰²Ibid., p. 3.

¹⁰³Ibid., p. 4.

¹⁰⁴Ibid., p. 4.

TABLE 5
DATA ON CURRICULUM AND COSTS FOR COLLEGE C
ACADEMIC YEAR '69-'70

Faculty and Students

1. Full-time equivalent faculty	52.96
2. Full-time equivalent students	453.00
3. Student-faculty ratio	8.5:1

Curriculum

4. Number of course credit hours	347
5. Course credit hours per F.T.E. student.	0.766
6. Number of class credit hours.	1247
7. Number of student credit hours.	14,504
8. Average class size.	11.60
9. Per cent of small classes (10 or less students)	40.8%
10. S.C.H.'s of independent study	1071

Cost Efficiency

11. S.C.H. per F.T.E. faculty member.	264
12. Total salary attributable to instruction	\$527,000
13. Salary per F.T.E. student	\$1,163
14. Cost per S.C.H.	\$36.39

number of full-time equivalent students (453 F.T.E.), the largest number of student credit hours produced (14,504 S.C.H.), and the highest salary expenditure (\$527,000). The cost per student credit hour is close to the average for the five colleges studied. College C spends \$36.39 per S.C.H. while the five college average is \$36.75.¹⁰⁵ Although the unit cost at College C is about average for the five experimental colleges, it is well above the estimated unit cost for comparable programs in the larger university. The cost per student credit hour for undergraduate courses at CDE's liberal arts college is \$19.00, almost half the comparable costs at College C.

Even though College C is the largest experimental college studied, it has the second lowest student-faculty ratio, 8.5:1. Looking at the measures relating to the curriculum, one also sees that College C has one of the most proliferated curriculums of any of the colleges studied. The number of course credit hours is the highest of all five experimental colleges (347 credit hours); however, the fact that College C is the largest experimental college should account for some increase in course offerings. When the size of the student body is taken into account, however, College C still shows a larger than average curriculum. They offer .766 credit hours of courses per student, the second highest of all the colleges studied. The average for all five colleges is .621 credit

¹⁰⁵Cf. Appendix A, Figure 14.

hours of courses per student.¹⁰⁶ It should be kept in mind that College C also has built into its program a natural proliferation of offerings by allowing every faculty member the choice of what he will teach. The net effect of this faculty freedom essentially means that every class should be counted as a different course (the computation of course credit hours counted only the separate course numbers and titles, not the listing for each class).

An additional factor boosting the unit cost of College C above the unit cost in conventional programs is the average class size of the College. The average class size of College C is 11.6 students. Even using another method of determining class size, which eliminates the effect of counting all class credit hours, including those produced in independent study projects, College C has only 16.48 students per class, while College D has 21.31 students per class and College E has 22.86 students per class, using the same method. This low number of students per class in College C has a direct bearing on faculty productivity, because faculty members simply do not see many students in the classes they teach. College C also has slightly more than 40 per cent of its classes meeting in groups of ten or less, representing the highest proportion of small classes for any of the five colleges studied.¹⁰⁷

¹⁰⁶Cf. Appendix A, Figure 5.

¹⁰⁷Cf. Appendix A, Figure 9.

The number of student credit hours produced in independent study projects by College C is the second highest of the five colleges studied. This should not be surprising, given the fact that College C is the largest institution studied. However, in addition to the student credit hours produced under independent study course numbers, there are also a number of student credit hours of independent study produced in each course in the humanities and social sciences. These were not included in the calculation of student credit hours of independent study, because it was not clear that all students actually utilized the independent study option in each of the courses.

Turning to the measures of cost efficiency for College C, one sees that each faculty member produces, on the average, 264 student credit hours, which is below the average of 307 S.C.H.'s for the five experimental colleges studied. Figures were not available for the level of faculty productivity in CDE University as a whole, but if one assumes that they would be similar to figures for BB University (391 S.C.H.'s per F.T.E. faculty member), then it is clear that College C is substantially below the average for the parent institution.

The total salary expenditure attributable to teaching in College C is \$527,000, the highest single amount spent in any one of the five experimental colleges under study, as one might expect from the college with the largest faculty.

It is interesting to note, however, the effect that a low student-faculty ratio has on salary expenditure. College C has 8.5 students for each faculty member, based on full-time equivalency figures. The five college average is 9.8 students per faculty member, still quite low by conventional standards. For College C, 53 faculty members are required to serve 453 students at the current student-faculty ratio of 8.5:1. Each faculty member is paid nearly \$10,000, and the total salary expenditure is \$527,000. If the student-faculty ratio were 10:1, requiring 45 faculty members to teach 453 students, then the salary budget for College C would be \$450,000, a reduction of nearly \$80,000.

College C has the highest figure for salary expenditures attributable to instruction partially because it has a larger faculty. However, taking the number of students into account indicates that salary expenditures are not out of line completely. College C spends \$1,163 on salaries for each F.T.E. student. The average amount spent per student in the five colleges is \$1,170, indicating that College C is just below the average in per student salary expenditure.

Like College B at BB University, College C has been able to keep its salary expenditures within reason by using a large proportion of Instructors in its ranks. Like College B, College C has been able to utilize lower paid faculty to offset some of the more expensive methods of

operation. Unlike College B, however, College C has been unable to use graduate assistants extensively, perhaps because the pool of available graduate students is not as plentiful or as highly qualified as the pool at BB University. For whatever reason, College C has only 5.6 per cent of its faculty at the Graduate Instructor rank (compared to 42.7 per cent in the same rank at College B), but College C has 53.1 per cent of its faculty at the Instructor rank (compared to 30.5 per cent for College B).

Looking at the six variables identified as having the greatest influence on unit costs (faculty productivity, salary expenditure, class size, scope of curriculum, enrollment size, and student-faculty ratio), one sees that four of these variables tend to raise costs at College C. These variables are low faculty productivity, small class size, a prolific curriculum, and a low number of students per faculty member. The faculty is producing fewer student credit hours than one would expect, and the curriculum has proliferated to the extent that it has begun to affect class size. These factors are, of course, closely related. Faculty productivity is directly affected by class size, limiting the number of students seen by faculty members in the classroom, and class size is affected by the scope of curriculum in that the more courses offered to the same number of students, the fewer students will be available to fill each class.

On the positive side, College C has been able to control salary expenditures attributable to instruction, largely through the use of lower salaried Instructors. College C has limited the number of faculty in upper ranks, yet has been able to promote and tenure enough of its staff to keep the faculty satisfied with its progress.

College D

Summary. College D is for students interested in the natural sciences, combining in its curriculum General Education and natural science courses. The curriculum itself consists of a set of core courses and specified fields of concentration, consisting of a combination of prescribed courses mostly taken outside the College. The population of students at College D is smaller than any of the three previous colleges discussed, but it is slightly larger than the population of College E. Both Colleges D and E were begun in 1967 and were in their third year of operation when the financial data was collected for this study.

From a financial viewpoint, College D has a cost per student credit hour nearly identical to that of College C and close to the average for the five colleges studied. In addition, the unit cost for College D is not too far above the unit cost for the College of Natural Sciences at CDE University. The one thing that tends to increase cost at College D is the fact that faculty productivity is lower than the average for the five experimental colleges, and presumably below the average for the rest of CDE University. College D has the largest average class size of any of the

experimental colleges and has a limited scope of courses, both of which work in favor of reduced costs.

Purposes. College D was established in 1967 as a cluster college with the goal of providing education for students particularly interested in studying the natural sciences. At the same time another college, College E, was established to serve students interested in the social sciences. Both colleges emphasize the fact that their specialties are offered in the context of a broad framework of General Education. In the case of College D this combination of natural science and General Education means that courses are offered in all the basic sciences, along with courses in the historical, philosophical, and social aspects of the sciences. The program seeks to combine science and General Education in order "to create an awareness in students of the major problems facing man and his society today and tomorrow."¹⁰⁸

The goals of College D as seen through the eyes of students are stated in a handout for recruits prepared by the students in College D. They ask, "What are the differences between [College D] and the College of Natural Sciences?" The answer they give focuses on two aspects of the College--its community and its flexible curriculum. The community is unique, say the students, because all the students live in one dormitory that also houses the College

¹⁰⁸A published announcement of College D.

offices and some classrooms. This arrangement makes it possible for students in College D to have a greater sense of community. It is easier to get to know students with similar interests, and it is also easier to get to know faculty, according to the writers of this response.¹⁰⁹

The distinctive aspect of the curriculum noted by the students is that the curriculum allows students to have more freedom to build a flexible program in the sciences. They are able to individualize their programs for breadth in several areas, if they choose, or depth in one area, if they prefer. The student is more able to cross disciplines and choose courses in combinations that make the most sense to him.

Built into the aims of College D, then, is a concern for community and for human freedom, much like the concerns of Colleges B and C. However, College D is more conservative about the extent to which it is willing to allow these concerns to dominate academic content. Like College A, in some ways, College D has a body of knowledge it wishes to convey to students. The desire to convey that knowledge is equally important to the faculty and administration of College D as the desire to build community and support freedom of choice.

¹⁰⁹"Helpful Questions and Answers about [College D]," contributed and compiled by College D students (Unpublished mimeo, N.D.), p. 1.

The College handbook sets out six major objectives for the College. First, the College aims at providing students with a General Education in addition to education in the natural sciences. Students are given instruction in English rhetoric and general science in the College itself, while they take courses in the social sciences, humanistic studies and (optimistically) a foreign language outside the College in other University departments. Second, the College aims to give students instruction in the elements of mathematics, chemistry, physics, and biology through a combination of courses in and out of the College. Third, the College gives attention to the historical, philosophical, and social aspects of the sciences through formal courses and in informal discussions. Thus, the social relevancy and ethical aspects of science are consciously built into the operating objectives of College D. Fourth, concentration in one science is seen as an important aspect of a student's education. Working with a faculty member, the student develops a program from courses available in more specialized fields in the College of Natural Science at CDE University. There are also a few courses offered for majors in College D itself, mostly relating to the philosophy and history of science. Fifth, flexibility for individual interests of students is a working objective,

and sixth, the College aims to exploit the advantages of a small residential college as well as those of a large multiversity.¹¹⁰

College D's administration sees the College as much less innovative than either of the other two experimental colleges at CDE University. The Dean says that the College is not trying to develop new goals for the University or new life-styles for students.¹¹¹ Their aims are more limited, giving the goals of the College a clarity that is often lacking in other statements of purpose for other experimental colleges. College D is trying to educate future scientists who will have a breadth of vision provided by General Education and by the discussion of the philosophical and ethical aspects of science. The College is trying to provide this education in the context of a supportive community of like-minded students interested in science, and at the same time the College seeks to provide greater freedom of choice for the student than is normally found in conventional educational programs.

The curriculum. The clarity of goals for College D gives some indication of the type of curriculum offered by the College. There is a core curriculum of mathematics, computer science, chemistry, physics, biology, English, and

¹¹⁰"[College D, CDE University] : Program Planning Handbook" (Unpublished mimeo, 1970), p. 2.

¹¹¹Personal conversation with the Dean, Summer, 1971.

a senior seminar. Students also take a minimum of twelve hours each in the social sciences and in the humanities in the parent university.

In addition to the core courses, College D offers seven fields of concentration that are broader than conventional majors in a scientific department elsewhere in the University. The seven fields are Physical Science, Biology, Environmental Sciences, Mathematical Sciences, Earth Sciences, History and Philosophy of Science, and General Science. Within broad limits, students are allowed to choose upper level courses from the science departments of CDE University. In addition, the student may fulfill the requirements of a conventional department and establish a "coordinate" major in two areas (College D and the department). By having students take upper level courses outside College D the College has been able to avoid the problem of instituting specialized courses that could involve considerable laboratory facilities and equipment.

In spite of the desire to maximize student freedom, College D has a fairly prescribed program of core courses and fields of concentration. Even within the fields of concentration the choices of departments from which a student may choose is limited. There is almost no independent study in the College. However, the College does allow from 43 to 52 credit hours of electives. In comparison to other experimental programs, College D's curriculum may look highly prescriptive, but in comparison to other science

programs, College D allows substantial student freedom in terms of the breadth of departments from which a student may choose a field of concentration.

Faculty and students. Almost no research has been done on the attitudes and values of students or faculty at College D. This lack of work is regrettable, because the College offers an unusual residential experimental program in the natural sciences. The students and faculty there offer an interesting comparison to other students and faculty in liberal arts programs, more typical of most cluster colleges.

The faculty at College D are either full-time teaching faculty for the College, or they are on joint appointments, dividing their time between College D and other departments. Like College C, College D is moving to increase the number of full-time appointments in the College, feeling that a core of faculty is needed to give the College stability. In addition, the Dean feels that he does not get the full share of a person's time and commitment on a part-time appointment. By way of contrast, College B at BB University has demonstrated that their part-time faculty members spend more, not less, time in the College than they have actually contracted for.

The only information about the students at College D relates to how frequently they leave the College. After three years of operation the College had enrolled a total of 972 students. Of these students, 341 or 35 per cent had

left the College, with 237 or 24 per cent of the total transferring into other programs at CDE University, and 104 or 11 per cent of the total going elsewhere. On an annual basis College D lost 11.6 per cent of its students, regardless of where they relocated. For students leaving CDE University completely from College D, the annual dropout rate was 3.6 per cent. No comparable figures are available for CDE University as a whole, but there are comparable figures for one of the other experimental colleges at CDE, College E. For the same three year period College E, the Social Science experimental college, had a total of 700 enrollees. Out of that group of 700, 286 or 41 per cent of the total dropped out, 237 or 34 per cent of the total left the College for other programs within the University, while 49 or 7 per cent of the total withdrew from the University altogether. The annual rate of withdrawal for College E, then, regardless of where the student relocated, was 13.6 per cent. For students leaving the University the annual dropout rate was 2.3 per cent, slightly lower than the 3.6 per cent for College D.¹¹²

Economics. Both Colleges D and E tend to have smaller student populations than the other three colleges studied. College D, for example, has 219 full-time equivalent students (cf. Table 6), and College E has 206 F.T.E. students

¹¹²Data for College D based on figures given by the Dean in a personal conversation, Summer, 1971. Data for College E based on figures in "[College E, CDE University]: Annual Report, 1969-70" (Unpublished mimeo, 1970), p. 64, Table 2.

TABLE 6 .

DATA ON CURRICULUM AND COSTS FOR COLLEGE D
ACADEMIC YEAR '69-'70

Faculty and Students

1. Full-time equivalent faculty.	23.43
2. Full-time equivalent students	219.00
3. Student-faculty ratio	9.5:1

Curriculum

4. Number of course credit hours	129
5. Course credit hours per F.T.E. student.	0.589
6. Number of class credit hours.	305
7. Number of student credit hours.	7,021
8. Average class size.	23.10
9. Per cent of small classes (10 or less students)	20.5%
10. S.C.H.'s of independent study	29

Cost Efficiency

11. S.C.H. per F.T.E. faculty member.	274
12. Total salary attributable to instruction	\$255,000
13. Salary per F.T.E student.	\$1,164
14. Cost per S.C.H.	\$36.40

(cf. Table 8). The average full-time equivalent student body for the five colleges studied is 332.¹¹³ In the case of College D, its size, taken by itself, does not seem to have a negative effect on unit cost. The unit cost is almost identical to College C, which has more than twice the number of students.

Because of the small number of students in College D, there are fewer faculty members there than at any other experimental college studied, but the ratio of students to staff is 9.5:1, just below the average for the five colleges studied. Although figures are not available for any of the parent universities on student-to-staff ratios, one suspects that they are considerably higher than the average for the five experimental colleges of 9.86:1.¹¹⁴ This means simply that it takes more faculty to educate the same number of students in the experimental colleges, and, all other things being equal, this increase in teaching staff costs the cluster colleges more money. If a low student-faculty ratio is accompanied by low levels of faculty productivity, unit costs as well as salary costs tend to be higher.

The measures relating to curriculum all reflect the smaller size of College D. There are fewer course, class and student credit hours produced, for example. When the number of students is taken into account, however, the

¹¹³Cf. Appendix A, Figure 2.

¹¹⁴Cf. Appendix A, Figure 3.

number of course credit hours per student is .589, which is about average for the five colleges studied.¹¹⁵ This indicates an average proliferation of courses for an experimental college. The average class size for College D is the largest of all the experimental colleges studied.¹¹⁶ But the percentage of classes with ten or fewer students is the lowest of all the colleges in this study.¹¹⁷

College D has almost no independent study offerings. All the other experimental colleges produce large numbers of credit hours of independent study in relation to College D.¹¹⁸

Faculty productivity is below average in College D, despite the fact that College D has large average class size. Other factors besides class size have an effect on faculty productivity, however. Variations in the number of class credit hours produced per F.T.E. faculty member has an effect on faculty productivity. Table 7 shows that both College D and E have substantially lower average class credit hours taught by each full-time equivalent faculty member, indicating that they are meeting fewer classes than faculty in the other experimental colleges, or perhaps, that their courses are offered for lower credit than other

¹¹⁵Cf. Appendix A, Figure 5.

¹¹⁶Cf. Appendix A, Figure 8.

¹¹⁷Cf. Appendix A, Figure 9.

¹¹⁸Cf. Appendix A, Figure 10.

colleges, which does not appear to be the case from a review of course descriptions. College D has low productivity among its faculty primarily because they are teaching lighter loads than their colleagues. Also, they have no student credit hours produced in independent study projects, which would boost their productivity. In spite of larger classes their productivity is among the lowest of any of the experimental colleges studied.

TABLE 7

AVERAGE NUMBER OF CLASS CREDIT HOURS TAUGHT BY
EACH F.T.E. FACULTY MEMBER AT FIVE
EXPERIMENTAL CLUSTER COLLEGES
ACADEMIC YEAR '69-'70

	No. of Class Credit Hours Taught Per F.T.E. Faculty Member
College A	33.50
B	24.16
C	23.49
D	13.03
E	11.53

Looking at other measures of cost efficiency, Table 6 shows that the salary expenditure attributable to instruction at College D is \$255,000, the lowest of all the colleges studied.¹¹⁹ In relation to the size of the student

¹¹⁹Cf. Appendix A, Figure 12.

body, however, the number of salary dollars per student is \$1,164, very close to the average expenditure for a student at all the colleges.¹²⁰

In a similar manner, the cost per student credit hour in College D is very close to the five college average. College D spends \$36.40 per student credit hour, while the average for all the five colleges studied is \$36.75. The unit cost in College D is only slightly higher than a comparable unit cost in the departments of natural science, which is \$29.00.¹²¹ College D has a smaller margin of difference between its unit cost and the unit costs in more conventional forms of education in the sciences. Only College B has a smaller margin of difference.

Looking at the six variables that influence unit cost (faculty productivity, salary expenditure, class size, scope of curriculum, enrollment size, and student-faculty ratio), one sees that three of the factors tend toward the mean of the five colleges studied, when the size of College D is taken into consideration. Salary expenditures per student are close to the five college average, as are the number of course credit hours per student and the number of students per staff member. Two other factors tend toward the extremes for experimental colleges. The average class size is the largest of all the experimental cluster colleges

¹²⁰Cf. Appendix A, Figure 13.

¹²¹Cf. Appendix A, Figure 14.

studied. However, faculty productivity is low in comparison to other experimental schools. Finally, enrollment size in College D is below the average for other cluster colleges studied, but it has already been noted that none of the colleges is large enough to gain any economy of scale.

The net result of the influence and interaction of these factors is that unit costs for College D are about average for the experimental colleges studied. The cost is slightly above comparable cost in the departments of natural science in CDE University, but College D's cost is closer to the cost in programs run by conventional methods than most of the experimental programs.

College E

Summary. College E began in 1967, the same year in which College D was started. College E was designed primarily for the education of students interested in the social sciences. Like most of the other colleges studied it combined living and learning environments, hoping to stimulate the learning process both in and out of the classroom.

One of the unique things about College E is that its curriculum takes a problem-centered approach to the teaching of the social sciences. The curriculum focuses on policy problems that arise on a local, national or international level. This curriculum is designed primarily for upper division students who have satisfied most of their distribution requirements in the parent institution and have taken an introductory course in the social sciences in College E. In addition to upper level courses taken by students in the College, everyone is expected to take a semester of field work off campus in a government, social work or private agency related to their field of study.

College E shows the highest cost per student credit hour of all the colleges studied. They also have the highest salary expenditure per student and the lowest student-faculty ratio of any of the cluster colleges. The

primary reason for the high costs in College E comes from the fact that they have not been able to attract the number of students necessary to fill the classes offered by the College. Yet, the College has a full staff of faculty that must be paid. The administration of the College is fully aware of its problems and is working to increase the student population. When data for this study was collected, however, College E was the smallest of all the colleges studied with 206 F.T.E. students.

Purposes. Like the previous college discussed, College D, College E was begun in 1967 and was in its third year of operation when this study was done. College E has as its special concern the education of students interested in the social sciences. The College has developed a distinctive approach to teaching the social sciences, centering around the study of policy problems that arise in legal, international, ethnic, urban or socio-economic fields. This approach attempts to combine student concern about contemporary problems with a systematic multi-disciplinary application of social science disciplines. In addition, direct student involvement with policy making agencies is encouraged through the requirement of fifteen hours (one term) of off-campus field work.¹²²

Like most of the other experimental colleges in this study, College E has as one of its major objectives the

¹²²" College E, CDE University : Annual Report, 1969-70" (Unpublished mimeo, 1970), p. 3.

creation of a small residential community within the larger University. The administration hopes that the advantages of a small liberal arts college will be combined with the advantages of a major university. Integration of housing units, classrooms and faculty offices attempt to facilitate the mutual enrichment of both the curricular and extra-curricular experiences. In the words of one College administrator:

A residential college is a place where the intellectual offerings of the college are integrated with the social and individual lives of the students. By bringing the curriculum more directly into the place where people live, we have a better chance of showing students the relevance of academic learning to their lives and of generating the kind of interest and motivation necessary to sustain them when they undertake difficult scholarly work.(123)

The combining of living and learning environments is also seen by College E personnel as a way of helping students get the most from their teachers. The students see their teachers in situations in which the faculty reveal themselves as people who can inspire students with their scholarly and professional commitment. Students also have the opportunity to see their teachers as persons as well as scholars. The administration feels that the desired kind of interchange between students and faculty "can only occur if the ratio of students to teachers is not excessive."¹²⁴ True to its goals, College E has the lowest student-faculty

¹²³Ibid., p. 37.

¹²⁴Ibid., p. 38.

ratio of any of the experimental colleges studied. They have one full-time equivalent faculty member for every 6.2 full-time equivalent students.

Like the natural science experimental college, College D, the social science college, College E, has fairly explicit goals. Both colleges have a somewhat narrower view of what their mission is, since they are confined to a narrower set of disciplines than the other experimental colleges, which are trying to deal with all of the liberal arts. College E has as its task the education of students interested in the social sciences and the provision of a supportive living-learning environment. In addition, the College has a problem-centered approach to the study of the social sciences and encourages its students to become involved with policy agencies through the field experience program. There is no mention in their literature of educating the "whole man" nor of providing students with a new life style. These ideas may be a concern of the College, but they are derivatives of the more basic concern for the education of future social scientists who may be involved in teaching, research or administration of one or another Social Science disciplines or social agencies.

The curriculum. Perhaps the most striking thing about the curriculum of College E is the fact that it is predominantly an upper division curriculum. Most of the courses are offered for juniors and seniors majoring in the

social sciences. In contrast to the upper division orientation of College E, the other two experimental programs at CDE University focus much more on the lower level courses. College C, the humanities college, is concerned about providing students with a broad coverage in a variety of interdisciplinary courses with no majors offered in the College itself. College D, the natural science college, also offers freshman and sophomore courses with its fields of concentration being based on a list of prescribed courses which are taken outside the College itself, thus avoiding some highly expensive specialized science courses. With an emphasis on upper division courses, one usually associates slightly lower faculty productivity, smaller classes, and higher unit costs. All of these factors are found in College E, but one cannot say that the only reason College E costs more is because it teaches predominantly upper division courses.

In addition to the upper division character of College E's curriculum, the College requires that all students take an introductory course in the study of policy problems and a course in behavioral methodology, both of which are taken in College E itself. Students must also complete the General Education requirements of CDE University which include courses in the humanities, language and writing skills, and the natural sciences, all of which are taken outside the College. The General Education requirement in the social sciences is fulfilled

by the College's introductory course. Students are also required to complete, annually, one substantial research paper (2,500 to 4,000 words for freshmen and 5,000 to 7,500 words for all others). Finally, students are required to take either a foreign language or complete a series of courses in an areas study program. One term off campus and completion of the requirements for a field of concentration fill out the requirements of the College.¹²⁵

The freshman course in policy problems serves both to satisfy the University's social science requirement and to give the new student an introduction to the substance of the College's five fields of concentration. It is viewed by the College administration as one completely unique component of the College's first year program. In an evaluation of the course conducted by the College, 76 per cent of the students said the the course had increased their insight into social issues and 39 per cent reported that such insight had been increased a great deal.¹²⁶

The course consists of a series of summary overviews of each of the major areas covered in the fields of concentration, plus a unit on the basic approach to learning as conceived by social scientists.

The second required course focuses on the quantitative methods of the social sciences. The course is designed to

¹²⁵" College E Student Handbook: 1970-71" (Unpublished mimeo, 1970), pp. 2-3.

¹²⁶"Annual Report," pp. 7-11.

give the student reasonable proficiency in the design and carrying out of research, the evaluation of research studies and proposals, and the ability to assess the validity and interpretation of data used to support arguments.¹²⁷

The writing requirement of College E has been hotly debated by faculty, students, and administrators. Under this requirement all students must complete at least one substantial documented paper annually. Papers from other courses are allowable for the completion of this requirement. Students protested the requirement, either on the grounds that it is redundant or on the grounds that freshman level courses do not provide opportunity for such papers. Students also complained that faculty standards about the requirement were lax. The requirement has subsequently been changed to allow freshman to submit several shorter papers in place of the one long work.¹²⁸

In a similar fashion the requirement for a foreign language has been changed to allow greater flexibility in the options designed to fulfill the requirement. Prior to 1970-71 a student had to attain a two-year proficiency in a foreign language or a one-year proficiency plus nine hours of course work dealing with one related foreign area. At the present time six courses in one area, such as foreign area study, humanities, or social science methodology,

¹²⁷Ibid., p. 11.

¹²⁸Ibid., pp. 16-18.

are allowed as alternatives to the language proficiency requirement.¹³⁰

As a supplement to the regular instructional program, College E offers a series of special, topical courses. These courses are taught by either resident faculty or visiting scholars or policy makers who want to teach in their particular field of competency for a term. Offerings vary from instructor to instructor and from year to year, but in the past, courses have been offered on Vietnam, The Presidential Election of 1968, The Maoist Regime, and Marx-Weber.¹³⁰

The fields of concentration focus on specific problem areas in a multi-disciplinary approach. Each field consists of courses drawn from both the College and the larger University with courses offered in the College providing an integrating function for disparate courses taken in the University. There are five fields of concentration: one dealing with legal problems; another dealing with the problems of ethnic and religious conflicts in society; and others dealing with international relations, the urban community, and socio-economic problems. The curriculum for each of these fields of concentration offers a combination of philosophical, analytical, and practical approaches. The courses dealing with issues of law, for example, focus on questions of value theory concerning man as an individual

¹³⁰Ibid., p. 48.

and as a member of civil society. The student "Handbook" describes the curriculum as follows:

In today's world there is a general recognition that descriptive and analytical empirical science has been emphasized at the expense of ethical disciplines. The present curriculum takes as its point of departure morality, political science and law which are inescapably concerned with values. Hence, while the descriptive component of policy science is included, it is made subordinate to the normative component.⁽¹³¹⁾

Another popular field of concentration deals with ethnic and religious intergroup relations. The objective of this curriculum is to assist students in studying the historical and current problems of ethnic and religious groups. The diversity of student interests in this topic is reflected when the "Handbook" says, "Some students may be largely oriented to the search for policy solutions while others may be more interested in the problems of scholarly comprehension and analysis."¹³² In each field of concentration the student takes from twenty-four to thirty-six credit hours of courses in the College, with twelve to twenty-four credits taken outside the College.

The field experience program is seen by the College as an integral part of the curriculum, with each student required to take one quarter or fifteen credit hours of work in public agencies or institutions related to their field of study. Students are graded on a pass-no credit basis and are required to complete an extensive journal or

¹³¹"Handbook," p. 28.

¹³²Ibid., p. 16.

analysis of their experience. As of September of 1970, 100 students had been placed in positions in Washington, D.C., New York City, Chicago, and Michigan. There has been some problem matching students with the job and adjusting to the routine of bureaucratic life. Financial support for the students has also been uneven, but, on the whole, the field program is viewed as highly successful in exposing students to first hand problems of social agencies and institutions, and in providing students with future job opportunities.¹³³

Finally, independent study projects are available for students in good academic standing. Credit may vary from one to four credit hours per term with no more than twenty-four credits being taken by one student over his four years in the College. In the 1969-70 academic year College E produced 845 student credit hours in independent study projects, slightly below the average of 932 for the five experimental colleges in this study.

Faculty and students. Like the other two experimental colleges at CDE University, College E began with faculty members who were jointly appointed in the College and in a conventional department. The College has generally found this arrangement to be unsatisfactory because of conflicting emphases found in the College and in the departments. The College stresses quality undergraduate instruction, while

¹³³"Annual Report," pp. 28-29.

the departments tend to stress the importance of research and graduate instruction. The net result of this conflict is that only seven of the College's faculty members are on joint appointments for the '70-'71 academic year.¹³⁴

The students in College E seem to reflect the tendency of most cluster college students toward slightly higher than average academic ability and intellectual orientation.¹³⁵ The academic ability of students in College E was compared with the ability of entering freshmen at CDE University. Median test scores of both groups were compared in the Fall of 1969 and College E students scored higher than the average entering freshman at CDE.¹³⁶

The College and University Environment Scale (CUES) was administered in 1969-70 and College E students described their teachers as dedicated scholars, who were helpful and concerned about national and international issues. Students were interested in controversial speakers; they like to argue; perceive that their course material is frequently revised; share problems with each other; and feel free to express strong convictions. Data also indicated that there was extensive faculty-student interaction,

¹³⁴Ibid., p. 70. The figures used do not include graduate assistants.

¹³⁵Paul Heist and John Bilorusky, "A Special Breed of Students," in The Cluster College, ed. by Jerry Graff (San Francisco, 1970), pp. 71-104.

¹³⁶"Annual Report," p. 67. No indication was given as to the nature of the tests used, nor were significance levels given.

and that students generally perceive their environment as being intellectually stimulating and gratifying.¹³⁷

Freshman students were also administered the Omnibus Personality Inventory (OPI) along with a control group which was not in the College but lived in the same dormitory complex. The major difference between the two groups was in intellectual orientation, with College E students showing a stronger orientation toward reflective thought, artistic interests and preference for dealing with ambiguity and complexity. In addition, College E freshmen showed less of a practical orientation than did the control group. College E males scored significantly higher on autonomy scales and on masculinity-femininity scales, indicating that their intellectual orientation is reinforced by high autonomy and rejection of traditional masculine-feminine roles.

In the previous section on College D it was pointed out that both Colleges D and E had relatively high attrition rates, although one does not have comparable data from the parent institution against which to judge the experimental colleges' figures. In three years College E had 700 enrollees of which 286 or 41 per cent had dropped out; 237 or 34 per cent had gone into other programs in CDE University; and 49 or 7 per cent had withdrawn from school altogether. The annual rate of withdrawal of students,

¹³⁷Ibid., p. 61.

regardless of future plans, was 13.6 per cent, while the annual dropout rate for those who left the University for unknown destinations was 2.3 per cent, slightly lower than the 3.6 per cent withdrawal rate for College D.

Economics. One of the most striking things about the data for College E (Table 8) is seen in the figures on the number of faculty and students. There are nearly 33 full-time equivalent faculty, while there are only 206 full-time equivalent students, giving a student-faculty ratio of 6.2:1, the lowest ratio of any of the experimental colleges studied.¹³⁸ The administration is fully aware of this low ratio and explains that they made the mistake of hiring a full staff to teach all of the proposed courses for the College before they had a full cadre of students. They have not been able to attract the number of students into the program that they had hoped for, and as a result they have a low student-faculty ratio. The administration has begun to cut down its staff and anticipates a larger enrollment to raise this ratio.¹³⁹

The fact that College E began with a full complement of faculty and courses, but with fewer students than anticipated, shows up in the data on curriculum also. The College produced 6,579 student credit hours, the lowest

¹³⁸Cf. Appendix A, Figure 3.

¹³⁹Personal conversation with the Acting Dean, Summer, 1971.

TABLE 8
DATA ON CURRICULUM AND COSTS FOR COLLEGE E
ACADEMIC YEAR '69-'70

Faculty and Students

1. Full-time equivalent faculty	32.59
2. Full-time equivalent students	206.00
3. Student-faculty ratio	6.2:1

Curriculum

4. Number of course credit hours	175
5. Course credit hours per F.T.E. student.	0.845
6. Number of class credit hours	376
7. Number of student credit hours	6,579
8. Average class size	17.50
9. Per cent of small classes (10 or less students)	24.6%
10. S.C.H.'s of independent study	845

Cost Efficiency

11. S.C.H. per F.T.E. faculty member	202
12. Total salary attributable to instruction	\$313,000
13. Salary per F.T.E. student	\$1,519
14. Cost per S.C.H.	\$47.57

number of any cluster college studied.¹⁴⁰ At the same time, College E had 845 course credit hours per student, the highest figure of all the colleges studied.¹⁴¹ These figures indicate that College E had the highest proliferation of courses, even taking into account the fact that they had the smallest student body and student credit hour production.

The average class size for College E was 17.5, slightly above the average for the five experimental colleges, which had an average of 16.14 students per class.¹⁴² The percentage of small classes with ten or fewer students was 24.6 per cent, slightly below the five college average of 28.78.¹⁴³ The number of student credit hours produced in independent study projects was 845, which was again slightly below the average for all five colleges of 932 S.C.H.'s.¹⁴⁴

The measures of cost efficiency for College E reflect the fact that the College had a high proliferation of courses and too few students to fill the classes. Faculty productivity is the lowest of any of the experimental colleges studied, with each faculty member producing

¹⁴⁰Cf. Appendix A, Figure 7.

¹⁴¹Cf. Appendix A, Figure 5.

¹⁴²Cf. Appendix A, Figure 8.

¹⁴³Cf. Appendix A, Figure 9.

¹⁴⁴Cf. Appendix A, Figure 10.

an average of 202 student credit hours. This figure is substantially below the average for the five colleges of 307 S.C.H.'s.¹⁴⁵

Because the College had to pay all the faculty it hired and had few students among whom to spread the salary attributed to instruction, the salary per student is the highest of all the colleges studied (\$1,519 per student).¹⁴⁶ As one might expect, then, the cost per student credit hour was the highest of all the colleges studied, \$47.57, which is substantially higher than the average of \$36.75 for all five colleges.¹⁴⁷ This figure was also higher than comparable costs in the parent university's departments of social science. These departments had an estimated cost per student credit hour for undergraduate education of \$18.00.

In terms of the six factors that have the most influence on unit cost (faculty productivity, salary expenditure, average class size, scope of curriculum, enrollment size, and student-faculty ratio), only one, class size, is working to lower costs. This factor is offset, however, by the low number of class credit hours produced by each faculty member in College E, 11.23, the

¹⁴⁵Cf. Appendix A, Figure 11.

¹⁴⁶Cf. Appendix A, Figure 13.

¹⁴⁷Cf. Appendix A, Figure 14.

lowest number of all the colleges studied.¹⁴⁸ This figure indicates that faculty in College E simply had a lighter teaching load than any of their colleagues in the other experimental colleges in this study.

All of the other factors influencing costs work to boost costs rather than to lower them in College E. Faculty productivity, salary per student, enrollment size, and student-faculty ratio are all the lowest of any of the five experimental colleges studied, and the measure of the scope of the curriculum in relation to student body size, course credit hours per student, is the highest of all the colleges studied.

Clearly, College E will have to build up its enrollment without increasing the number of courses offered or the size of its faculty, if it is to become a less costly operation. If the steps can be taken to reduce costs, and indications are that they already are being worked on, then College E can bring its costs more in line with other experimental programs and conventional education. Because the College is operating primarily as an upper division college, however, it may mean that students and faculty will expect slightly smaller classes and lower student-faculty ratios than in a similar college operating primarily as a lower division college. If these expectations are met, then College E may continue to have slightly higher unit costs than other lower division programs.

¹⁴⁸Cf. Table 7, p.

CHAPTER IV

ANALYSIS OF DATA

Because of the small sample size in this study ($n = 5$), limited statistical manipulation can be done with the data. When it is done, the results are not usually statistically significant. For example, correlation coefficients must be equal to or greater than 0.878 to be significant at the .05 level. One of the problems with a small sample is that a researcher has no way of knowing whether or not the data he is using comes from a freak sample that will never occur again in a population. Thus, no sure generalizations can be made from the sample.

The purpose of this study, however, is not to formulate generalizations applicable to all experimental cluster colleges, but rather to study several cluster colleges and the ways they control costs. Hopefully, this study provides some initial clues about cost control in experimental colleges that can be followed up by a study with a larger sample. For the present, this study focuses on the development of preliminary hypotheses and new insights into the peculiar problems of controlling costs in experimental cluster colleges.

This chapter is concerned, first, with the identification of factors that influence costs in the five colleges under study. From the review of the literature, six factors were identified as being especially important to cost analysis, and the empirical data shows that five out of these six factors correlated highly with cost per student credit hour. The second section of this chapter deals with the special problems arising in cluster colleges in their attempt to control costs. This analysis is based on the examination of common issues raised in each of the colleges. The third and fourth sections of the chapter contrast two sets of colleges. In one set, the college that exerts control over a large number of factors is contrasted with the college that has little control over the factors affecting costs (high cost control vs. low cost control). In the other set, the college with the highest unit cost is contrasted with the college with the lowest cost. Finally, a comparison is made between colleges operating under different philosophical presuppositions in order to determine whether differences in philosophy affect differences in cost control. The colleges in this study are divided between those emphasizing the content of a particular discipline and those emphasizing the process of individual development. Data from each type of college are pooled and differences in the data are studied.

The Factors That Influence Cost

The identification of factors that influence cost in Chapter II showed that six factors were more important than others. These factors were faculty productivity, salary expenditure, class size, scope of curriculum, enrollment, and student-faculty ratios. This study found that five out of the six factors tended to be important influences on costs in the colleges studied. Table 9 shows the correlations between the six factors and the cost per student credit hour (a full table of correlations is shown in Appendix B). These correlations are important because they show the relative influence of these factors for the five experimental colleges studied. With the exception of the cost per student, none of the correlations reach statistical significance, but they are valuable in showing the relative influence of factors in the five colleges studied. The data should not be used to make generalizations about the importance of factors in other colleges.

TABLE 9
CORRELATIONS BETWEEN COST PER STUDENT
CREDIT HOUR AND SIX FACTORS IN
FIVE EXPERIMENTAL COLLEGES
ACADEMIC YEAR '69-'70

	Correlation With Cost Per S.C.H.
Productivity (S.C.H. per F.T.E. Faculty)	-0.6295
Salary (Cost per Student)	0.9993*
Class Size	0.0974
Scope of Curriculum (Course Credit Hours per Student)	0.3069
Enrollment (F.T.E. Students)	-0.4632
Student-Faculty Ratio	-0.6535

*Significant at .05 level

The salary spent per student is highly correlated with cost per student credit hour. This correlation shows that the amount of money spent on each student is directly related to the amount spent per student credit hour. Variations in the amount of money spent per student will have the most direct affect on the cost per S.C.H. It should be noted, however, that the total salary spent by each college on instruction has a very low correlation with cost per S.C.H. ($r = 0.1036$). It is only when the size of the institution is taken into account that the salary figure becomes significant.

The second most important factor influencing cost per S.C.H. is the student-faculty ratio. The negative correlation between the student-faculty ratio and the cost per S.C.H. shows that a high number of students per faculty member will be associated with a low unit cost. In other words, an experimental cluster college with a student-faculty ratio of 20:1 will tend to cost less than a college with a ratio of 10:1, all other factors being equal.

The third most important factor influencing costs is the level of faculty productivity. The negative correlation of faculty productivity and cost per S.C.H. shows that a college with a high number of student credit hours produced by each faculty member will tend to cost less than a college with a low number of student credit hours produced per faculty member.

Fourth, the enrollment of a college will affect the costs of the five experimental colleges studied. A college with more students will tend to have lower unit costs than a college with few students.

Fifth, the scope of the curriculum will affect unit costs in the five colleges studied. The negative correlation between the number of course credit hours per student and cost per S.C.H. shows that a college with a low proliferation of courses will tend to have lower unit costs than a college with a high level of proliferation.

Finally, data from this study show that there was virtually no relationship between class size and cost per

S.C.H. This lack of correlation suggests that there is a range of average class sizes in the five colleges that has little relationship to the cost per S.C.H.

Special Problems Arising in Cluster Colleges
in Controlling Costs

The determination of productivity. One problem that experimental cluster colleges face is that many of the activities of the faculty do not result in the productivity of student credit hours. Thus, when calculating the number of student credit hours per faculty member, the experimental units may appear to have low levels of productivity. In a conventional college, such as the liberal arts college in BB University, the average number of S.C.H.'s per faculty member is 391. The average for the five experimental colleges is 307. This lower level of productivity in experimental cluster colleges is partially due to smaller average class size and lighter teaching loads in the experimental colleges, but it is not necessarily true that faculty in the experimental programs are working less than their colleagues in conventional programs.¹ Many of the activities of faculty in experimental programs simply do not get taken into account in the determination of productivity when the student credit hour is the basis for determining productivity.

¹Cf. the comment of the Dean of College C, page 116 of this study.

In College A, for example, there are six non-teaching administrative positions that do not produce student credit hours. Yet, the functions of these persons are considered vital to the College. These administrators take on jobs not normally found in a regular department, such as fund raising, counselling, recruiting students, and conducting evaluative studies of the College's internal operations. Because certain additional functions are viewed as essential to the life of the College, their productivity looks low and their costs look high. It is difficult to measure the productivity of these services, and there is no direct way of converting that productivity into student credit hours.

In all of the colleges studied faculty spend a great deal of time contributing to the community life of the college, and, like administrative services, these activities do not result in student credit hour production. For example, in College B a number of faculty members are involved in the representative assembly which is the governing body of the College. This assembly is composed of equal numbers of students and faculty. The activity of this assembly is to debate and set policies in all areas of the College's life, a task which takes a great deal of time for a large proportion of faculty in the College. In addition, faculty in College B are all on joint appointments, which means that they are often asked to become involved in the affairs of their home department. If the faculty in College B want to be involved in the broader policy making of the

of the liberal arts college or graduate school of BB University, a large portion of their time can consequently be spent in activities that do not produce student credit hours.

Another area of faculty activity that does not result in the production of student credit hours is the development and evaluation of new curriculum. Many of the colleges studied are involved in developing new, interdisciplinary courses which must be planned and evaluated as well as prepared for and taught. In a more established department or college the basic offerings are well established and do not demand the planning and evaluation necessary in an entirely new program. A high proportion of the faculty must be involved in the planning sessions in a new experimental college. For example, in College E, the social science college at CDE University, the freshman introductory course involves the development of a sequence of units for each of the five fields of concentration, requiring the participation of nearly every faculty member in the College. An entirely new text has been developed for this course as a result of faculty effort, but this activity has not resulted in student credit hour production.

Finally, the time a faculty member spends in interaction with students on academic matters outside the classroom does not produce student credit hours. For example, both College B and C have active language programs which have their own language tables during the lunch hour.

These language tables require the availability of a faculty member nearly every day.

Also, the fact that faculty members have their offices located throughout the living areas of a college invites students to drop in for a discussion about work. These discussions occur more frequently in the cluster college setting than in the conventional department setting in which offices are grouped together in areas away from student circulation. The increased interaction between students and faculty in academic matters outside classroom hours does not show up on normal work load studies because such activity does not produce student credit hours.

In the final analysis, much of the activity of faculty members in experimental cluster colleges does not produce student credit hours, and, as a consequence, faculty productivity appears to be lower than normal and costs based on student credit hour production appear to be higher than normal. In addition to teaching and research, which are expected of every faculty member, the cluster college faculty are also expected to take on a variety of other activities seen as essential to the mission of the college. They must take on administrative activities, help in community development, develop and evaluate new curriculum, and see students outside classroom hours. None of these activities produce student credit hours.

The determination of salary expenditures. One problem that is unique to new experimental programs is

the calculation of the salaries of faculty who teach voluntarily or who are loaned by another department. College B is a good example of a program that has a high degree of success in recruiting faculty that they do not have to pay. Some faculty are willing to volunteer their services without charge by taking on new courses in addition to their normal teaching load. Other faculty members are loaned by their departments to teach, without cost to the experimental colleges, as part of their regular teaching load in the department. If these non-stipendiary faculty make up a large portion of the teaching staff of an experimental school, the apparent costs of the program may be very low. In College B, for example, 23.5 per cent of the faculty have been loaned or have volunteered, and their total salary contribution amounts to \$55,889 (which was included in the calculation of costs for College B in this study).

The fact that a college can secure a large number of volunteer or loaned faculty can make the difference between economic success or failure for the college. The problem for experimental colleges is not the presence of unpaid faculty but their absence--that is, what happens when the unpaid faculty leave and the college must pick up the position with its own resources? In the times of economic stringency, when otherwise generous department chairmen find that they are unable to fill their own vacancies, loaned faculty may be recalled and asked to carry additional

responsibilities. An experimental college that has depended largely on unpaid faculty may be left with unfilled teaching positions or increased costs.

In order to avoid unexpected setbacks due to the loss of unpaid faculty, an experimental college can calculate its expenditures as if it was paying for all of the instruction provided in the college, regardless of who pays the faculty. This procedure allows for a realistic estimate of costs and more accurate comparisons with programs that are paying their own way without the help of volunteers (this procedure was followed in the calculation of costs in this study). The one drawback to using this method is that it does not give credit for savings that are a result of the use of volunteer faculty. Colleges can save substantial sums of money by using volunteers, as was seen in the case of College B. The use of volunteers should be done with caution, however, for the availability of unpaid faculty may decrease as departments become less willing to let their faculty members teach outside the department. Variations in the use of volunteer faculty may be a cause for variation in the unit costs of programs, also, and the variations in the use of volunteer faculty should not be judged as a real economy over the long run.

The influence of philosophical presuppositions. In a later section of this chapter the influence of philosophical presuppositions on unit costs will be discussed by comparing content-oriented and process-oriented schools. This present

section is designed simply to show that many factors influencing cost are determined by philosophical or educational presuppositions, rather than by consideration for controlling costs. It is quite proper that many aspects of a program should be determined by educational considerations, but this arrangement may make it particularly difficult for experimental cluster colleges to control costs because the faculty is anxious to establish an educational program reflecting a particular philosophical viewpoint. For example, one of the aims of College A is to develop intellectual independence in its students. This aim results in a heavy emphasis on independent study, which can be very expensive. Colleges B and C, to give another example, aim at the development of personal characteristics within students. This aim results in smaller classes and a low number of students per faculty member, both of which can raise costs.

The proliferation of courses can be the result of a particular philosophical viewpoint, conflicting with cost control. College E, for example, has a specialized upper level curriculum in the social sciences which requires a large number of specialized courses. This proliferation of courses results in higher unit costs. On the other hand, College A organizes its curriculum around a few core courses, which could reduce unit costs, all other things being equal.

Another factor that is largely determined by philosophical as opposed to economic considerations is the size of the student body. In all of the colleges studied

there is a desire to reap the benefits of a small college setting. This aim, however, results in small student enrollments that preclude the achievement of any economy of scale.

The availability of faculty. Another factor that may be a particular problem for experimental cluster colleges trying to control costs is the availability of full-time faculty. In the descriptive section on College B it was pointed out that there is a large pool of available teaching assistants and young faculty willing to teach in the College. This situation results in extensive use of faculty in the lower pay scales, which lowers the overall salary expenditures for College B. College A, on the other hand, is in an urban commuter university with limited graduate programs and fewer available teaching assistants. College A has not chosen to use younger faculty or teaching assistants from the university, depending, instead, on higher ranking and more experienced faculty members.

Another aspect of this problem is the availability of part-time faculty from the parent university. College B uses a large number of part-time faculty who are either volunteers or are loaned from other departments. This College also employs some part-time faculty wives who are qualified to teach on a college level. The use of part-time teachers clearly offers some savings to the college, because the college is able to hire part-time help at a lower rate than full-time help. For example, a faculty

member may be allowed by his department to teach in the experimental college on a part-time basis, but College B pays the department only a fraction of the real salary the man would normally get for teaching a course. Also, faculty wives are paid on part-time rates that are often lower than the rate for teaching fellows.

The employment of part-time faculty can result in lower costs. The experimental unit employing part-time personnel is not obligated to promote these faculty members to tenured positions. A part-time faculty member who teaches nowhere else in the university is not on a tenure track and can remain at a low salary level for an indeterminant amount of time. A part-time assistant professor from another department can teach in an experimental college for a year or two, and when he comes up for promotion he can be replaced by another part-time assistant professor, rather than being carried on into higher paying ranks. College A has had a problem of using only full-time personnel who have had to be promoted to higher paying tenured ranks because of the duration of their stay at the College. This arrangement has resulted in giving the College a large proportion of tenured faculty with higher salaries, and the College has lost some flexibility in rearranging the distribution of its staff. This flexibility could have resulted in savings for the College.

Student attitudes. The acceptance by students of a new experimental program can be a problem in controlling

costs in a cluster college. Colleges D and E have had problems getting enough students to fill their courses. College E has had a particularly hard time controlling costs because it launched a full curriculum without having a full enrollment, resulting in higher unit costs.

The type of student attracted to the parent university may determine the degree of acceptance they give to a new program. For example, College A, which is in an urban university with vocationally-oriented students, might have had trouble attracting students into its rigorous academic program, if there had not been considerable effort spent recruiting students. Even with sufficient numbers, College A loses a large portion of its student body through attrition. After its first four years of operation the College graduated only 19 per cent of the entering class.

The number of years of operation. It is difficult to judge from the five colleges in this study whether older colleges cost more or less than younger colleges. College A is the oldest of the colleges studied and had the second highest cost per S.C.H. Colleges B, D, and E were all started at the same time, seven years later, and unit costs in these colleges range from the highest to the lowest of all the colleges studied. On the one hand, salary expenditures may rise as an institution gets older and promotes existing faculty (as in College A), but, on the other hand, some savings might occur in older programs as they build up enrollments and consolidate course offerings.

As experimental colleges move from a period of experimentation to a period of consolidation of gains, costs can be reduced through increases in enrollment, class size, and faculty productivity. Also, in a period of consolidation, less time needs to be devoted to planning and evaluating new courses, so that more time can be devoted to teaching. No clear trends in the data from this study appear to substantiate or deny these trends.

The expense of experimentation. Perhaps the one problem that is truly unique to experimental programs is the fact that experimentation itself has built in added costs, making it difficult to control costs. In the experimental cluster colleges studied there is an assumption that some of the variables affecting cost will be manipulated in order to test certain experimental hypotheses. These colleges are experimenting with new methods of teaching that may call for smaller enrollments, smaller classes, and increased use of independent study, which will raise costs in comparison to conventional educational programs. In addition, experimentation implies that there will be some failures as well as successes. These failures may have economic consequences. For example, College A is experimenting with a highly academic program in an urban university which attracts many vocationally-oriented students. One result of this particular experiment is a high attrition rate which makes it more difficult to control costs.

The average cost per S.C.H. in the experimental cluster colleges in this study is \$36.75. The cost in conventional programs is between \$18 and \$29 per S.C.H. A partial explanation of the difference in costs is the fact experimentation has built in costs not found in the conventional programs. Many of the activities of faculty do not result in student credit hours; the actual salary expenditures are difficult to calculate and often do not show hidden expenses and savings; many faculty are more concerned about testing educational assumptions than with cost control; faculty are not always available for experimental teaching; students are not always interested in enrolling in new programs; and the manipulation of factors affecting cost all serve as special problems for experimental cluster colleges attempting to gain control over their costs.

High Cost Control vs. Low Cost Control

On the basis of the individual descriptions and the ranking of factors among the various cluster colleges, one can say that each cost factor identified either works positively, to reduce cost; negatively, to increase costs; or neutrally, not affecting costs one way or the other. Using the six factors already identified as important to cost, one can see in Table 10 the role each factor has played in the five colleges under study. For example, the level of productivity of faculty works as a positive

TABLE 10
THE POSITIVE, NEUTRAL, OR NEGATIVE
IMPORTANCE OF SIX FACTORS
IN COLLEGES A-E,
WITH THE CUMULATIVE EFFECT
ON EACH COLLEGE

<u>Factors:</u>	<u>EFFECT:</u>		
	<u>Positive</u> Reduces Cost in College:	<u>Neutral</u> No Effect on Cost in College:	<u>Negative</u> Increases Cost in College:
1. Productivity (S.C.H./F.T.E.F.)	A,B		C,D,E
2. Salary per student	B	C,D	A,E
3. Class size	D	B,E	A,C
4. Scope of curriculum (Course C.H./student)	A,D	B	C,E
5. F.T.E. enrollment	A,B,C		D,E
6. Student-faculty ratio	<u>A,B</u>	<u>D</u>	<u>C,E</u>
Cumulative effect	AAAA		AA
	BBBB	BB	
	C	C	CCCC
	DD	DD	DD
		E	EEEE

factor to help reduce costs in Colleges A and B, and had a negative effect, increasing costs in Colleges C, D, and E. The positive, neutral, or negative effect of each factor, of course, is only relative to the five cluster colleges included in this study.

Table 10 also presents the cumulative effect of factors in each of the five colleges. Of the six factors listed, College A has four which tend to decrease costs and two which tend to increase costs. The crucial factor in College A tending to increase costs is its salary expenditure per student. This one factor raises the cost per S.C.H. in College A to a relatively high level. In spite of its high unit cost, College A controls more factors affecting cost than any of the other colleges and can be designated as a college with a high degree of cost control. If the administration of College A can bring their salary expenditure down, they would be considered a highly cost efficient operation. By way of contrast, College E has no factors working to reduce costs, one factor that has no effect, and five factors which tend to increase costs. It can be designated a college with low cost control.

Table 11 shows raw data for all colleges. One sees that Colleges A and E have exercised quite contrary options in six areas. In terms of enrollment size College A is large and E is small; A has a relatively higher number of students per faculty member than E; A has a much less proliferated curriculum than E, measured by the relative

TABLE 11
DATA ON CURRICULUM AND COSTS FOR ALL COLLEGES
ACADEMIC YEAR '69-'70

	College A	College B	College C	College D	College E
Faculty and Students					
1. F.T.E. faculty	37.20	31.04	52.96	23.42	32.59
2. F.T.E. students	412	368	453	219	206
3. Student-faculty ratio	13.2:1	11.9:1	8.5:1	9.5:1	6.2:1
Curriculum					
4. Course credit hours	123	224	347	129	175
5. Course C.H. per student	0.298	0.608	0.766	0.589	0.845
6. Class credit hours	1045	750	1247	305	375
7. Student credit hours	12,994	11,767	14,504	7,021	6,579
8. Average class size	12.8	15.7	11.6	23.1	17.5
9. Per cent of small classes (10 or less students)	35.1%	23.0%	40.8%	20.5%	24.6%
10. S.C.H. of indep. study	1853	860	1071	29	845
Cost Efficiency					
11. S.C.H. per F.T.E. faculty	418	379	264	274	202
12. Total salary (in thousands)	\$497	\$296	\$527	\$255	\$313
13. Salary per student	\$1,200	\$804	\$1,163	\$1,164	\$1,519
14. Cost per S.C.H.	\$38.23	\$25.16	\$36.39	\$36.40	\$47.57

difference in the number of course credit hours per student each offers; A has fewer class credit hours per F.T.E. faculty member (Table 7, p. 137), indicating a heavier teaching load in A than in E; the productivity of faculty as measured by the number of S.C.H.'s produced by each faculty member is higher in A than in E; and, finally, the salary per student is lower in A than E.

Does this contrast between College A and College E mean that College A is more likely to win its economic struggle than College E? Not necessarily. At this point, some non-quantifiable elements come into play. From the description of each college in the previous chapter, one can see that College A has a high unit cost because of its skewed distribution of faculty toward the higher salaried ranks. College A also has a large number of administrative positions with academic appointments. College E, on the other hand, has high unit cost because it has too few students for the curriculum and faculty there. It may well be that College E will be able to increase its enrollment much more quickly and less painfully than College can readjust its faculty distribution among the ranks or reduce its administrative staff. If College E can increase its enrollment, while holding other factors constant, then it may shift all its negative factors to the positive side of the ledger and become highly cost efficient and less costly. College A, on the other hand, may have to wait some time for faculty or administrators to retire or move on before

it can reduce unit costs. The significance of Table 10 is not so much as a predictive model for determining which college will weather the financial storms of the 1970's, but rather in giving concrete specifications to alternative methods of controlling cost. Often the control of only one factor can make the difference between low or high unit costs. If College A controlled salary expenditures or College E controlled enrollment, then they both could have lower costs. College A already has controlled other factors influencing cost, and College E could bring many factors under control by increasing its enrollment, indicating that real savings could result by manipulation of only one item. Ultimately, of course, low unit costs are a result of all the factors working together, but often manipulation of only one or two factors will influence the effects that other factors have on costs.

High Cost vs. Low Cost Colleges

College B has the lowest cost per S.C.H. of all the colleges in this study. The primary reason for this low unit cost is that administrators in College B have exerted very tight control over the salary expenditures. By way of contrast, College E has the highest cost per S.C.H., which is a result of having too few students for the size of the curriculum and faculty. By losing control over one factor the College has lost control over practically every other factor that influences cost in the College. Another

high cost college is College A. Despite high faculty productivity, a limited curriculum, a relatively large enrollment, and a high number of students per faculty member, College A has not controlled salary expenditures, which produces high unit costs.

From these three examples it again becomes clear that manipulation of one variable (and not always the same variable) can make the difference between high cost and low cost per S.C.H. College B has the lowest unit cost because it has exerted tight control over one factor-- salary expenditures. College A has high unit costs because it has not been able to control that same variable. College E has high unit costs because it has not been able to control the level of student enrollment in the College.

There is no college represented in this study that has a balanced control over all factors and shows a low unit cost. It is possible that no such college exists, for it may be easier in small experimental colleges for administrators to focus on one factor influencing costs while spending the bulk of their energy working on new courses or methods of teaching. At the same time, it is easy for the experimental college administrator to lose control of just one factor, either through lack of understanding of its importance or through oversight, resulting in higher than normal unit costs.

Low unit costs can be achieved in a variety of ways, but the range of options used by experimental cluster college administrators is amazingly small. In the one college that

has the lowest cost per S.C.H. salary expenditures are kept low by using many part-time and lower ranking faculty. Faculty rank and salary could be increased in College B without raising costs, if attention is paid to other variables, such as faculty productivity, student-faculty ratio, or the size of the student body. There is little indication that these options are considered in most experimental cluster colleges in this study.

A Contrast in Philosophical Foundations

Another interesting contrast can be made between colleges of different philosophical orientations. On the basis of the descriptions of each of the colleges studied, there appear to be two types of motivation behind the foundation of these colleges. On the one hand, Colleges B and C seem to be motivated primarily by concern for student growth and development. College B wants to "give a student perspective on himself" so that he can enter the world with a sense of satisfaction, having discovered the potential given to him.² College C wants to develop within students the "stage of romance" with an academic subject, leaving the stage of precision or analysis to other institutions.³ On the other hand, Colleges D and E are motivated primarily by their desire to provide quality

² [College B], 1970-71: Supplement, p. 16.

³ "Smallness," p. 3.

education in a specific discipline--natural or social sciences. College A does not fit neatly into either category. It does not have a residential program and cannot be considered fully a process-oriented college. Yet, it is concerned about developing intellectual independence in students and cannot be considered exactly a content-oriented college. For the sake of clarity, College A will not be used in this part of the analysis. Colleges D and E, which have a slightly narrower focus, are concerned for the education of students interested either in the natural sciences or social sciences. Colleges B and C, by contrast, are concerned for student growth and development. One might call the different philosophical approaches to education content oriented and process oriented. Although they are not necessarily mutually exclusive, one does get a sense of different degrees of importance for either process or content.

Given these two orientations, do they really make any difference in the efficiency or cost per student credit hour? By pooling the data on Colleges B and C into one group and that on Colleges D and E into another, one arrives at some interesting comparative results (Table 12).

TABLE 12

A COMPARISON BETWEEN CONTENT ORIENTED
AND PROCESS ORIENTED COLLEGES
ACADEMIC YEAR '69-'70

Factors	Process Oriented (B and C)	Content Oriented (D and E)
1. Productivity (S.C.H./ F.T.E.F.)	341.00	238.00
2. Salary per student	\$983.50	\$1,341.50
3. Class size	13.35	20.30
4. Scope of curriculum (Course C.H./St.)	0.687	0.717
5. F.T.E. enrollment	410.50	212.50
6. Student-Faculty ratio	13.75	7.85
7. Cost per S.C.H.	\$30.50	\$41.98

The cost per student credit hour for the process oriented colleges is \$30.50, while the cost for the content oriented colleges is \$41.98. One of the crucial differences between the two groups is in the salary cost per student--for the process oriented colleges it is \$983.50 as opposed to \$1,341.50 for the content oriented colleges. On the basis of the descriptions of Colleges B and C, the process oriented colleges, one sees that they depend heavily on lower ranking faculty--graduate assistants and instructors. The two content oriented colleges split on faculty

distribution--College D using more high ranking faculty and College E using more low ranking faculty.⁴ The process oriented colleges may be less concerned with the hiring and promoting of faculty whose status is based on content oriented scholarship. They are looking, perhaps, for younger faculty who will be more process oriented themselves --more concerned for teaching and developing rapport with students than for content oriented scholarship.

Other data in Table 12 would tend to support the idea that philosophical premises do make a difference in the factors that influence cost. The average class size is smaller in the process oriented colleges than in the content oriented programs, as one might expect in colleges concerned for personal growth and interaction of students with faculty. Faculty productivity is higher in the process oriented colleges, perhaps because faculty members are teaching more classes or seeing more students in non-classroom settings than their counterparts in the content oriented colleges. The scope of the curriculum is larger in the content oriented colleges, indicating a willingness in these colleges to develop courses around the special interests of their disciplines. The average total enrollment of the process oriented colleges is larger than the average total enrollment in the content oriented schools. Perhaps the content oriented schools have not developed the

⁴Cf. Appendix A, Figure 15.

attractiveness to students that process oriented schools have, resulting in lower enrollments and higher unit costs. Finally, the student-faculty ratio is smaller in the content oriented schools, but this fact is a result of low enrollments more than philosophical orientation, which would suggest that the content oriented schools would have more students per faculty member than the process oriented schools.

On the basis of this data it appears that the content oriented colleges are more expensive, have fewer students, have lower faculty productivity and a more proliferated curriculum than the process oriented schools. These characteristics may be the result of the lack of popularity among students for the content oriented experimental colleges.

In summary, one can say that experimental cluster colleges have a special set of problems in controlling costs. There is a diversity of faculty activity in cluster colleges that does not produce student credit hours. Experimental colleges may run into difficulty with volunteer faculty if regular departments begin calling in their volunteers to teach in their home departments. Many decisions in cluster colleges are made on the basis of philosophical concerns rather than on the basis of concern for controlling costs. The availability and willingness of faculty and students interested in participating in experimental programs may have an adverse effect on cost

control. There are built in costs to experimentation that may boost costs. In addition, the control or loss of control over just one factor influencing cost can make a great difference in unit cost. Finally, philosophical presuppositions about the type of program desired seems to affect unit costs. The ways in which these problems can be handled in experimental cluster colleges will be discussed in the final chapter.

CHAPTER V

SUMMARY AND CONCLUSIONS

This has been a study of five semi-autonomous, experimental colleges in the State of Michigan for the academic year 1969-1970. The study has focused on the patterns of curriculum and staffing used by each of the colleges and the ways in which these factors have affected unit costs. There has been a methodological concern for identifying the important variables that affect unit costs in the experimental college studied. From a review of the literature six major factors were identified as being important--faculty productivity, salary attributable to instruction, class size, scope of the curriculum, enrollment size, and student-faculty ratio. Although some of these factors proved to be more important than others, five of the six were found to influence cost per S.C.H. in the cluster colleges under study. Class size did not have any discernable effect on unit costs.

Once the factors that affect cost were identified from the literature, all five colleges were described in detail with special attention being paid to how the colleges patterned their curriculum in order to control costs.

One of the surprising things found in this section of the study was the limited number of options used by cluster colleges to control costs. College B had the lowest unit cost of all the colleges studied, but its low cost was achieved only by employing a large number of low-paid junior faculty. The College had not attempted to control other factors that influence cost. College A, on the other hand, had controlled several factors influencing cost, but had not controlled salary expenditures, resulting in high unit cost. In addition, College E had a limited enrollment and none of the factors influencing cost were controlled. Colleges B and C had moderate cost per S.C.H., for experimental cluster colleges, but they did not make conscious attempts to control costs. Consequently, their unit costs were higher than similar costs in conventional programs. There was no college with low unit costs that were a result of conscious manipulation of cost factors.

In analyzing the data it was pointed out in Chapter III that many of the activities of faculty in experimental colleges did not result in the production of student credit hours. Administrative responsibilities, counselling, building a new curriculum, and meeting students outside the classroom take time for experimental college faculty and are usually not counted when computing faculty productivity. In the analysis it was also pointed out that conventional means of determining faculty salaries attributable to instruction do not take into account the use of volunteers

or loaned faculty, making it difficult to compare costs in colleges.

Another factor discussed in the analysis was the availability of faculty. In some schools low ranking and less expensive faculty are more readily available than in other schools, accounting for some fluctuation in costs. Also, the availability of students and their acceptance of a given experimental college can be an important factor affecting costs in these programs. In addition, the number of years of operation may be a factor in determining costs in experimental education, but the data from this study is not entirely clear on this point.

It was pointed out that there are built in expenses to experimentation that shape the costs of the program studied. There are bound to be failures as well as successes in any experimental program, and the inclusion of both will increase the apparent cost of the program, when measured by conventional standards.

Next, the ability to control the various factors affecting costs in all the colleges studied was discussed. It was pointed out that controlling or losing control of only one factor can make the difference between high and low unit costs.

Finally, the philosophical assumptions underlying experimental colleges were examined. Two approaches to higher education were identified in the colleges studied. One is a process oriented approach, emphasizing the

development of strong personality traits in students and close student-faculty relations. The other approach is the content oriented approach, emphasizing the conveying of a specific body of knowledge to students. This study found that the content oriented approach was more expensive than the process oriented approach. The college stressing content had lower levels of faculty productivity, higher salary expenditures per student, more proliferated curriculums, smaller enrollments, and fewer students per F.T.E. faculty member. The only factor controlled by these content oriented colleges more successfully than process oriented colleges was class size. The content oriented colleges had, on the average, larger classes than the process oriented colleges.

The following sections of this chapter discuss some solutions to the problems facing experimental cluster colleges.

Measuring the Productivity of Faculty

In the analysis of problems of special importance to experimental cluster colleges it was pointed out that one of the real problems for these programs is that many of the activities of faculty members do not result in the production of student credit hours. For example, administrative personnel, which are not normally found in a department, do not usually produce many student credit hours. The time faculty members spend helping to develop a sense of

community, the time spent developing new curriculum, and the time spent with students on academic matters outside the classroom does not show up in S.C.H. productivity.

Several solutions are possible in handling this problem. A staff member at CDE University has suggested that salary expenditures be distributed among several categories of activity, such as instruction, development of new programs, environment and community, and administrative functions.¹ By spreading expenditures over several functions, instead of attributing them all to instruction, the cost of instruction appears to be considerably closer to conventional departmental costs. There are some problems with this method, however. First, the expenditures in conventional departments have not been distributed over several areas, as they were in the experimental programs. If the same advantage was given to the conventional departments, their instructional costs would also be reduced. A second problem with this method is that most experimental programs are sold to the administration of a university on the basis of education being provided at approximately the same cost as conventional programs. There may be some provision for additional costs for developing a new program in its beginning years, but the experimental college may be expected to bring their costs

¹"Residential College Costs" (Unpublished mimeo by a staff member at CDE University, 1971), p. 1.

into line with conventional programs after the initial period has passed. University administrators may not be inclined to pay for continuing development costs, nor are they likely to want to recognize the cost of developing community. By conventional standards of faculty productivity, salaries, class size, and cost per student credit hour, the university administrator may not like to have the costs of the experimental cluster college out of line. If administrators have one criterion for determining costs, spreading the cost of education over several categories in one college may not meet their requirements.

In order to overcome the problems inherent in developing new standards of cost accounting several steps can be taken. First, from the very inception of the experimental college, it can be made clear to university administrators that there are special problems in experimental colleges that will cost money. If the costs of developing new programs, community, and administration can be shown as necessary expenditures, then the university administration may be persuaded to view these costs as separate from the cost of instruction. The administrator may be convinced that these additional costs are worth the potential benefits of the program.

A second step may be necessary in using new methods of calculating costs. It may be necessary to contract with faculty on an annual basis for the proportion of time he will be spending on each of the various activities over

which expenditures will be spread. Such a contractual agreement may be necessary to establish the fact that faculty in experimental programs are not wasting their time when apparently they produce relatively few student credit hours. For example, the dean of an experimental college could meet with each faculty member at the beginning of each academic year and discuss with him the portion of his time which will be spent in classroom instruction, development of new programs, community, and administrative activities. The Dean could then make certain that sufficient time was spent in each category to assure that all the scheduled classes would be taught and that a disproportionate amount of time was not spent on development, community, and administrative affairs.

One method that has been used as an aid to determining faculty work loads was developed by a conventional department at BB University. The department chairman meets with each of his faculty members to develop an annual personal work plan, as suggested above. To insure equitable weighting of a diversity of activities, a scale was developed of weighted "units" which are credited to each faculty member according to his current work load. For example, formal classroom teaching is worth one unit for each credit hour; a laboratory course equals 1.5 units for each credit hour; individual instruction and small seminars are worth 0.5 units. Other activities that are assigned units include research, service to the department, school and university, service on doctoral committees, and

advising. Each faculty member is expected to put in twelve units of effort per week, each unit generally requiring 3-4 hours of work.

The use of some procedure to determine faculty work load could have positive effects in an experimental cluster college. If the chairman met with faculty members regularly to discuss their activities he would then be in a position to counter charges that his faculty was not producing a sufficient number of student credit hours. He would have figures showing that each faculty member spent from 36 to 48 (or more) hours on the job, and he would know approximately how those hours were being used. In order to implement such a system of work load control, cluster college faculty members would have to come to some mutual agreement about the weighting of the various activities and the assignment of units to those activities. Such a system could help provide more accurate and equitable measures of faculty productivity in experimental cluster colleges.

Controlling Salary Expenditures

The appointment of faculty. Another question raised in this study is whether a cluster college should appoint its faculty jointly with another department or as simply members in the one experimental college? There are good arguments on both sides. Those arguing in favor of joint appointments maintain that it is one way of strengthening

the academic standards of the experimental programs. Jointly appointed faculty can give an academic credibility to a new program and help keep the faculty involved in current research and disciplinary concerns. By having jointly appointed faculty rotate between teaching in the experimental college and the regular departments, either by term or on a part-time basis in one term, they are saved from "overexposure" to students, which has proved to be detrimental to faculty in some experimental colleges. In spite of these arguments, the experimental colleges studied tend to favor decreased use of jointly appointed faculty and increased use of faculty appointed solely in the college, at least at the present time. Those favoring this movement argue that it is too time-consuming to maintain a system of jointly appointed faculty, involving college administrators in a constant struggle to replace departing faculty members. Furthermore, some administrators feel that they do not get the full use of contracted time from faculty members on joint appointments, although research by one scholar indicates that faculty actually contribute more time than contracted for in one experimental college (College B).² In any case, most administrators of experimental programs seem to feel that without full-time faculty the college lacks the cadre of dedicated faculty members needed to handle the work in

²" [BB University's College B]."

developing an experimental institution. The move toward a full-time faculty for experimental colleges dominates in the colleges included in this study.

What are the implications of increased use of full-time faculty? In the desire to obtain more dedicated faculty members these colleges may be cutting off a vital tie to traditional education. In addition, the colleges can separate themselves from the means of future support, if they become too self-contained and isolated. One solution to this problem is adequate planning. Sufficient planning can provide a balance between jointly appointed and singly appointed faculty. An experimental college needs a corps of dedicated full-time faculty and a body of jointly appointed faculty who are included in decision-making and provide a vital link to the rest of the university.

Collège C is a good example of a college that has planned well its use of jointly appointed faculty. They have one-third of their faculty on full-time, tenured appointments, one-third on full-time, non-tenured appointments, and one-third on joint appointments. This arrangement allows for the development of a dedicated corps of full-time faculty but provides the flexibility in hiring procedure that allows for a continuous flow of new personnel and new ideas into the College.

Distribution of faculty among ranks. There is another important issue raised by the findings of this

study concerning the distribution of faculty among the ranks. It has been pointed out that College A has a top-heavy distribution of faculty, increasing costs, while College B has a bottom-heavy distribution, lowering costs. It has also been suggested in the previous chapter that one reason for the differences in faculty distribution could relate to the basic philosophical assumptions of the colleges--the process oriented colleges being more willing to hire less expensive faculty than the content oriented colleges. In addition, the availability of well-qualified graduate assistants and instructors could influence the decision of administrators to use or not to use large numbers of lower ranking faculty. One suspects that a combination of all these factors works in making a decision about faculty distribution. Given a situation of limited financial resources, the administrator of a particular program will use low ranking faculty if they are available and if their use is not incompatible with the goals of the program.

One cannot offer solutions to the problem of unbalanced faculty distribution, because each situation is under a different set of constraints. For example, in College A graduate students are not as available as they are at BB University, and the General Education orientation of the College inclines the Dean to seek highly-qualified personnel and promote them as rapidly as possible. At College B, on the other hand, graduate students of high

quality are available and their use is not incompatible with the aims of the program. In addition, the limited financial resources available to College B requires the utilization of large numbers of lower paid faculty. The option to use graduate assistants and instructors may be viable for one program but not for another, depending on how bad the financial situation of the college is, the availability of younger faculty, and the compatibility of their use with the goals of the program.

Faculty attitudes. Still another issue raised by the material in this study concerns the overall receptivity of university faculty to the idea of having a cluster college on their campus. This factor can effect the availability of faculty as well as the amount a college must pay faculty for their services. It has been pointed out that College B, for example, was fully debated prior to its beginning and faculty seemed willing to give it full support in terms of either contributing time or making faculty available from their departments to teach in the College. Colleges C, D, and E, on the other hand, were all created by administrative fiat, and one gets the feeling that faculty at CDE University are much less anxious to offer or provide services for the experimental programs, as indicated by the rapid movement of each college away from jointly appointed faculty. It is difficult to say whether or not the lack of debate of the plans for the cluster colleges at CDE University is the actual cause of the lack of faculty

support there. The attitude of faculty in general at CDE University may simply be more oriented toward departmental teaching and research than at BB University. In any case, the attitude of faculty in these two universities does seem to be different in terms of their receptivity toward the idea of experimental cluster colleges. It is clear that College B has been able to draw upon the good will of faculty who volunteer their services and the good will of department chairmen who are willing to loan faculty for teaching in College B. This good will has allowed College B to spend less on faculty salaries.

Controlling Class Size

Although other studies have found a negative correlation between average class size and cost per S.C.H., data from the five experimental cluster colleges in this study indicated that there was no correlation between average class size and cost per S.C.H. This indicates that a wide variation in average class size is found in the colleges studied with no apparent effect on cost per S.C.H. One conclusion that might be drawn from this finding is that experimental colleges can use a wide range of class sizes and still maintain control over its costs. Conventional wisdom often assumes that classes must be large in order to control costs. The data from this study indicates that experimental colleges can have small classes if they choose to, and their costs will not be adversely affected. Control

of costs, however, will depend on maintaining high levels of productivity, moderate salary expenditures and course proliferation, adequate class size and a large number of students per faculty member.

Because comparative data on class size from parent colleges was not available, one must use caution in stating that class size has no effect on unit costs. It could be that the smaller average class size in cluster colleges does affect overall cost per S.C.H., which tends to be higher in the cluster colleges studied than in conventional colleges. One can assert, however, that within the five colleges studied, class size does not account for much variation in unit cost.

Controlling the Scope of Curriculum

Other studies have shown that the scope of the curriculum will affect cost per S.C.H., and data from this study indicates that the degree of proliferation of courses does affect costs in the five colleges studied. For example, the content oriented colleges, which tend to be more expensive, also tend to offer more courses per student than the process oriented colleges. The colleges concerned with presenting the content of discipline need to cover their fields adequately, even though the size of the student bodies in these colleges is not sufficient to assure economic operation.

There are several ways an experimental college can handle the problem of course proliferation. Most obviously, they can increase the size of their student bodies without increasing the number of courses offered. This procedure will allow courses to be offered for an adequate number of students, assuring control over costs. Another solution to this problem is to stagger the terms in which courses are offered. First, this may mean offering a course only once a year instead of once every term. It could also mean offering courses in alternate years. If a college deems it necessary that every student take two basic courses during the first two years, then the college could offer these two courses every other year, filling each course with both freshmen and sophomores.

In most of the colleges studied, however, the problem of course proliferation does not appear in the basic offerings but rather in specialized, elective courses. Again, it is possible to offer certain electives every other year to guarantee proper coverage of the field and adequate class size. Another alternative is to base offerings on student preferences. If a college can determine what courses students would like to take in a pre-registration period, then the college can offer courses for which students have shown adequate interests. Students who did not indicate interest in the more popular subjects can either accomodate their choice to fit within the

existing program, or they can follow their special interests in a tutorial program.

None of the colleges studied have made much use of audio-tutorial or video-tutorial programs that are being developed. Perhaps these methods have not been used, because they are still very new. The technology of video tape cassettes is developing to the point that they can be used economically in a wide variety of situations. With proper use the cassette T. V. could be a major help in solving the problems of course proliferation. Faculty and students alike can develop units of programmed study on video tape that can be used repeatedly by several generations of students. Video tape does not have to be used to tape lectures before a classroom, although this use can be easily employed, but rather, a creative use of sound, animation, field work, laboratory work, and commentary can be placed on tape to aid groups of students working independently. Once a unit is mastered to the student's own satisfaction, he can then discuss his progress and questions in a group session with a faculty member and be tested on his progress. Howard Bowen and Gordon Douglass show that such a method can be developed without increasing the cost of instruction.³

³Bowen and Douglass, Efficiency in Liberal Arts Education.

Upper and lower division colleges. Another question related to the problem of course proliferation is the degree to which a college emphasizes upper and lower division education. Savings can be realized if courses are concentrated in the first two years of study, during which time a more limited range of courses can be offered and classes can be sufficiently large to allow for relatively high levels of faculty productivity. However, some may feel that this is a false economy, because two years in an experimental college is not sufficient to reinforce peer attitudes toward self-directed learning and other attitudes the college wishes to promote. College C uses a compromise approach in dealing with this issue. The primary emphasis there is on lower level instruction, and only lower level courses are offered within the college. Upper division students are encouraged, however, to stay in the dormitory setting of the College, and a course is offered for seniors as a capstone experience. The net result of this arrangement is that the curriculum is essentially lower level, but the students get the benefit of four years of living in the College.

Enrollment

Another factor that has been shown to be important in affecting costs, both in this and other studies, is the size of the student body. The larger schools in this study tend to have a lower cost per S.C.H. For example,

College E has had a difficult time attracting enough students and one consequence of this problem is high cost per S.C.H.

The attitudes of students toward experimental education may limit the number of students enrolled in certain kinds of programs. Students who enter experimental colleges tend to be brighter and more intellectually oriented than other students, and they may also be more attracted to the process oriented colleges than to the content oriented colleges. In addition, those students who want education in a content oriented discipline may be less willing to risk the vicissitudes of an experimental program, preferring to get their education in a conventional department, leading to well-established career lines or further education.

If it is true that student attitudes affect enrollment in different types of programs, then experimental colleges may want to stress the liberal nature of their offering more than they stress the content orientation of the college. Colleges D and E have certainly moved in this direction, stressing the breadth of coverage and new methods of learning, but when data for this study was collected, students were slow in responding to their message.

Within the content oriented colleges another option may be open to increase their attractiveness to students. They can develop more highly innovative techniques for learning the traditional subject matter. It has already

been pointed out that some of the colleges in this study have begun to use the new technology available through video cassettes. Few have moved beyond the use of lectures and recitations for conveying the content of their fields. College E has made extensive use of off-campus study, but this approach is more a supplement to knowledge than a means of conveying the content of knowledge. All of the colleges studied have developed interdisciplinary courses in their fields, but the methods used in these courses do not usually include student-paced learning or programmed independent study (as distinguished from non-programmed independent study which is used). Greater stress on new methods of learning could increase the attractiveness of content oriented programs for some students.

Student-Faculty Ratios

The control of student-faculty ratios in experimental cluster colleges can be done as faculty and student numbers are manipulated. If prior planning is done, a college can project the hiring of so many faculty members for so many expected students to obtain the desired number of students per faculty member, or more students can be brought in without increasing the faculty. In addition, the number of faculty members can be decreased without decreasing the number of students, thus increasing student-faculty ratios.

Perhaps the two simplest factors to manipulate in controlling costs are the student-faculty ratio and salary

expenditure. Yet, if one limits himself to manipulating only these two factors, other more creative options may not be realized. It is possible, for example, to have well-paid faculty and a low number of students per faculty member if faculty productivity and course proliferation are controlled. Increasing the number of students per faculty member may be an easy answer, but more creative solutions may be found to the problem of controlling costs.

Future Research

Because this study is primarily an exploratory study future research is needed in several areas. First, there is a need to expand the study of factors influencing costs in experimental cluster colleges. A study with a larger sample size would, no doubt, produce statistically significant findings that would allow one to make generalizations about the importance of the various factors which influence costs.

A more extensive study of costs in cluster colleges could include some measures of the benefits students receive from cluster college education. Over the next few years, as these colleges graduate more students, the scores of standardized tests and levels of student satisfaction could be compared with the cost per student credit hour. Such a study could answer the question whether or not colleges spending more money per unit produce significantly better results. In addition, comparison could be

made between the cost and benefits of conventional programs and the cost and benefits of experimental education.

Another area of study that could be fruitfully explored is the economic relationship between content oriented cluster colleges and process oriented colleges. Again, a study with a larger sample is needed to explore the preliminary findings of this study that indicate that content oriented colleges cost more than process oriented colleges. Supplementary material about student and faculty attitudes about these different approaches would also be useful in determining the benefits of such programs.

A third area of needed research could deal with faculty work loads in experimental cluster colleges. This study of Michigan colleges found that one particular problem related to cluster colleges is the fact that faculty activity does not always result in the production of student credit hours. A useful study could be conducted, exploring the types of activity in which faculty are involved and the relative cost of each activity.

The Future of Experimental Cluster Colleges

What will the future hold for experimental cluster colleges? Will they continue to be expensive operations serving a limited clientele or will they blossom into full flower with competitive cost structures, offering a unique alternative for undergraduate education? Factors that

indicate a limited future for cluster colleges are their continued isolation from sources of renewal and preoccupation with pet solutions to the problems of higher education. This tendency to remain isolated may be due to the fact that the experimental college movement is still too new to feel safe about carrying on dialogue with the outside world. Time may allow closer contact between experimenters and other educators, if the movement becomes surer of itself. Another factor that indicates a limited future for experimental cluster colleges is their tendency to be unconcerned with cost structures or the factors that make for efficiency in educational programs. Many of the cluster college administrators seem to have limited knowledge about the alternatives they have to control costs. With little or no experience as administrators they launch their ventures with a minimal understanding of the means to control the costs of their programs. Again, with the passage of time, these founding fathers may be able to find the necessary support staff to make their ideals operationally efficient as well as educationally sound. Until that time comes, however, most cluster colleges will remain small, expensive operations, because they exert limited control over the factors that influence cost. Some colleges may be cut back or phased out because of the financial plight of higher education in general, and others may be able to hold on, out of sheer devotion to the founders' ideas. Until cluster colleges learn to manipulate the factors that

control costs they will never be able to compete in the academic marketplace against less expensive conventional programs. One suspects that in times of financial stress a Gresham's law operates in most public universities--inexpensive programs will drive out expensive programs. This has not always been true, as indicated by the fact that there are still a large number of expensive, outdated programs, but as programs begin to battle for scarce economic resources, the less expensive programs will tend to receive a larger share of the funds than the more expensive programs.

There are signs that experimental cluster colleges will be able to vie effectively for their share of the scarce resources in the years to come, however. Indications are that more students are seeking out education in cluster colleges than ever before. All three cluster colleges at CDE University, for example, experienced dramatic increase in requests for positions for the current academic year ('71-'72), indicating that the colleges are providing a necessary alternative to conventional education. Second, one has the sense that when forced to, cluster college administrators can deal with financial realities as well as any other academic administrator. College E indicated an awareness of its financial problems and the steps they needed to take to correct them. Finally, if one subscribes to the idea that every distinctive college goes through at least two phases of development--first, laying the

groundwork of a visionary leader, and, second, consolidating the gains in a second generation of leadership⁴--it is clear that most cluster colleges in this study are still very much in the first stage of development. They have not had time to worry about questions of efficiency or cost structure. As the colleges mature and begin to deal with the problems of consolidating the gains they have made, they can begin to operate more efficiently and offer a real challenge to conventional education.

This study can be summarized by pointing out some of the things one can do to hold down costs in experimental colleges. These are not new ideas, but they have not generally been used in experimental colleges.

(1) First, faculty productivity seems to be a crucial variable in holding down costs. No one wants to overload faculty, nor do they want to have nothing but large lectures. It is clear, however, that a few large classes will help support smaller ones. Perhaps by opening up courses that represent the best offerings of experimental colleges--the interdisciplinary core courses--the level of faculty productivity could be increased without damage to the rest of the program. In addition, more sophisticated methods of calculating faculty productivity could be employed.

(2) Second, total salary expenditures can be controlled by keeping a balanced proportion of faculty in each rank.

⁴Burton R. Clark, The Distinctive College: Antioch, Reed and Swarthmore (Chicago: Aldine Publishing Co., 1970).

Normally, one would not recommend going as far as College B, which has 70 per cent of its faculty at the lower two levels of faculty rank, but neither would one recommend the path of College A, which keeps promoting faculty into higher paying positions. In most experimental colleges the faculty like what they experience and want to stay and be promoted in them. As much as one might want to reward their faculty these programs cannot afford to do so indiscriminately.

(3) Third, careful consideration must be given to the overall enrollment size of experimental colleges. One way to increase productivity, and size, is through the opening up of some courses to non-experimental college students. One should also give some consideration to expanding the student body itself, if it can be done without decreasing the sense of community desired by many experimental schools. More students could result in more courses, more faculty, higher salaries, and higher costs, but if increases in the number of students is planned with an eye toward economy, course offerings, faculty and salary expenditures could be stabilized or increased at a less rapid rate and costs could be reduced significantly.

Other measures can also be taken to help reduce costs, and most of these suggestions aim at the same basic factor of boosting productivity. (4) Class size can be watched carefully to see that the average size of the classes offered does not drop below an acceptable level. (5) Also,

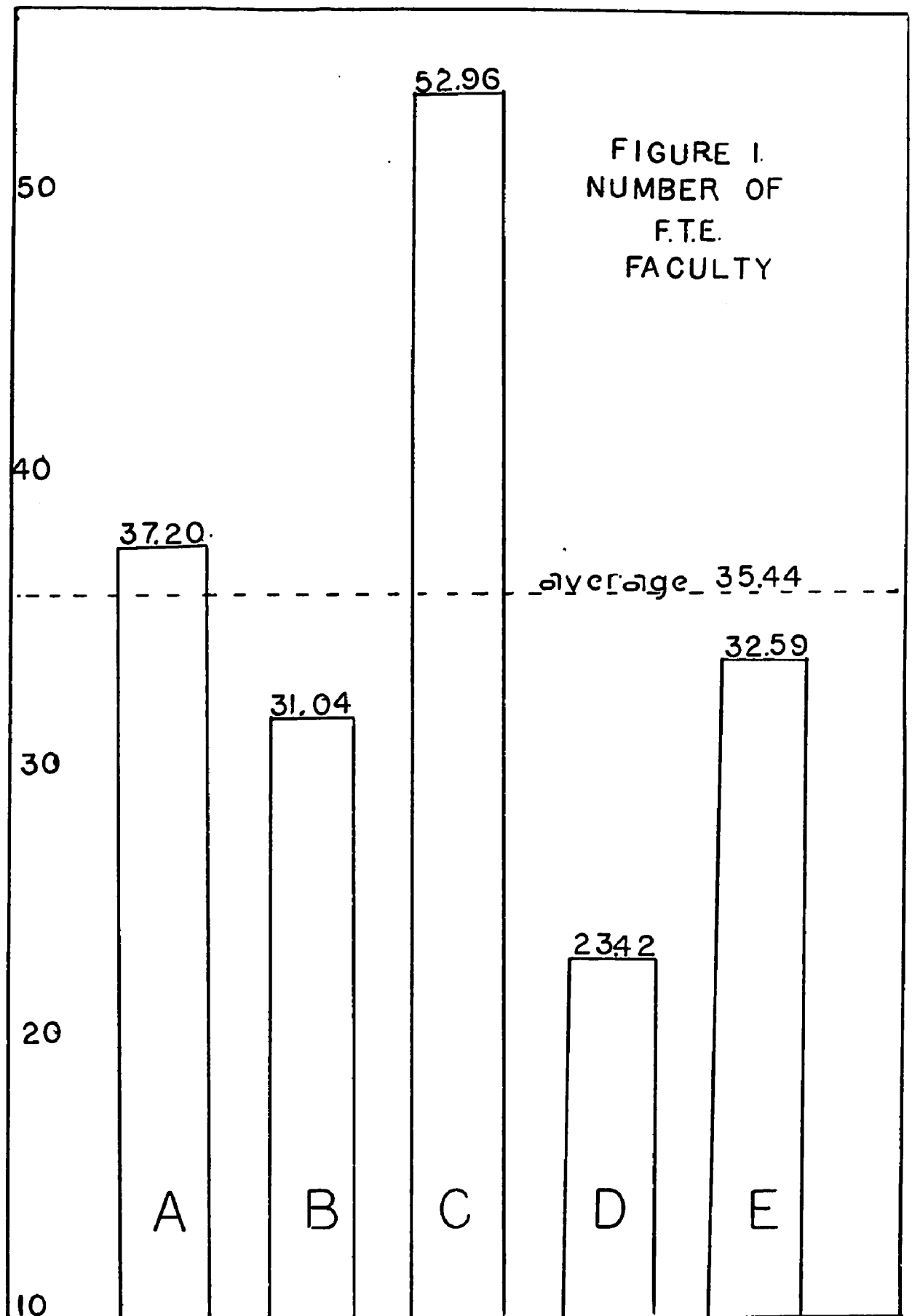
the number of courses with fewer than, say, ten students, which are repeated each semester, can be watched. Such courses might be dropped altogether if demand for them is not increased, or they could be offered only once a year so that their average size increases. (6) The scope of the curriculum, or the number of courses offered by a program, can be important in controlling productivity and costs. If too many courses are offered for the size of the student body, class size will drop and productivity will go down. (7) The number of independent study projects can be watched also. Too many independent students can cut into faculty work time and, as happened at College A, class loads have to be reduced and productivity falls.

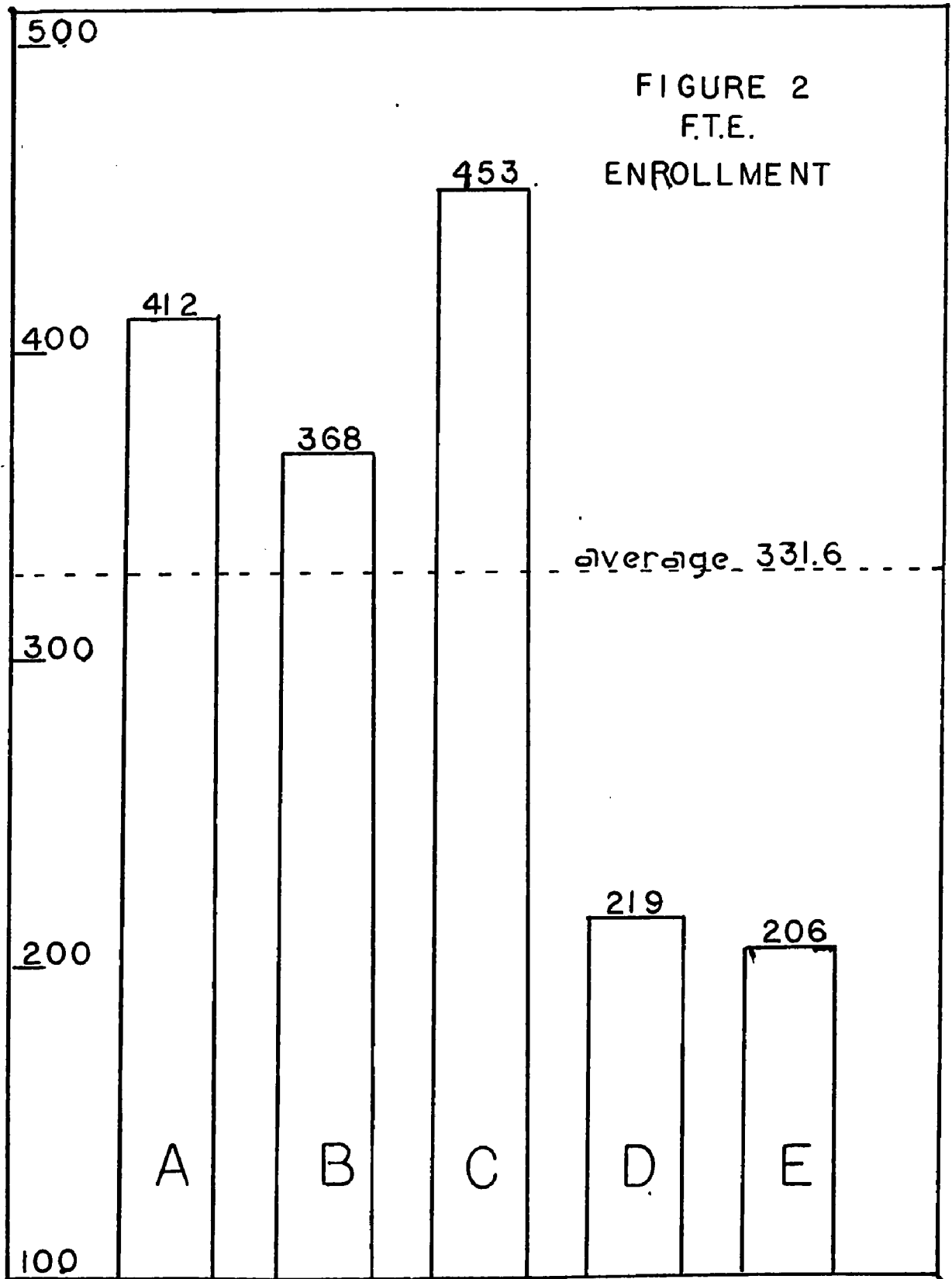
(8) Finally, a plea should be made for experimental college administrators to keep better records and regular summaries of information about their programs--something few experimental college administrators do with enthusiasm. It is impossible to know how a college is doing, financially, without knowledge of such things as salary expenditures, faculty productivity, student credit hours produced, class size, and the number of courses and classes offered. Furthermore, the best defense against hostile faculty and deans who say that experimental cluster colleges cost too much is to know exactly how much they do cost and what steps one can take to control these costs.

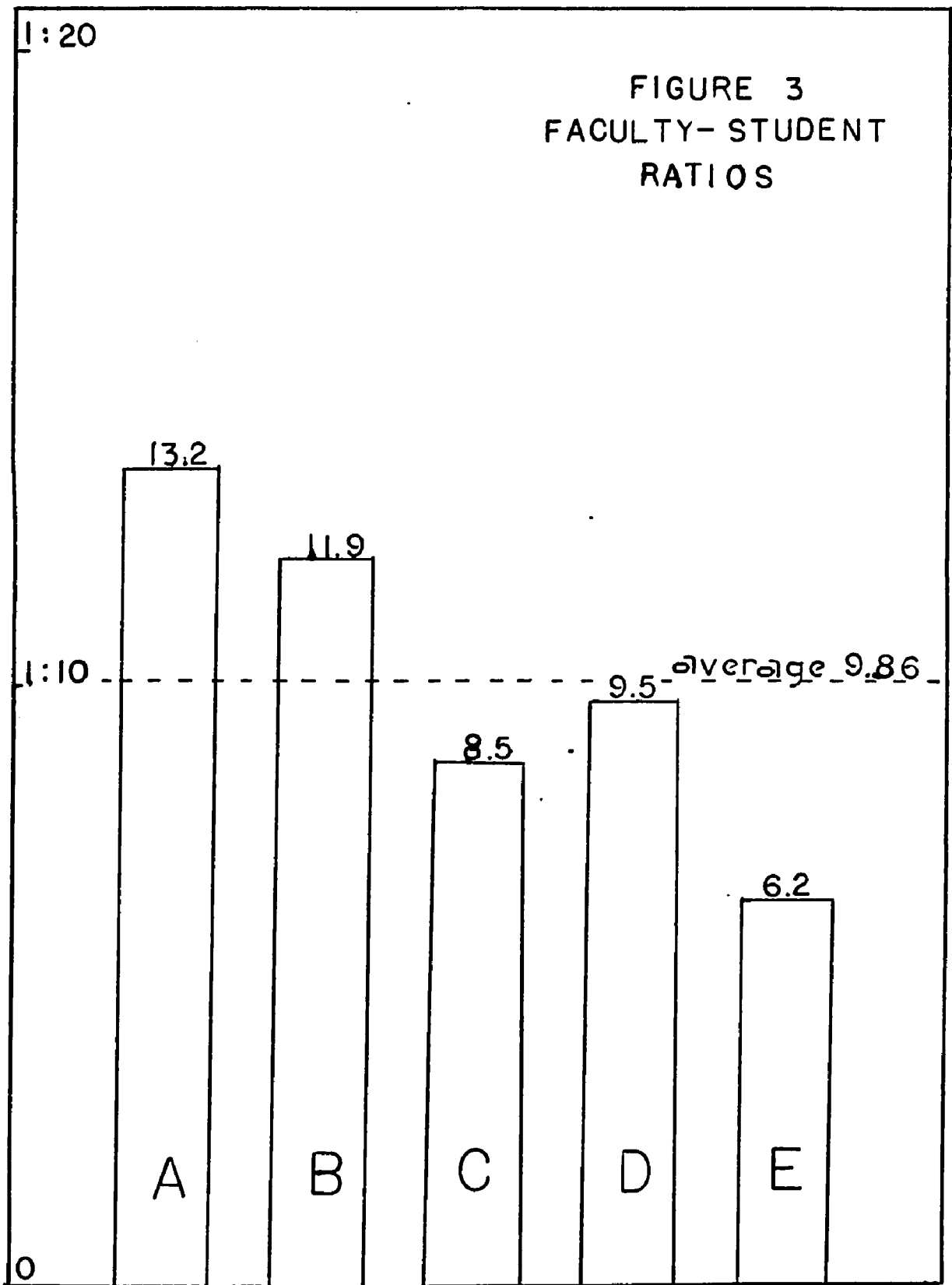
The dilemma of many faculty members and administrators in experimental cluster colleges is that they dislike the

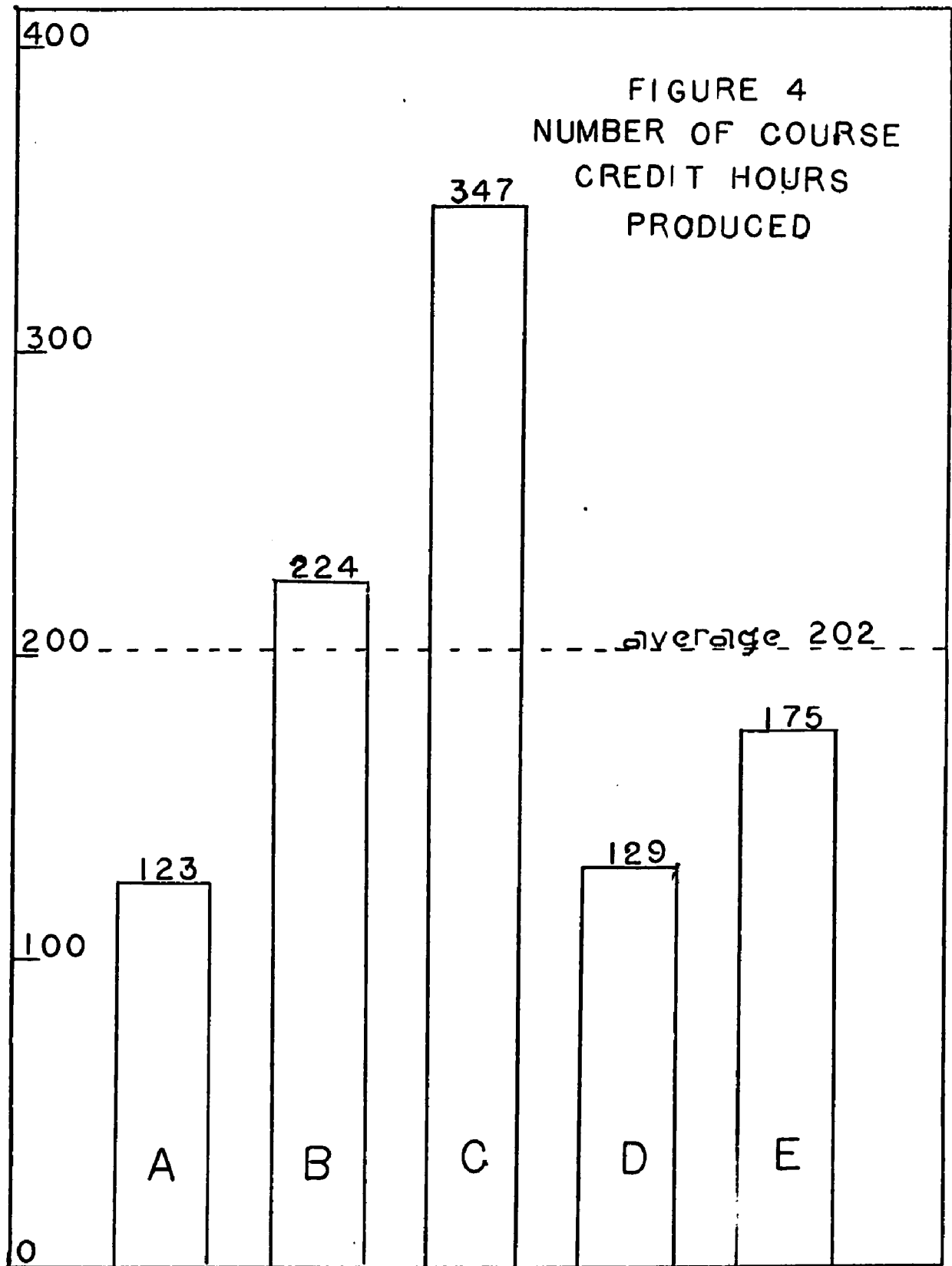
traditional emphasis on dollars and productivity found in most schools. Yet, they are forced to work within the constraints of that same traditional system. This study gives some hints about how to make the best of that situation. If one is willing to take seriously the constraints of finances by keeping an eye on some of the factors mentioned in this study, experimental colleges will not only be able to survive, but they may have a major impact on changing the system of higher education as well. The cost of living within such constraints is small in comparison to the cost of ignoring them.

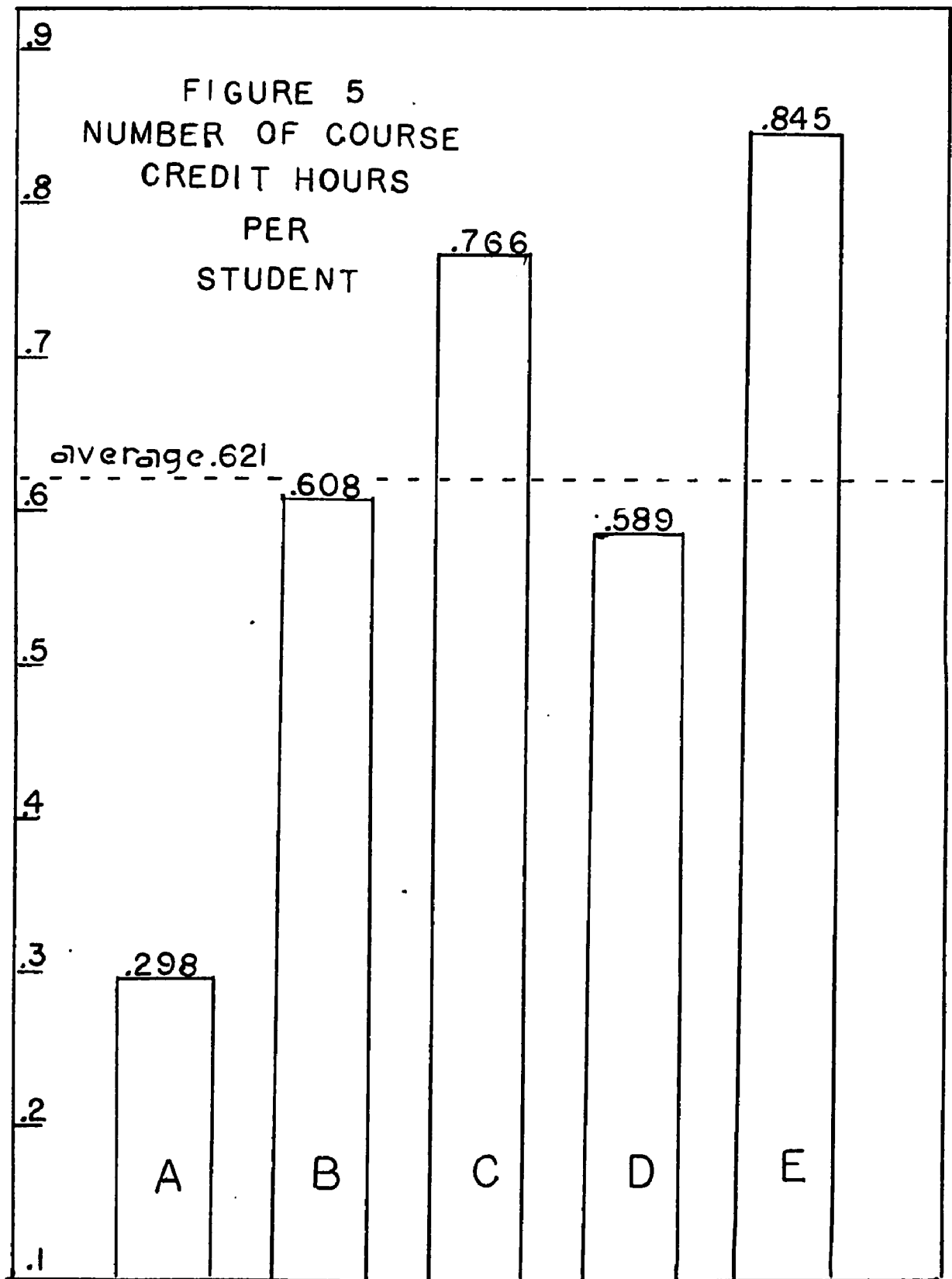
APPENDIX A
FIGURES

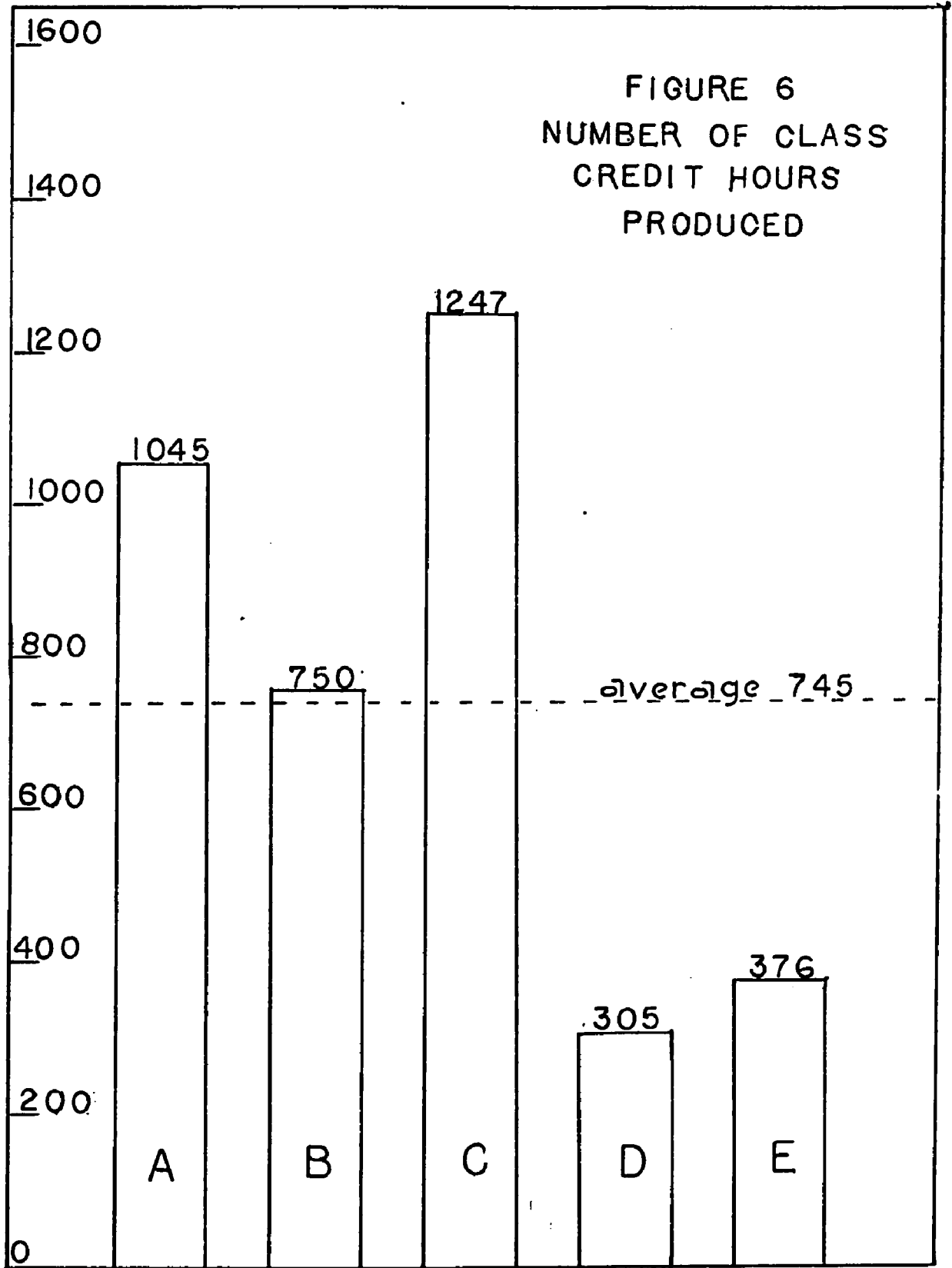












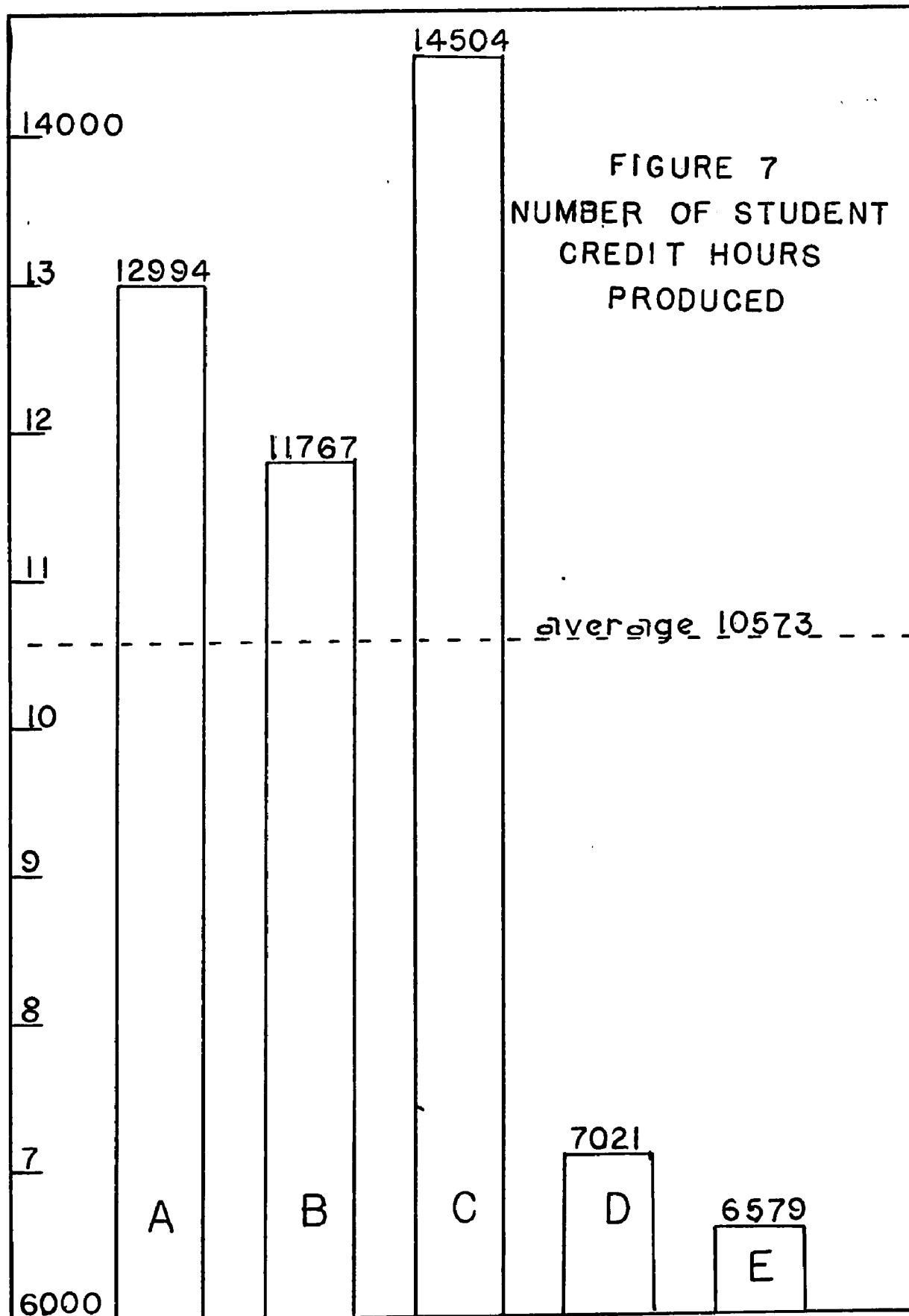


FIGURE 8
AVERAGE CLASS
SIZE

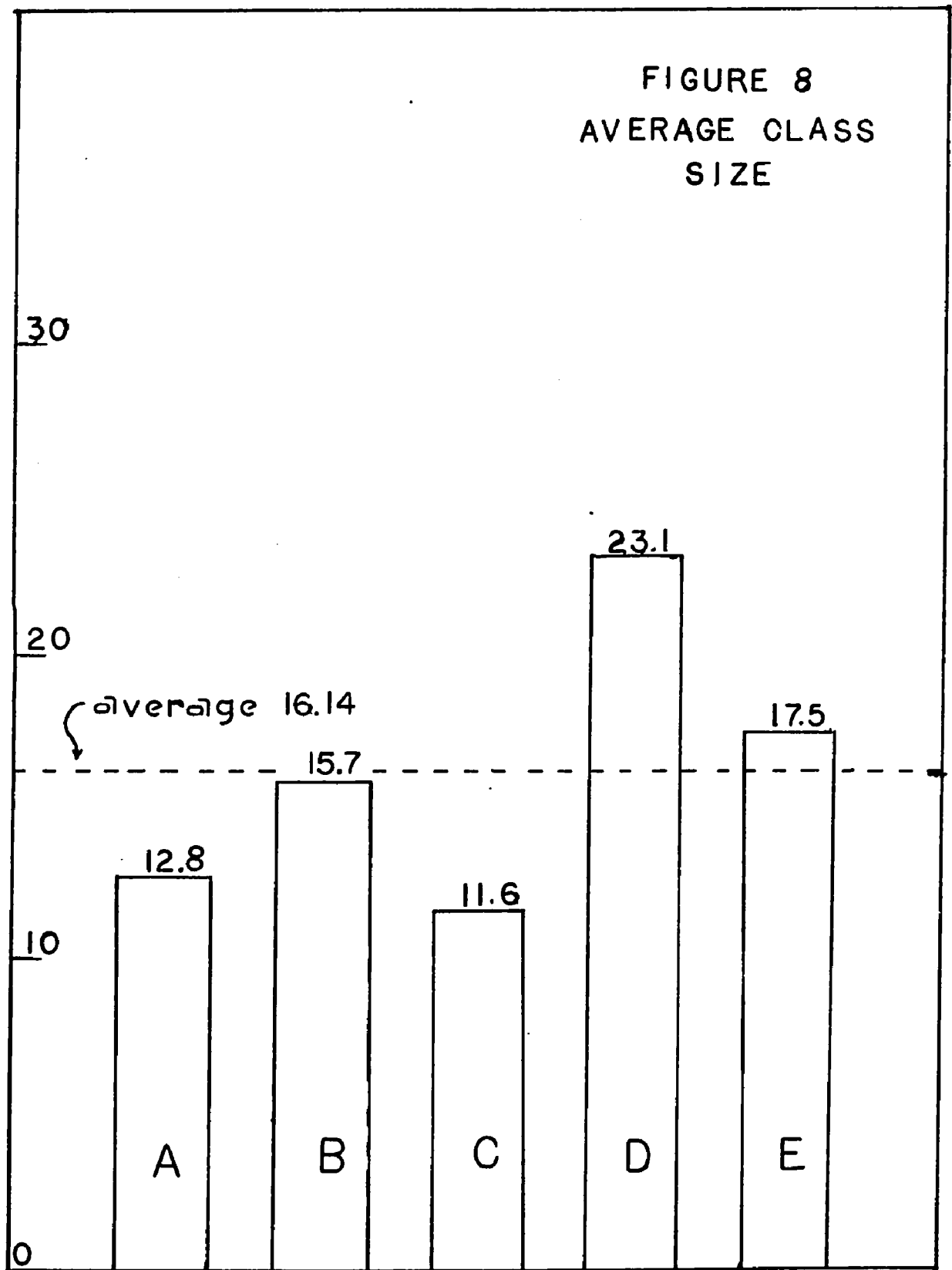
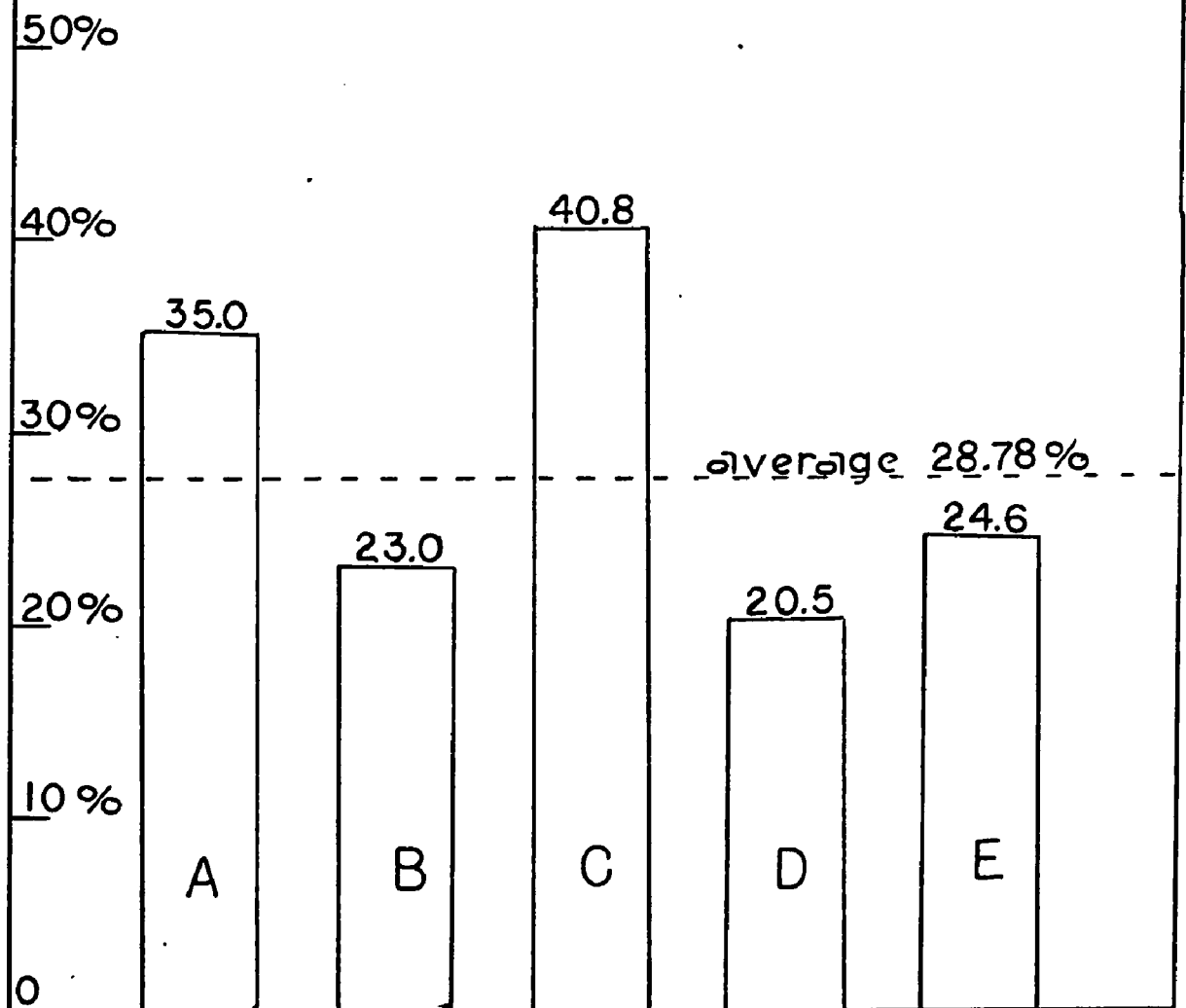
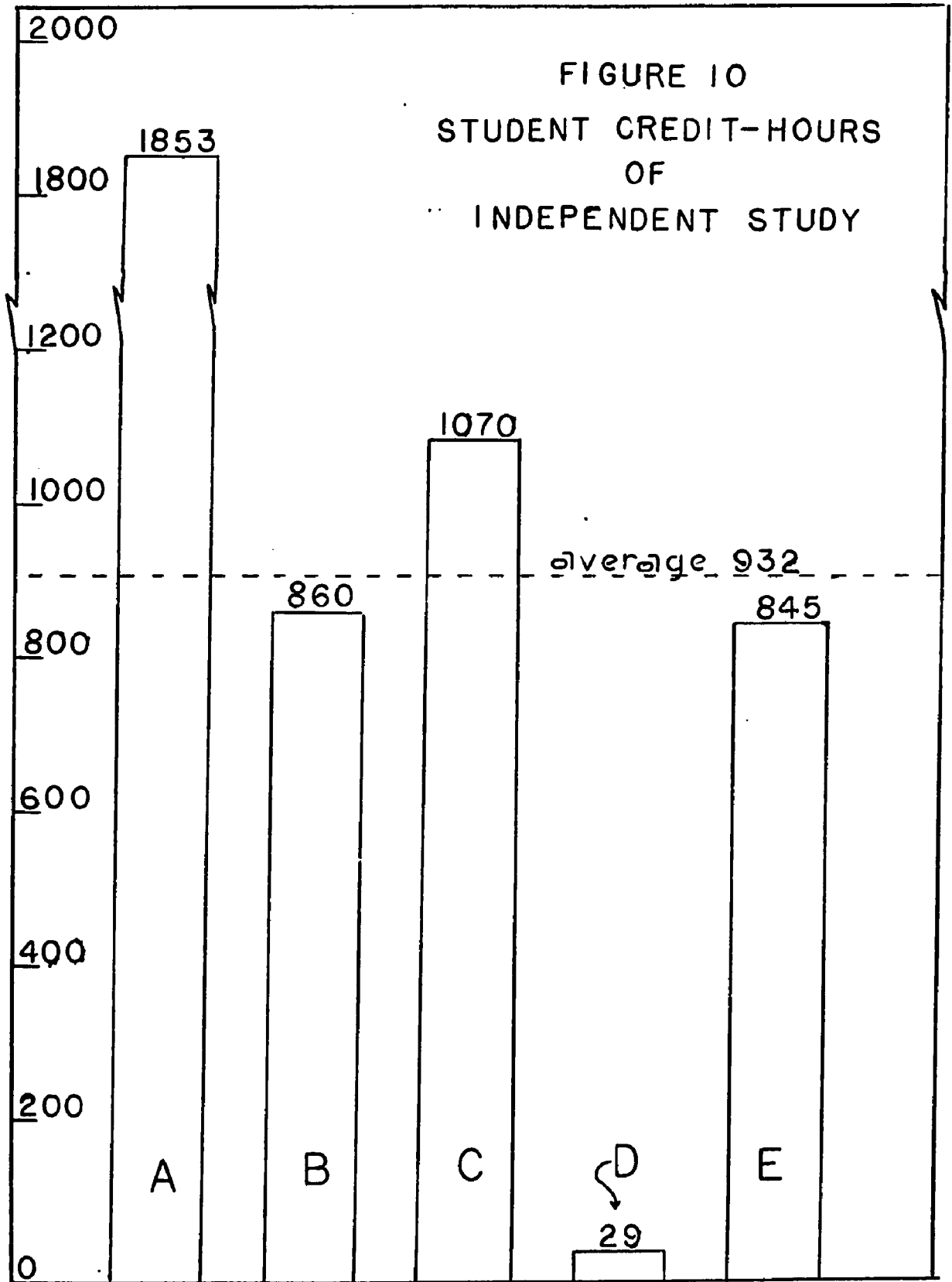
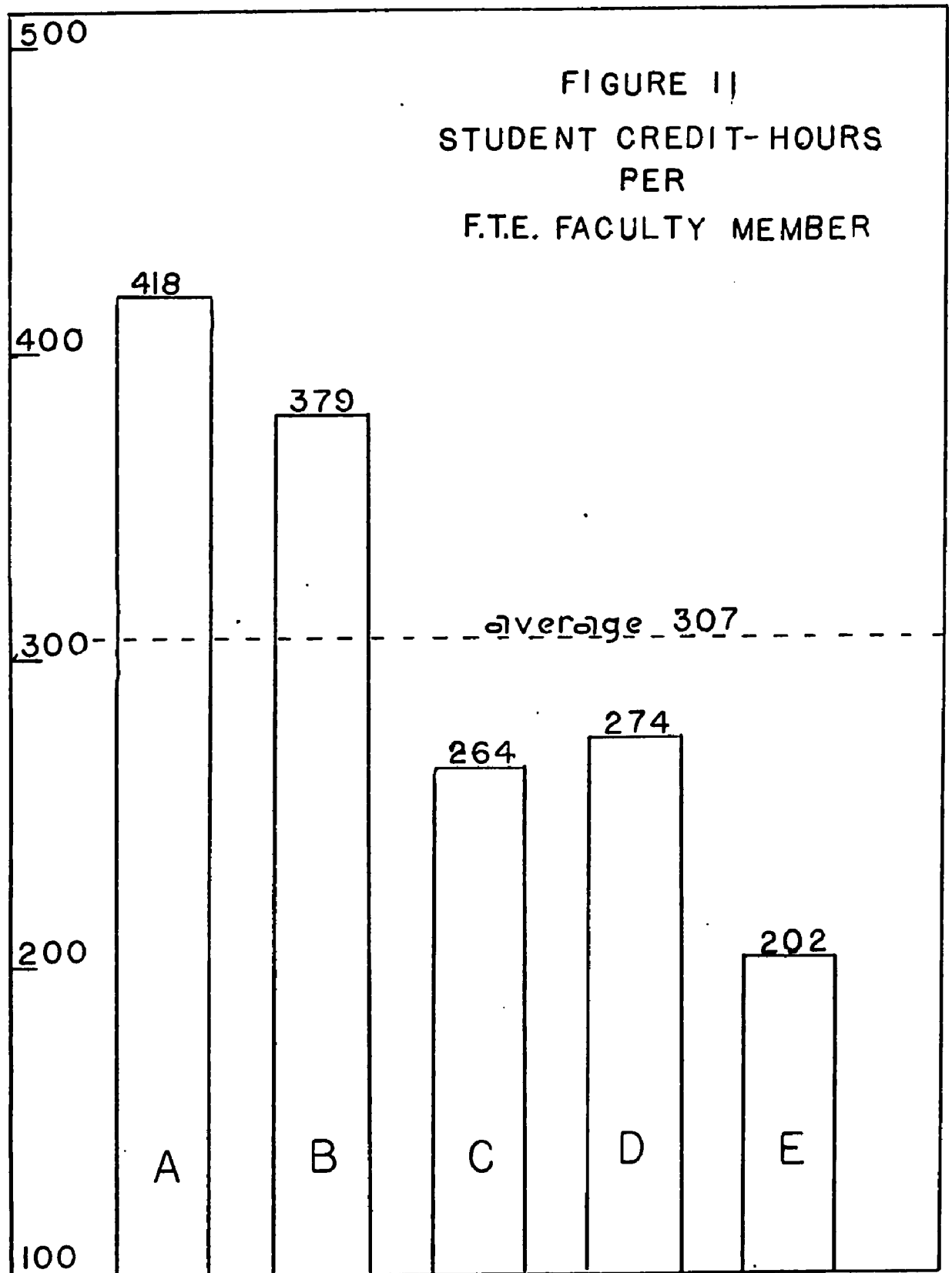
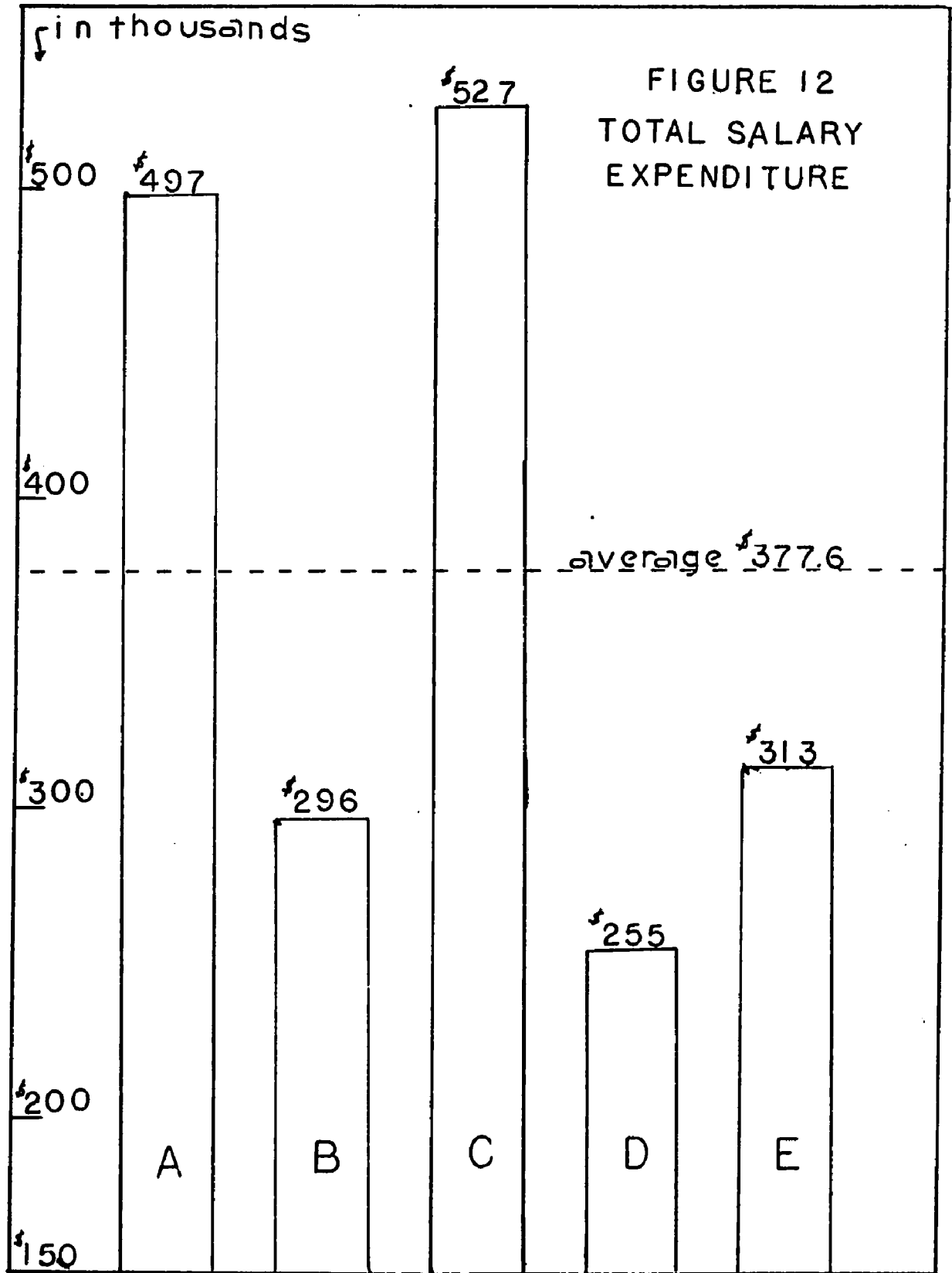


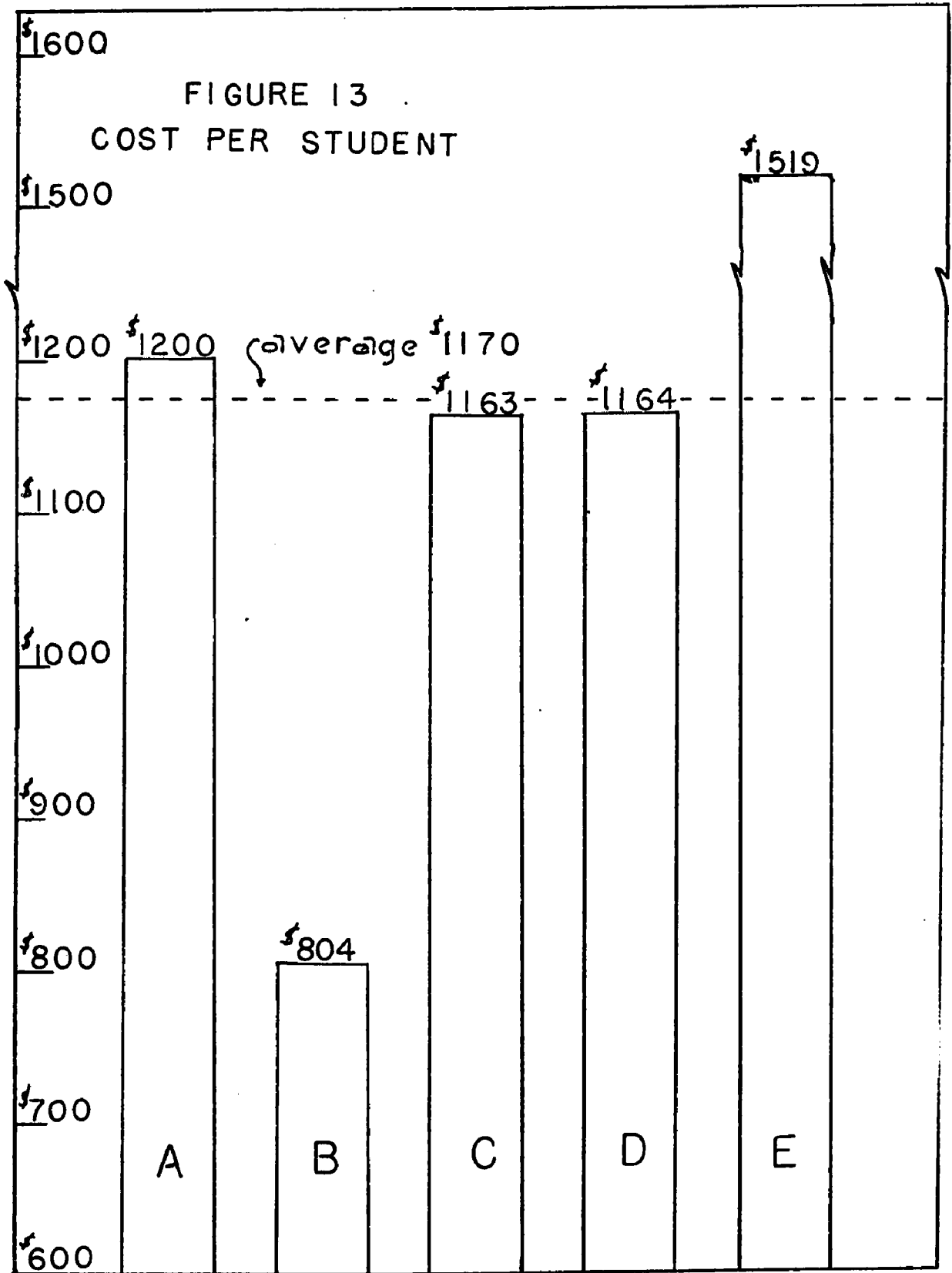
FIGURE 9
PERCENTAGE OF CLASSES
WITH
TEN OR LESS STUDENTS

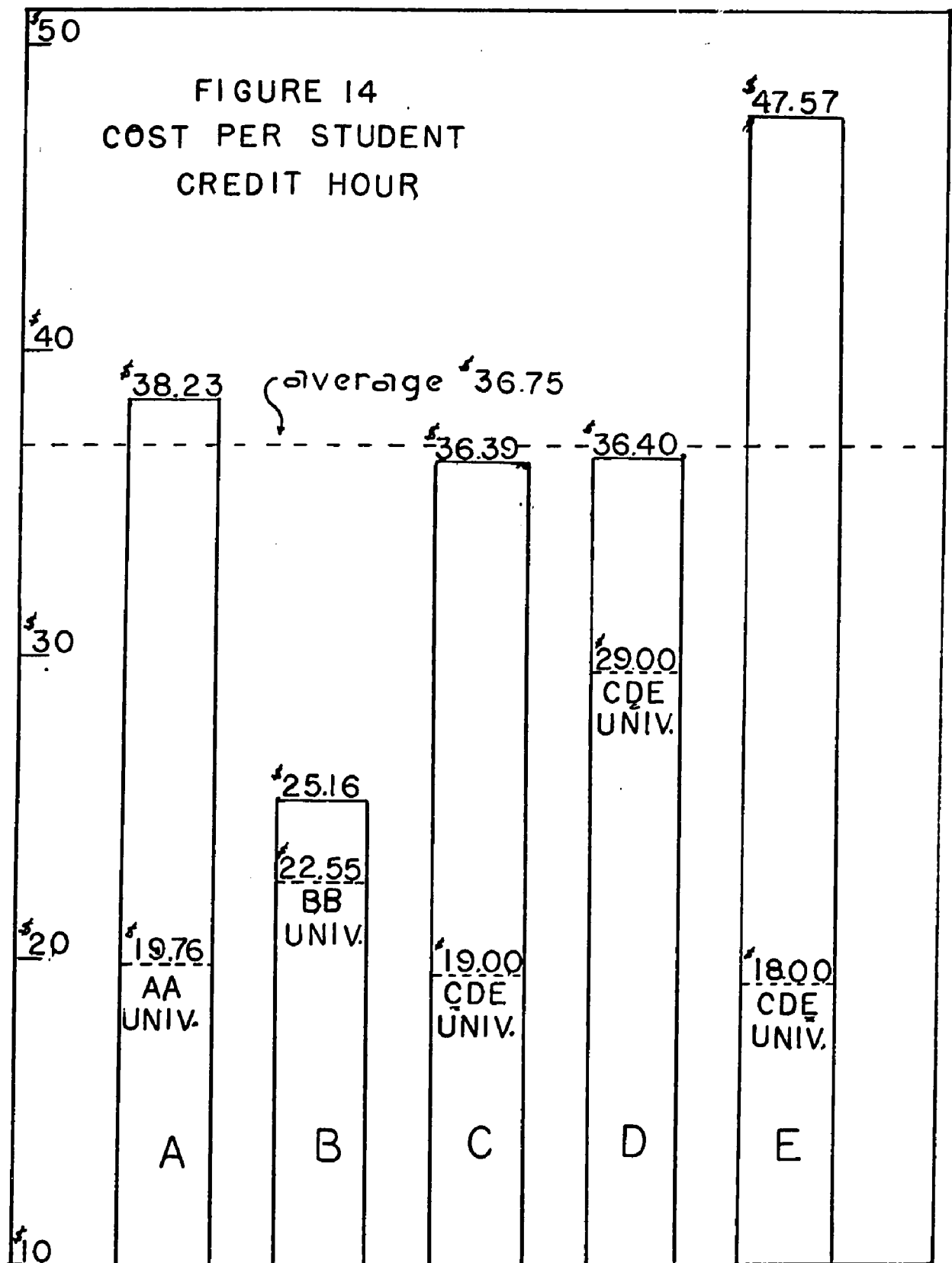


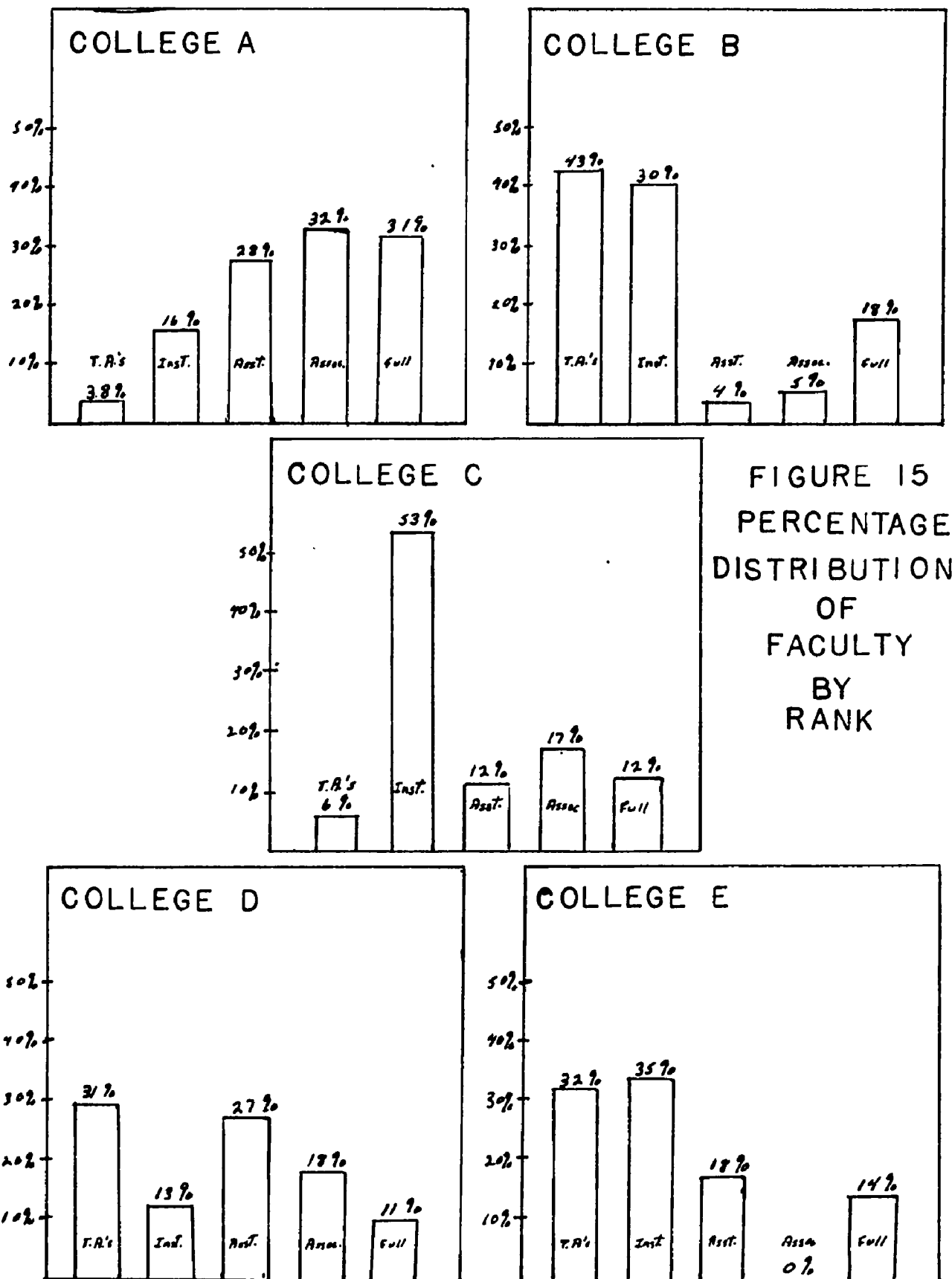












APPENDIX B
CORRELATION COEFFICIENTS

CORRELATION OF
FACTORS FOR 5
CLUSTER COLLEGES
'69-'70

VARIABLE	FTEF	FTES	F/SRAT	CRS CH	CCH/ST	CL CH	SCH
FTEF	1.0000						
FTES	0.7705	1.0000					
F/SRAT	-0.1000	0.5420	1.0000				
CRS CH	0.8077	0.5702	-0.2859	1.0000			
CCH/ST	0.1924	-0.3516	-0.9064	0.5507	1.0000		
CL CH	0.8689	0.9789	0.4055	0.6058	-0.2697	1.0000	
SCH	0.7756	0.9998	0.5309	0.5866	-0.3348	0.9782	1.0000
CLSIZE	-0.8589	-0.8742	-0.2659	-0.5693	0.1333	-0.9209	-0.8715
SMCLSS	0.9384	0.8163	0.1133	0.5760	-0.1179	0.9155	0.8147
IS	0.5413	0.6833	0.4690	0.0588	-0.4877	0.7259	0.6696
SCH/F	-0.0459	0.5800	0.9893	-0.2506	-0.8782	0.4499	0.5683
SAL	0.8831	0.8275	0.2237	0.4601	-0.2512	0.9187	0.8227
SAL/ST	0.0556	-0.4800	-0.6812	-0.2193	0.3400	-0.2956	-0.4860
COST	0.0591	-0.4632	-0.6535	-0.2359	0.3069	-0.2789	-0.4699
	FTEF	FTES	F/SRAT	CRS CH	CCH/ST	CL CH	SCH

Abbreviations:

FTEF - Full-time Equivalent Faculty

FTES - Full-time Equivalent Students

F/SRAT - Faculty-Student Ratio

CRS CH - Course Credit Hours

CCH/ST - Course Credit Hours Per Student

CL CH - Class Credit Hours

SCH - Student Credit Hours

CLSIZE - Class Size

SM CLSS - Percentage of Small Classes (10 or less)

I.S. - Independent Study Credit Hours

SCH/F - Student Credit Hours Per Faculty Member

SAL - Total Salary Expenditure

COST - Cost Per Student Credit Hour

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